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DRAFT FINAL REPORT FOR A MANPOWER  
PLANNING MODEL FOR LIGHT RAIL TRANSIT  
OPERATIONS FOR THE  
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

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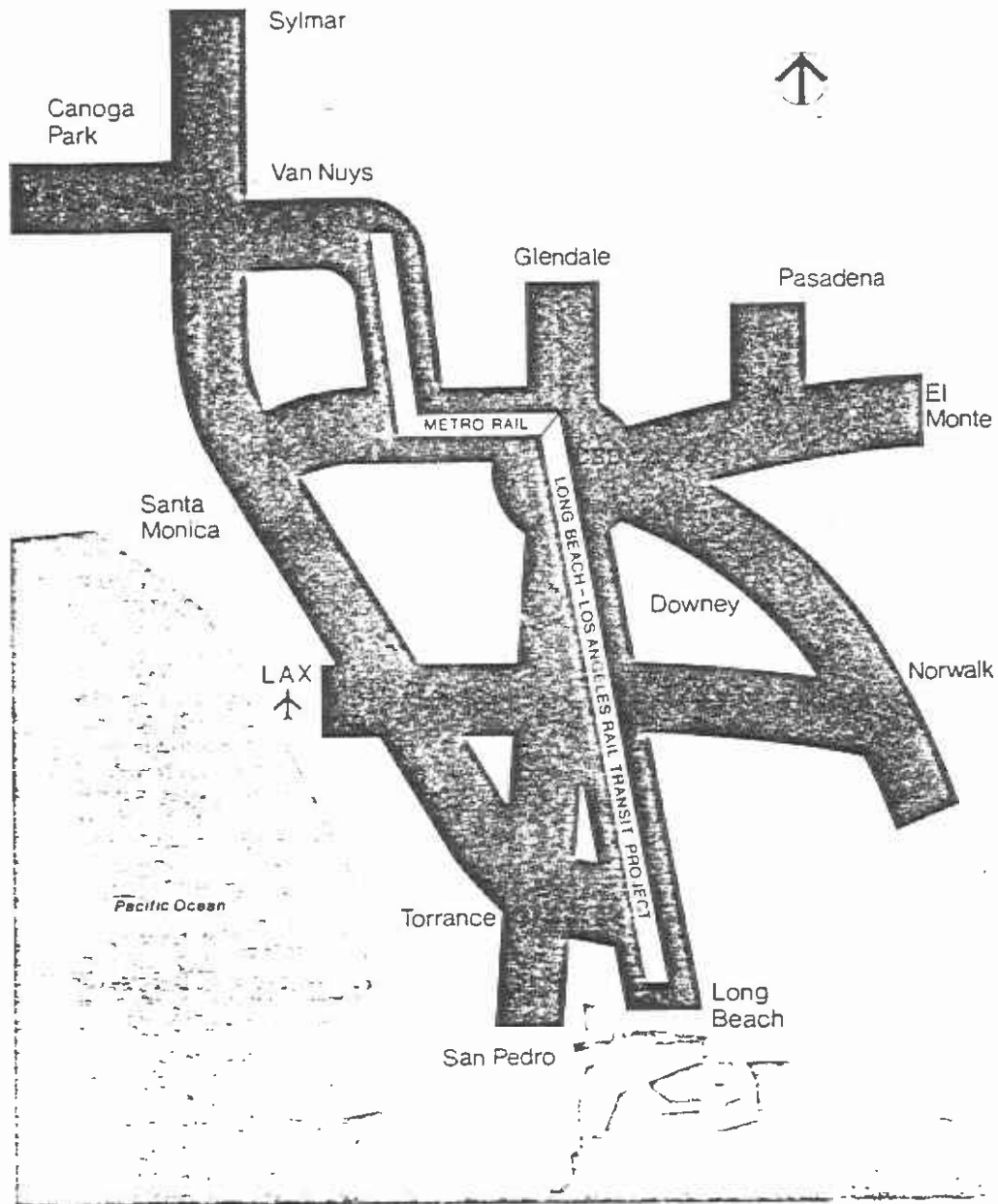
## 1. INTRODUCTION

This project has been undertaken by the Southern California Rapid Transit District (RTD) to examine staffing requirements for the startup of light rail transit (LRT) operations by the RTD, and in particular, to develop a manpower planning model for LRT operations that could be effectively applied in the future by the District to update staffing requirements estimates.

### 1.1 REGIONAL RAIL TRANSIT DEVELOPMENT

In November of 1980, the voters of Los Angeles County approved Proposition A, which authorized the collection of a one-half percent sales tax in the County for the dual purpose of subsidizing bus transit fares and the construction of a regional rail transit system serving a number of corridors in the metropolitan area. Proposition A specified that a minimum of 13 rail transit corridors be implemented (see Figure 1-1), and it further specified that construction should proceed in an expeditious manner using available existing rights-of-way where possible. Legal challenges regarding the constitutionality of Proposition A were engaged and the issue was resolved in favor of the proposition in May, 1982. Collection of the sales tax revenues began on July 1, 1982. Beginning in July of 1985, 35 percent of the revenues collected (approximately \$100 million per year) are required to be allocated for purposes of rail transit system construction.

High priority corridors were selected by the Los Angeles County Transportation Commission (LACTC) for system development, some with transit system projects already defined for them. The Metrorail project already underway by the RTD would serve the regional core of the County and would constitute a central focus



PROPOSITION A RAIL  
TRANSIT CORRIDORS

*Figure 1-1*

of the entire regional system. The El Monte Busway already in operation in the San Bernardino Freeway corridor by the RTD, would continue to function with its present bus-on-freeway configuration. The Century Freeway transitway is currently proceeding through engineering design, in conjunction with the design and construction of the freeway which has begun under the jurisdiction of Caltrans. Additionally, Caltrans is in the process of design analysis for an elevated transitway along the Harbor Freeway.

Of the remaining corridors identified for system development, the Long Beach to Los Angeles corridor was selected as the first rail transit project to be implemented by the Commission. The project could be built in a relatively short period of time, and also because it could be funded solely through the use of Proposition A revenues. Studies are currently being initiated for the development of the San Fernando Valley and East Los Angeles transit corridors. Transit projects for other regional corridors have not been defined or assigned priorities to date.

#### 1.2.1 Long Beach-Los Angeles Rail Transit Project

In late 1982, the Commission began its planning process for the Long Beach-Los Angeles Rail Transit Project with the initiation of detailed route evaluation and environmental work. The project was defined in three major segments--downtown Los Angeles, mid corridor, and Long Beach--and alternatives were analyzed for each of these three segments. A Draft Environmental Impact Report (DEIR) for the rail transit line was issued in May, 1984. A series of public hearings followed to obtain public review and comment. As a result of comments received at the Long Beach public hearing and at the request of the Long Beach City Council, a supplemental DEIR was prepared for the analysis of three

additional routes in the Long Beach segment of the project.

Figure 1-2 summarizes the timetable for project development. In March of 1985, the Commission approved the startup of the entire project and final design work was commenced. It is planned that construction activities will begin in 1986. Following the Commission's decision, a further route refinement in the mid-corridor segment of the project was identified responding to concerns centering on the impact of future freight rail traffic in the Compton area. Resolution of this route refinement issue is expected in early 1986 although this should have no impact on the overall project schedule. The Commission is responsible for the design and construction of the project, but when completed, operation of the system will be the operation responsibility will be transferred to the RTD.

The Long Beach-Los Angeles Rail Transit Project is 21 miles in length with 22 stations (see Figure 1-3), and it incorporates a conventional light rail vehicle technology. The transit line is a two-track system, powered from overhead electrical catenary wires. Vehicles will be 6-axle, articulated, approximately 90 feet in length, with a maximum capacity of 200 passengers each. Thirty-two vehicles will be initially purchased, and they will be linked into two car trains. The vehicles will be similar in design and appearance to those being used on the San Diego trolley and San Francisco MUNI systems.

The system will operate in subway in downtown Los Angeles, under Flower Street, between 7th and 12th Streets. South of 12th Street, a reserved median will be provided, with stations located in the center of the street. In the mid-corridor, the system will be primarily located on existing Southern Pacific right-of-way, operating at-grade. In Long Beach, the system will be located

FIGURE 1-2

LONG BEACH / LOS ANGELES RAIL TRANSIT PROJECT SCHEDULE

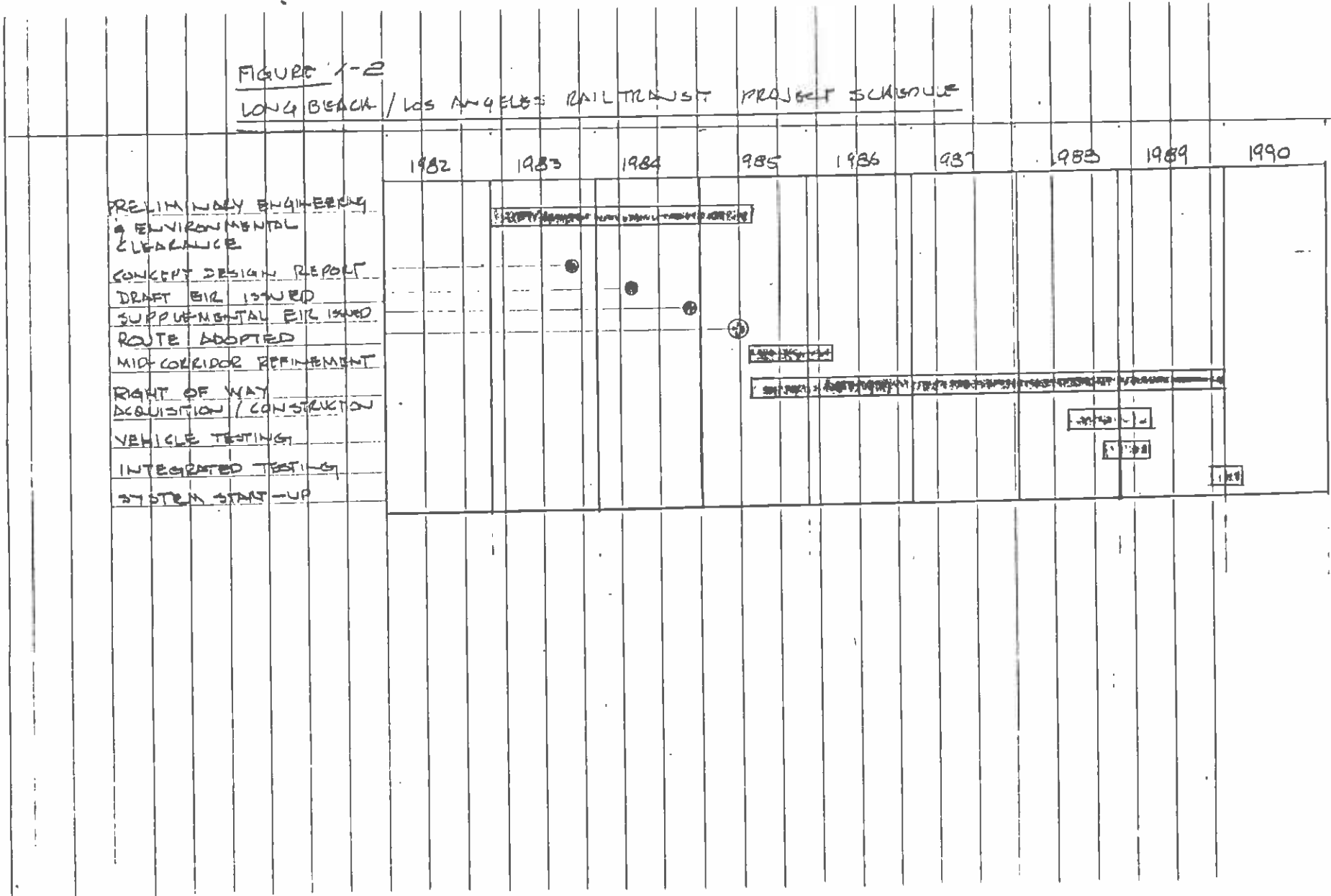
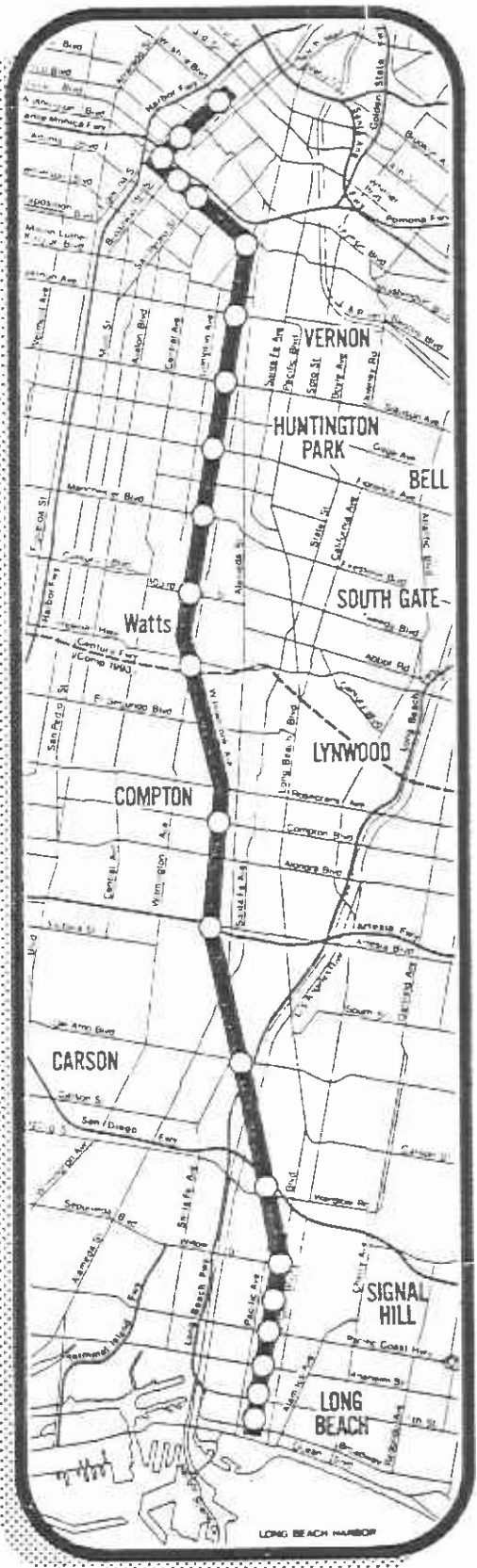


Figure 1-3  
LONG BEACH-LOS ANGELES LIGHT  
RAIL TRANSIT LINE





at-grade in a reserved lane next to a planted median on Long Beach Boulevard. Stations will be located in the median in the center of the street.

The preliminary staffing plan for the Long Beach-Los Angeles LRT line has been based on key system design information supplied to the SCA project team by the Commission. Specifically, much information has been obtained from the following reports.

- o Draft Environmental Impact Report for the Long Beach-Los Angeles Rail Transit Project, prepared by the LACTC and dated May, 1984.
  
- o Draft Operations and Maintenance Plan for the Long Beach-Los Angeles Rail Transit Project, prepared by Parsons Brinkerhoff/Kaiser Engineers for the LACTC and dated November, 1983.

Additionally, selected information was obtained directly from Commission Management representatives, from site visits to the proposed main yard and selected station locations, and from selected reports describing the operation of the Pacific Electric Long Beach line discontinued in 1962. The Commission is currently updating its project description materials to reflect recent design and construction decisions. Staffing requirements for operations and maintenance functions for the Long Beach-Los Angeles LRT line are dependent on system operating and design characteristics. In the following locations, operating and system design factors which have significantly affected staffing requirements are discussed.

TABLE 1-1

LONG BEACH-LOS ANGELES LRT SYSTEM  
OPERATING CHARACTERISTICS

Approximate Time Period	Headway (Minutes)	Number of Trains
<u>Weekday</u>		
6:00 a.m. - 9:00 a.m.	10	12
9:00 a.m. - 3:30 p.m.	15	8
3:30 p.m. - 6:30 p.m.	10	12
6:30 p.m. - 11:00 p.m.	20	6
11:00 p.m. - 6:00 a.m.	40	3
<u>Saturday</u>		
7:00 a.m. - 7:00 p.m.	15	8
7:00 p.m. - 11:00 p.m.	20	6
11:00 p.m. - 7:00 a.m.	40	3
<u>Sunday</u>		
7:00 a.m. - 11:00 p.m.	20	6
11:00 p.m. - 6:00 a.m.	40	3

### 1.1.2 Level of Service Operated

For staff requirements planning, it has been assumed that the line will operate 24 hours daily, Sunday through Saturday. The level of service operated will vary by time of day and day of the week as shown in Table 1-1. This operating plan may differ from preliminary plans developed by the Commission, but is believed to be consistent with the RTD's preliminary operations planning, particularly, with regard to 24 hour operations. It is planned that two-car trains will be operated at all times although single cars might be employed during owl hours and at other times when justified by light ridership levels.

Train requirements are based on a round trip running time of between 105 and 108 minutes plus six minutes at each terminal for turnaround time. These times are based on the alternative described as (LA-2, MC-1, LB-4) in system description information provided by the Commission. If these assumed times require significant adjustment, either the calculated train requirements or the frequency of service will need to be changed from the values shown in Table 1-1. With the assumed operating characteristics, 12 two-car trains will be required to maintain peak period schedules. It is also planned that a gap train will be stored at each terminal to protect the scheduled service frequency and to replace trains requiring repair. Therefore, the maximum number of trains required is 14 and the maximum number of cars for peak period service is 28.

### 1.1.3 Yard and Shop Facilities

The main yard for the Long Beach-Los Angeles LRT line is planned for a site adjacent to the line situated approximately 3.8 miles from the downtown Long Beach terminal of the line. The site is bounded to the north by Compton Creek, to the east by the Los Angeles River, to the west by the Long Beach Freeway, and

on the south by Carson Street. The LRT line will run through the site on the former Pacific Electric Railway/Southern Pacific Railway right-of-way in a southeasterly-northwesterly direction, intersected by a Union Pacific single track running in a northeasterly-southwesterly direction at Dominquez Street and Long Beach Freeway. The yard will be split on both sides of the mainline track. The elevations of the mainline tracks and of the yard and shop tracks are different with the mainline tracts at a higher elevation by roughly 20 feet.

It is also planned to provide a satellite yard for car storage and light maintenance at the opposite end of the rail line from the main yard. The satellite yard has been proposed for a location approximately 3.1 miles south of the Los Angeles terminal at Seventh and Flower. This facility would be used for the storage of approximately 14 cars employed for peak period service only, so that deadheading to and from the main yard could be minimized. The project team strongly believes that the satellite yard is a mistake for the startup of Long Beach-Los Angeles LRT line that, if built, will result in additional staff requirements not currently being considered by the Commission.

#### 1.1.3.1 Main Yard

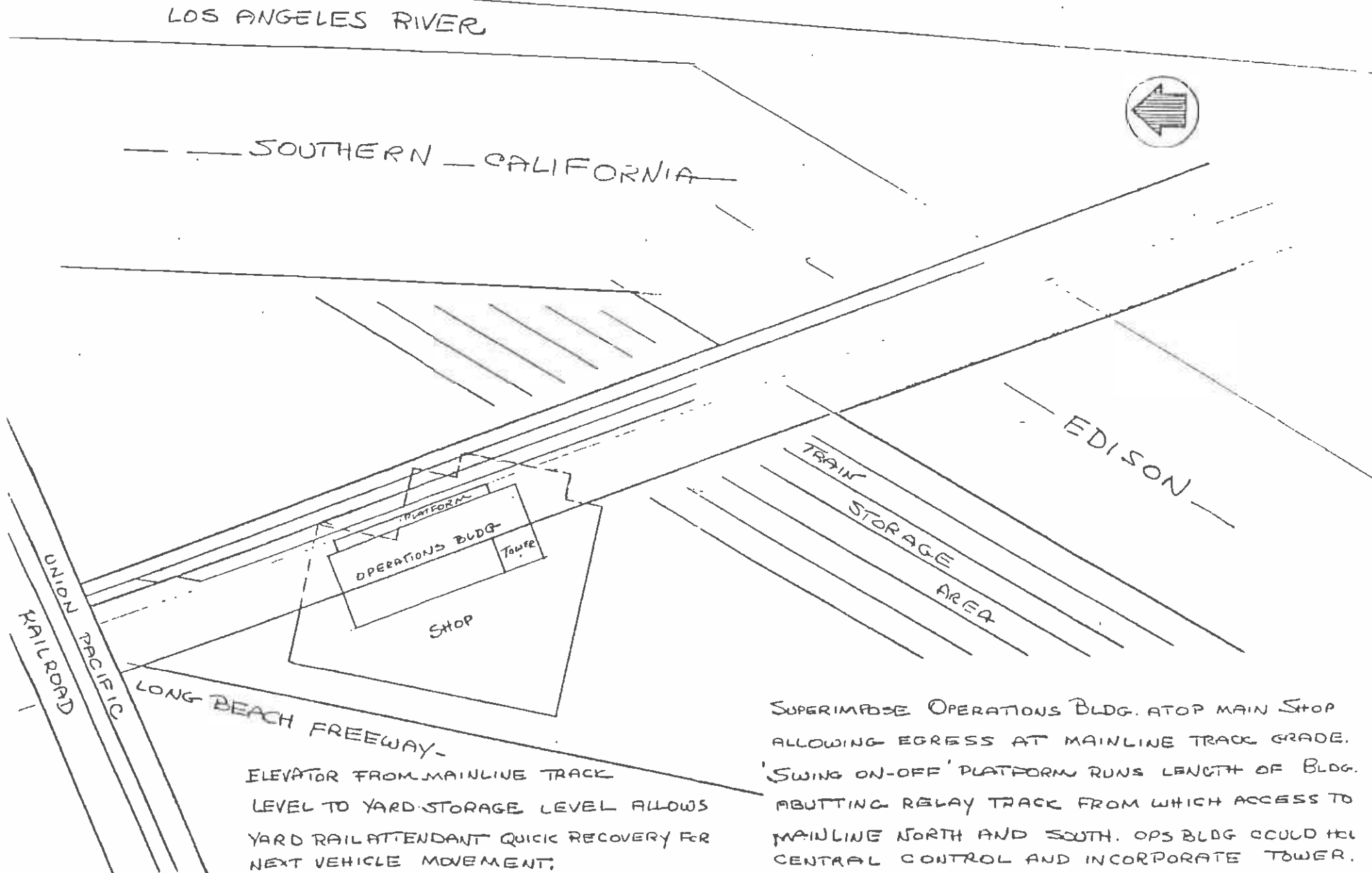
The layout of the main yard can significantly impact operating costs. In particular, the yard layout should provide for the efficient utilization of train operators in starting and ending their daily work assignments. In preliminary plans reviewed by the SCA project team, line operators will pick up trains in a 'meet and greet' area adjacent to the proposed operations building in the western corner of the yard. Trains will be pulled out into service in either direction on the mainline. For trains being taken out of service, the same procedure will be experienced in reverse ending with yard operators moving

the train to its storage location. This approach results in line operators being paid for some vehicle deadheading time which might be done by yard operators working on the clock. To relieve a line operator at the end of his or her work run, the proposed layout requires that (a) a train be pulled out of service at one of the terminals by the operator being relieved while a second train is pulled out into service at the same time by the relief operator, or that (b) a shuttle train be employed to transport that operator making the relief and the operator being relieved to and from the main yard.

To avoid additional operating costs that might result from the proposed approach, the development of a 'station' at the yard to be used only by line operators at the start and end of their work shifts is suggested. The 'station' might be implemented as a simple platform to be used for making line operator reliefs. Relief operators would walk (or perhaps be shuttled) from the operations building to the platform on the mainline. Operators being relieved would be paid travel time to return to the operations building in a similar manner. This approach would avoid making more costly reliefs at the line terminals or at the Del Amo or Wardlow stations. The second approach to providing this station is illustrated in Figure 1-4. Under this layout, the operations building would be superimposed on top of the shop structure at the elevation of the mainline tracks. A platform area able to accommodate 1-2 trains would be constructed parallel to the face of the building, abutting a yard relay track from which access to the mainline both north and south would be readily attained. With the operations and maintenance functions combined in a single building, it would also be possible to house central control operations at this location. This would serve to consolidate both yard and mainline control at the same location which could provide significant economies for

Figure 1-4  
 POSSIBLE OPERATIONS  
 BUILDING LAYOUT

(CFO-5-16-55)



system administration, operations and maintenance, supervision; and security functions for the Long Beach-Los Angeles LRT line.

The feasibility of this approach needs further investigation. It may be necessary for the mainline tracks to be elevated to cross the Union Pacific line that traverses the main yard site. In this case, there would be significant constraints for the development of the consolidated operations and maintenance building as described.

#### 1.1.3.2 Satellite Yard

For LRT operations in the near term future, the SCA project team believes that the proposed satellite is not necessary and, more, importantly, may result in significantly increased operating costs for the District in the longer run. While it is planned that the yard will not require additional staffing, experience from other rail system operators in North America strongly suggests that this will not be the case.

The satellite yard would result in reduced deadheading travel costs. Deadheading from the main yard to the Los Angeles terminal requires an estimated 36 minutes running time plus time for pulling from the relay track at the main yard, say two minutes. Returning the train to the yard would require the same time. With the satellite yard, time would be required to put a train into service as follows.

1. After signing on at the Los Angeles terminal with the assigned supervisor, the attendant would be paid to travel to the storage. If this were done by train, the time would be (one-half of the scheduled train headway plus the train running time to the storage yard) which

is estimated to be 16.5 minutes. If this were done by auto, it is possible that this time might be shortened depending on the availability of parking at both locations.

2. At the yard, time would then be needed to locate and board the train, perform a safety check, establish contact with control for switching onto the mainline, and pull out of the yard onto the mainline. This time may be estimated as five minutes. Then, the train is deadheaded to the Los Angeles terminal, requiring approximately 6.5 minutes.
3. The total time to retrieve a train from the storage yard after reporting is 28 minutes, assuming that the estimated times are correct. Returning the train to the yard would require approximately the same time.

Using the satellite yard for eight trains per day (four in the a.m. peak period, and four in the p.m. peak period) would result in operating cost savings of 128 minutes per day or 540 hours annually--this amounts to approximately \$8,100 per year. However, these cost savings may be eliminated by added costs for:

- o Security necessary for vehicles stored overnight at the yard.
- o Upkeep of the yard, including switches and signals.
- o Travel time for S&I maintainers to and from the satellite yard.
- o Travel time for moving trains to and from the satellite yard for vehicle maintenance activities other than S&I work.



Other operating strategies might be implemented that would change the magnitude of potential operator cost savings. However, the use of this yard for the initial operation of the Long Beach-Los Angeles LRT line adds to the complexity of operations and will most likely result in higher operating costs regardless of the method of operating to and from the yard. With the expanded operations from this yard, increased rail attendant cost savings would result that could make the use of the yard preferred. For example, attendant cost savings would increase to over \$40,000 annually if 40 trains per day were operated from the yard (requiring storage space for 20 trains).

It is currently planned to provide tail tracks beyond the 7th and Flower station with space for four cars on each of the two tracks. This track will be used to store a two-car gap train and may be used for the temporary storing of trains taken out of service needing 'emergency' repairs. It may also be necessary for trains changing direction to use the tail tracks. It is possible that the rail tracks could be employed for some of the uses planned for the satellite yard, including peak period train storage and light maintenance. To be cost effective, it would be necessary to extend the tail tracks to provide for increased vehicle storage. An extension of approximately 800 feet would provide storage for an additional 20 cars at this location. The cost of this extension could not be justified on the basis of reduced operating costs.

#### 1.1.4 Operating Systems

The Long Beach-Los Angeles LRT line will incorporate operating systems for electrification, signaling and communications, security, and fare collection which must be maintained by District personnel. The level of effort required for inspection and both preventative and corrective repair activities depends on

the specific design characteristics for each of these systems and its components. In some cases, these characteristics have not yet been finalized by the Commission. In other cases, actual experience following installation and operation will govern inspection and repair requirements. For the Long Beach-Los Angeles LRT line, the following factors have to be considered in examining operating systems maintenance functions.

- o Length of time: the line consists of 21 miles of two-way track which needs to be maintained. Also, the distance will affect requirements for supervisory and repair personnel where 'emergency' response times are of concern.
  
- o Block signal system: train operators will be controlled by an automatic block signal system similar to systems typically used for rail freight operations. With this type of system, each train's location on the line may be detected and train operations are controlled by the colored light aspect displayed on the governing signal mast. A number of modern rail transit systems, including those for which comparative data was obtained as part of this study, employ more sophisticated train control systems.
  
- o Grade Crossing Signals and Gates: approximately 38 locations along the line will require signal and gate systems, which are similar in many respects to the train signal system being planned. At some locations, it may be necessary to synchronize train control signalization with grade crossing signal systems.
  
- o Fare Ticketing and Validation System: the line will be operated with

barrier-free stations and self-service fare ticketing and validation similar to the approach used in San Diego.

## 1.2 URBAN RAIL MANPOWER PLANNING SYSTEM (URAMPS)

A microcomputer-based modeling system, designated URAMPS, has been developed for estimation of staffing requirements for the Long Beach-Los Angeles LRT line. The model provides considerable flexibility for the specification of LRT operating characteristics so that it may be applied with some confidence for manpower planning for other LRT lines to be developed in the Los Angeles metropolitan area.

URAMPS consists of three modules -- train scheduling, organization and staffing, and hiring. The first module was developed under this project to provide estimates of the number of train hours and number of car hours resulting from an operating schedule specification. As input to the module, the user provides information regarding line running times, yard location, hours of service, headways operated by time of day, and number of cars per train. Using this information, the module generates train operating schedules (including any required deadheading trips). For manpower planning purposes, the module calculates the number of train hours and car hours which are then used for later manpower computations.

The Organization and Staffing module represents the core of URAMPS. It permits the user to define organizational structures and staffing levels based on operational characteristics and other factors. With this module, the user has the complete freedom to define the following key variables which drive the calculations of operations, maintenance, and support manpower requirements.

- o Organization chart: definition of all departments and organizational units in the operating agency which will be employing personnel to operate the light rail system.
  
- o System characteristics: definitions of relevant system characteristics which may be used to determine the manpower required to operate the system. System characteristics may include such variables as number of stations, number of vehicles, and annual car miles traveled. The definition of system characteristic variables is completely up to the user's judgments, giving him or her the ability to describe the system at various levels of detail. For the Long Beach-Los Angeles LRT line, the necessary set of system characteristics has been investigated and incorporated in the module. In the future, a user may add, delete, or modify any of the system characteristics as needed.
  
- o Position specification: definition of the different positions necessary to operate the light system with each position defined through the following characteristics--department affiliation, union affiliation, position title, and salary classification. To determine the number of employees necessary for each position, each position can be defined as being one of the following:
  - a. Fixed position--the number of employees is determined outside the model and provided by the user to the program.
  
  - b. Variable position--the number of employees is calculated by the model as a function of up to three relevant system

characteristics.

- c. Dependent position--the number of employees is determined by the model as a function of the number of other employees (e.g., one supervisor per ten staff employees).

The third URAMPS module has been developed to relate the staffing requirements for operation of the line to the planned design and construction schedule. The hiring for each position is related to key system development milestones. Therefore, should the time schedule for system startup be modified, any impact of this change on hiring requirements can be immediately noted. As an additional output, the module provides summaries by quarter of the number of personnel required for each position which should be useful for budgeting purposes.

The URAMPS model is written primarily in BASIC 256K memory. The hiring module has been developed using the Multiplan product. System documentation is included as Appendix B of this report.

## 2. ALTERNATIVE ORGANIZATIONAL STRUCTURES

The anticipated addition of light rail transit (LRT) and eventually heavy rail transit (Metrorail) service within the RTD delivery area will result in substantial new administrative and operational functions. Consideration must be given to the manner in which these activities may be structured, to achieve operational objectives efficiently and with minimum disruption to the existing service delivery system. This analysis examines ways in which a number of transit agencies around the county have integrated bus and rail operations and recommends an approach suitable to meet RTD requirements.

### 2.1 REVIEW OF ORGANIZATIONAL APPROACHES

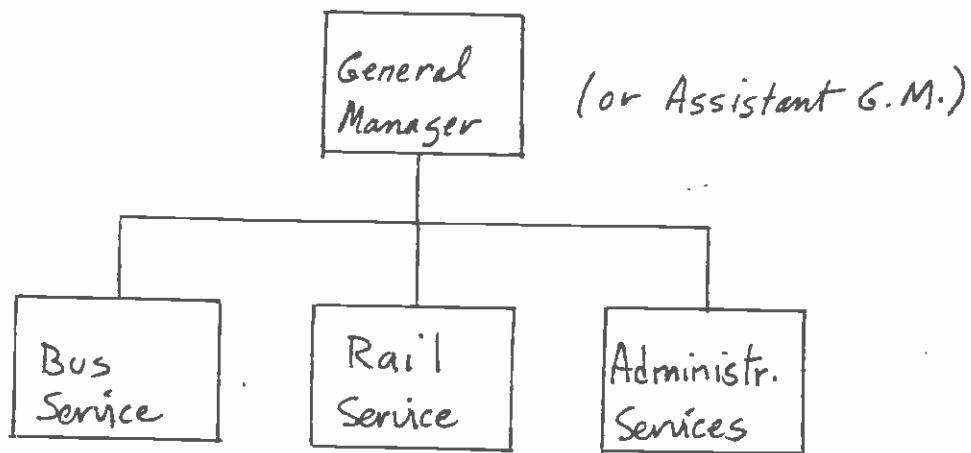
Information for this review was collected from transit operators in Chicago, Atlanta, San Francisco, San Diego, Calgary, the Lindenwold (N.J.) line serving Philadelphia, and Washington, D.C.. These transit operators include both light rail and heavy rail transit combined with bus operations, except in the case of the Lindenwold rail transit line.

Two general patterns emerge from this review, as illustrated in Figure 2-1. The diagram at the top portrays a system whose principal operational functions are administratively organized by mode. Clearly demonstrated support activities exist for both bus and rail systems. Other systemwide functions such as security, finance, legal, community relations, and construction and design are grouped separately from the two operating divisions, some reporting directly to the General Manager or standing as equivalent line divisions. The lower half of Figure 2-1 portrays a system organized totally along functional divisions (e.g., functional departments for maintenance, transportation, and general

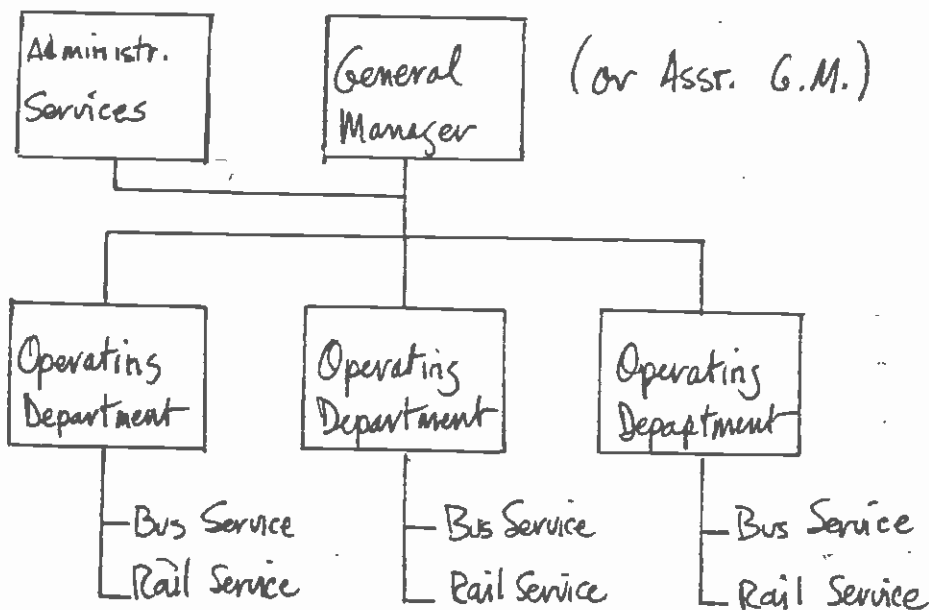
# Figure 2-1

## General Organizational Models

### MODAL DIVISION



### FUNCTIONAL DIVISION



administrative activities). In such cases, segregation of bus and rail operations (where applicable) occurs at a lower level in the organizational hierarchy, within each functional department.

Figures 2-2 through 2-8 represent simplified schematic representations of the organizational structures of the seven transit operators examined. This approach was taken to better present the elements of each system in a parallel fashion, thus minimizing differences in nomenclature and excessive detail that otherwise obscures the basic organizational patterns.

From this group, the Washington Metropolitan Area Transit Authority (WMATA) stands in clear contrast, due to its reliance on a segregation of responsibilities at the Assistant General Manager level, and the clear delineation of bus and rail services and principal line responsibilities. Operations and maintenance activities are grouped together organizationally by transit mode, while other departments are segregated by function.

The remaining cities examined for this study fall into a consistent pattern of functionally organized systems, with segregation of rail and bus operations occurring at various levels within individual functional departments as appropriate. The case of Calgary (see Figure 2-7) is particularly noteworthy, as both LRT and buses are housed in common garage facilities, and segregation of many responsibilities occurs at the working level within the garage.

## 2.2 SUMMARY OF FINDINGS

The experience of transit authorities in cities reviewed by this study suggests that an organizational alignment based principally on basic operating functions



Figure 2-2

Washington D.C.

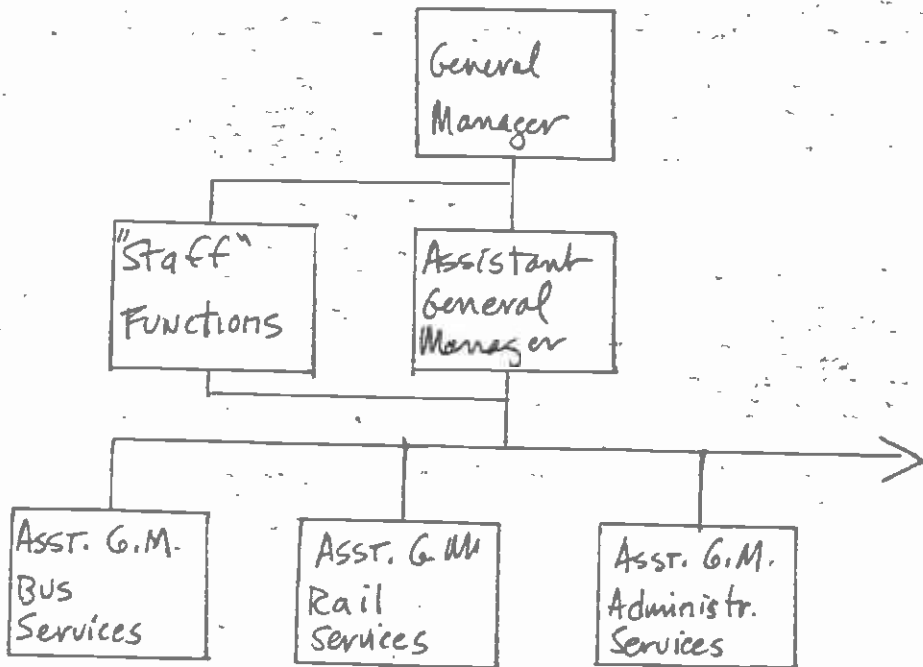


Figure 2-3.

Chicago, Ill.

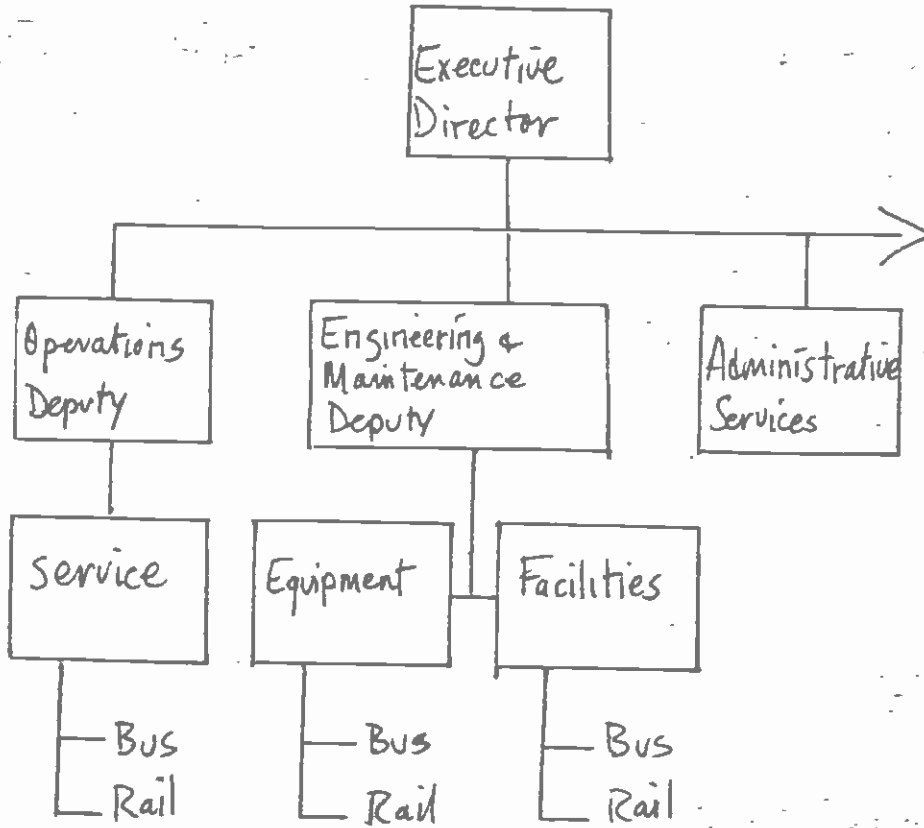


Figure 2-4

Atlanta, GA.

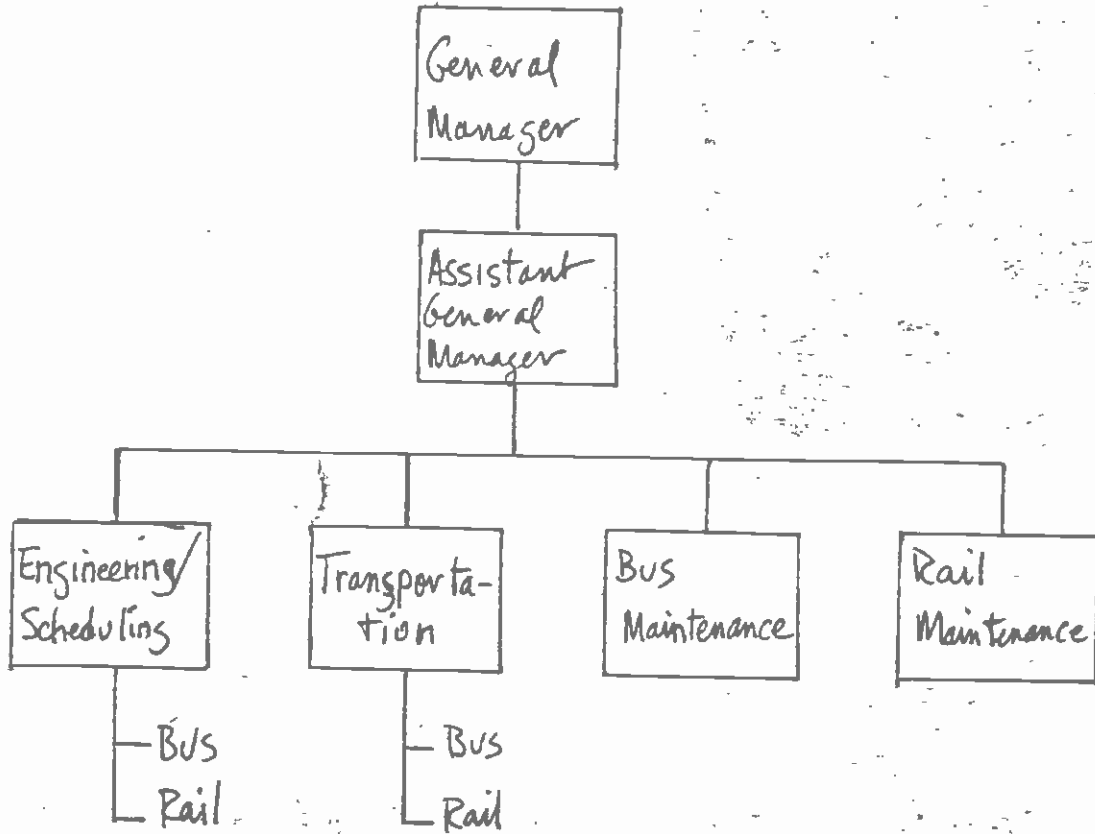
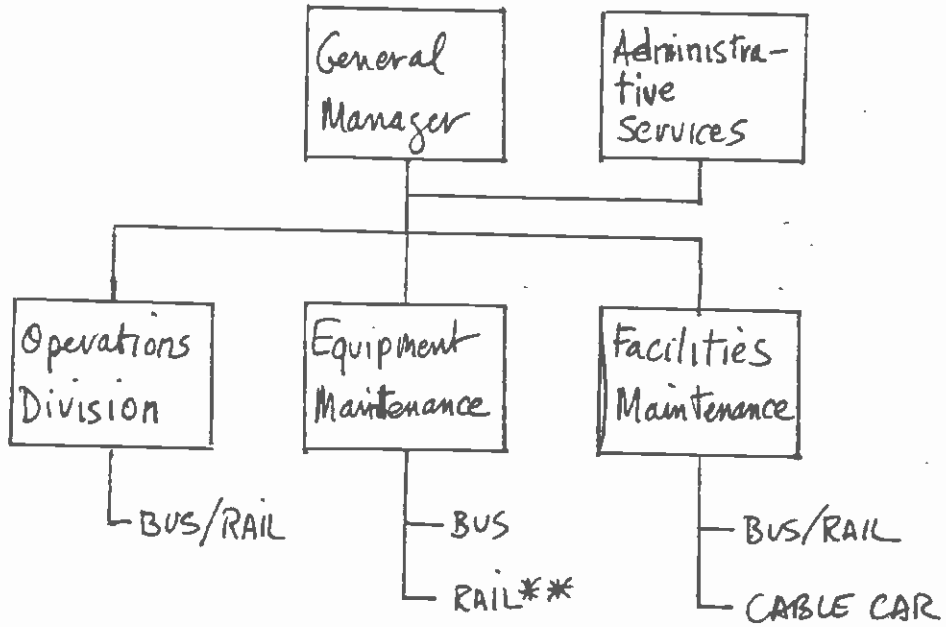


Figure 2-5

San Francisco, CA.\*



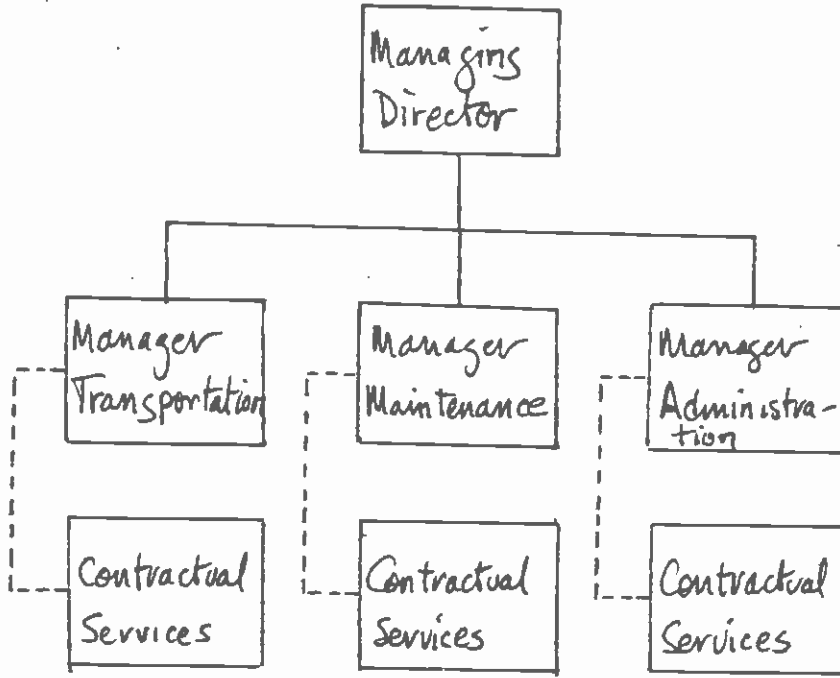
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\* Excludes Bay Area Rapid Transit

\*\* LRV's, trolleys, and Cable Cars

Figure 2-6

San Diego, CA\*

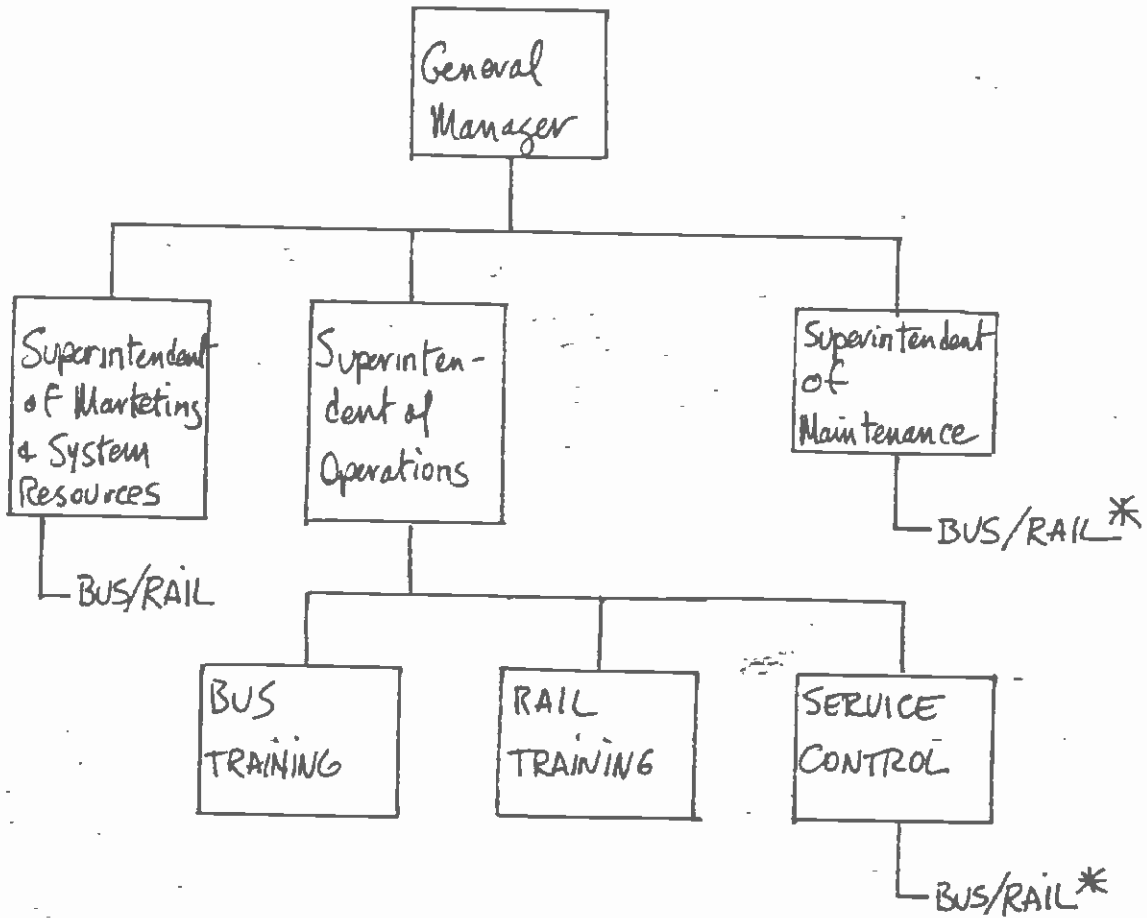


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\* LRV only

Figure 2-7

Calgary, Canada

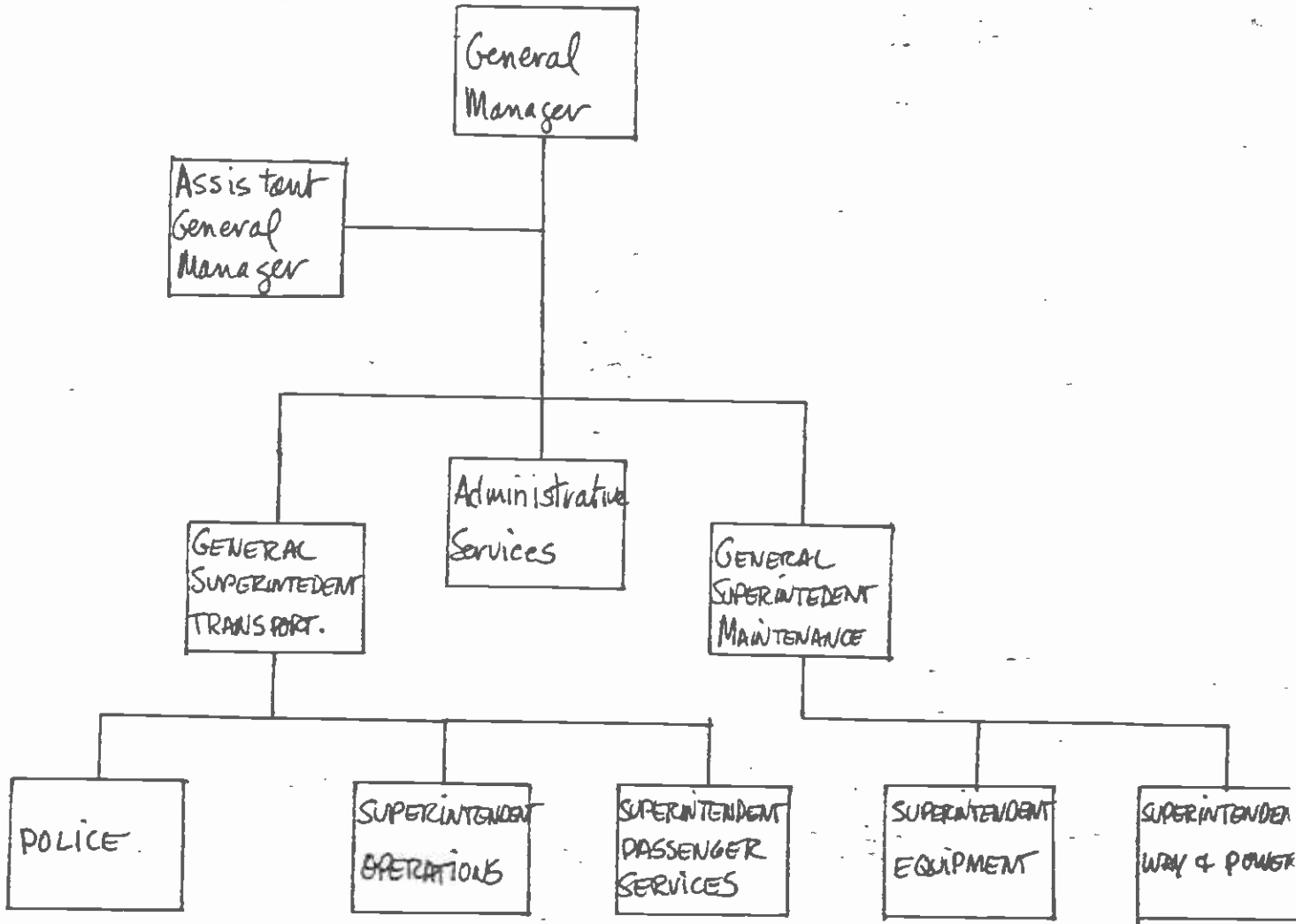


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\* Rail/Bus operations unified by garage

Figure 2-8

Lindenwold, NJ (Philadelphia)\*



\* HRT ONLY

is a widely practiced and preferred approach. The technical expertise and allocation of resources required to perform by functions such as equipment and systems maintenance, or transit operations, are most effectively managed as a discrete whole, with segregation of bus and rail systems occurring one or two levels deeper within the line operations of the organizational structures.

In contrast to this area of consistent behavior, it should be noted that the particulars of each organizational structure differ widely across the full set of cities examined there appears to be as many approaches to organizational structure as there are communities. The existence or lack of an Assistant General Manager; the authority delegated to the Assistant General Manager where they exist; the allocation of staff roles throughout the organizational structure, and the level and manner in which bus and rail services are segregated are among the factors which vary widely from organization to organization. The effectiveness of these arrangements can be assumed to reflect legitimate differences in operating style and methodology, as well as differences in the size of the system, and of the type of rail system employed (light rail versus heavy rail transit). No conclusion can be drawn from this level of analysis as to the superiority of any one organizational structure.

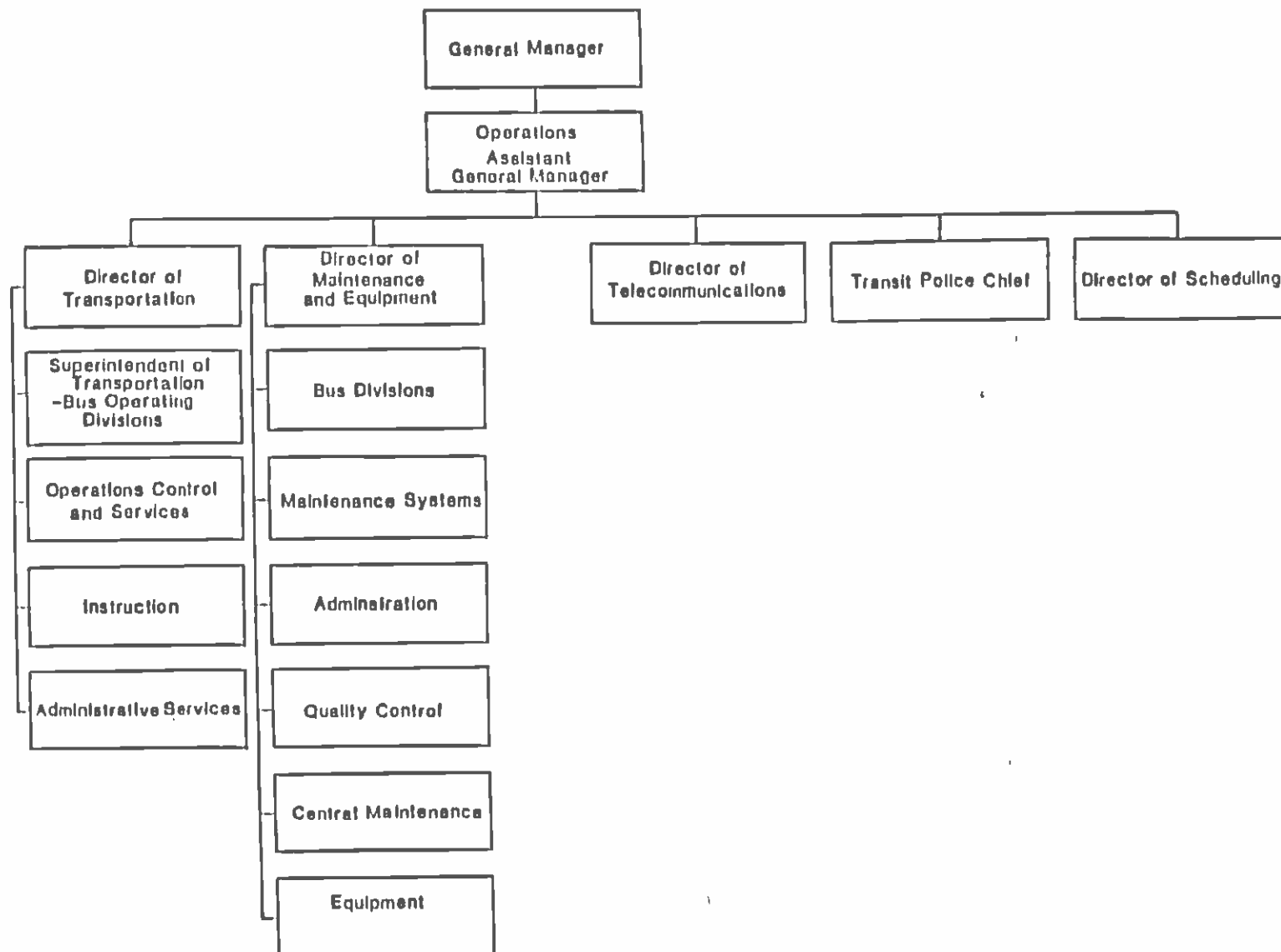
### 2.3 RECOMMENDED APPROACH

For operations and maintenance functions, the existing structure of the RTD is organized along functional divisions at the Director level, immediately below the Assistant General Manager for Operations (see Figure 2-9). Based on the preceding review and on input from District management representatives, it is recommended that future rail operations be integrated into the existing RTD bus



Figure 2-9

SCRTD Existing Operations Organization



operating structure. This approach will serve to maximize overall operational efficiencies and to minimize disruption to the existing system.

LRT operations will require additional staffing primarily with four RTD departments -- Transportation, Maintenance, Telecommunications, and Transit Police. Some additional manpower may be necessary in selected departments for support services. For each of the four affected departments, additional staffing will be added under the supervision of a Superintendent. In the Transportation Department, a Superintendent position will be added while existing Superintendents will have responsibilities for LRT operations in the other departments. In the longer run, when Metrorail and other LRT lines are introduced, Superintendent positions dedicated to rail operations will be added for all departments. Figures 2-10 through 2-13 illustrate how the addition of LRT responsibilities would impact on the current SCRTD structure, and the position of such new LRT functions within the organization. In the following chapter, staffing requirements for the initial operation of the Los Angeles-Long Beach LRT lines are presented for selected District departments.

Figure 2-10

Proposed Organizational Structure SCRTD  
Superintendent Level

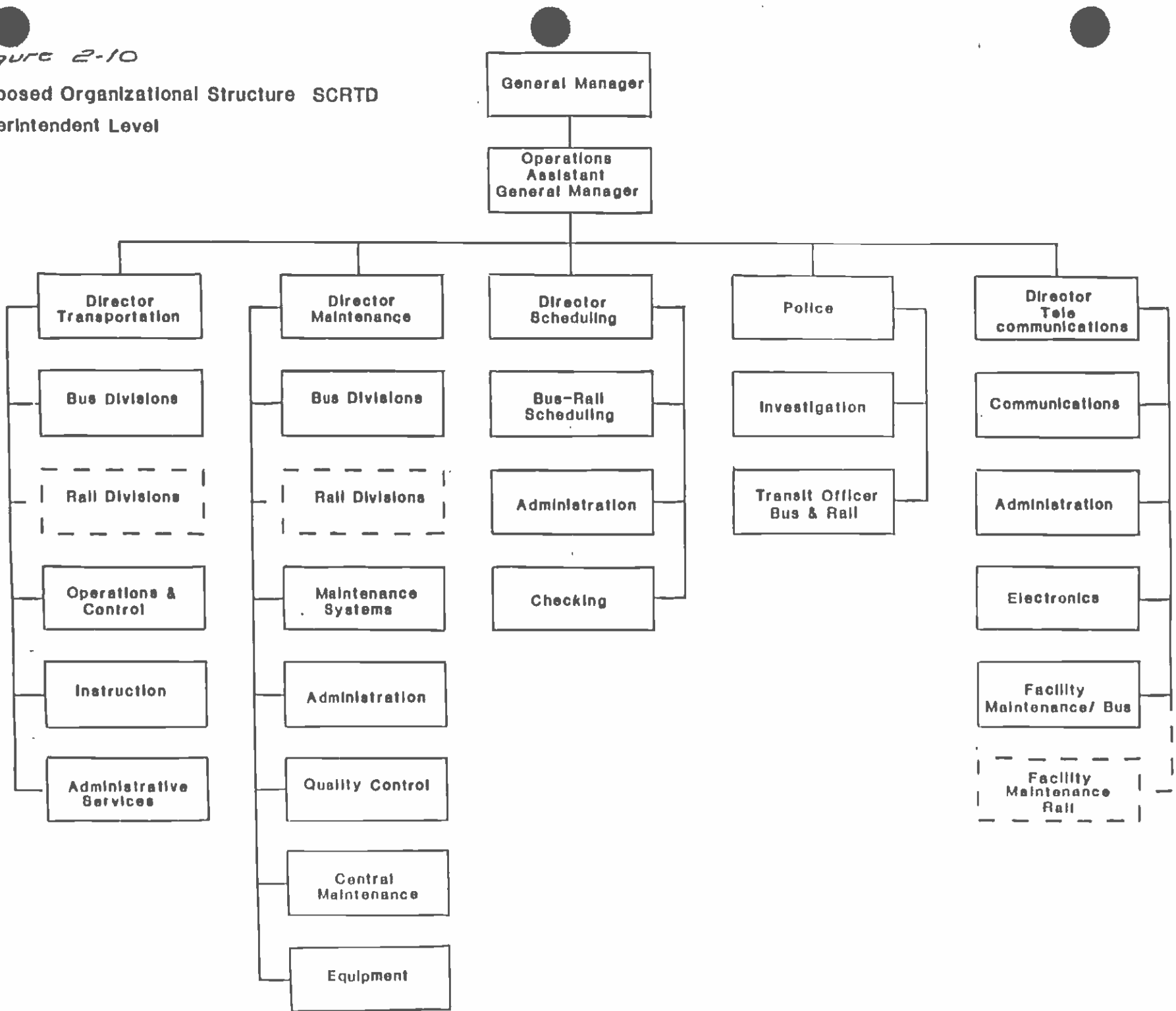


Figure 2-11

Proposed SCRTD Organization Managerial Level

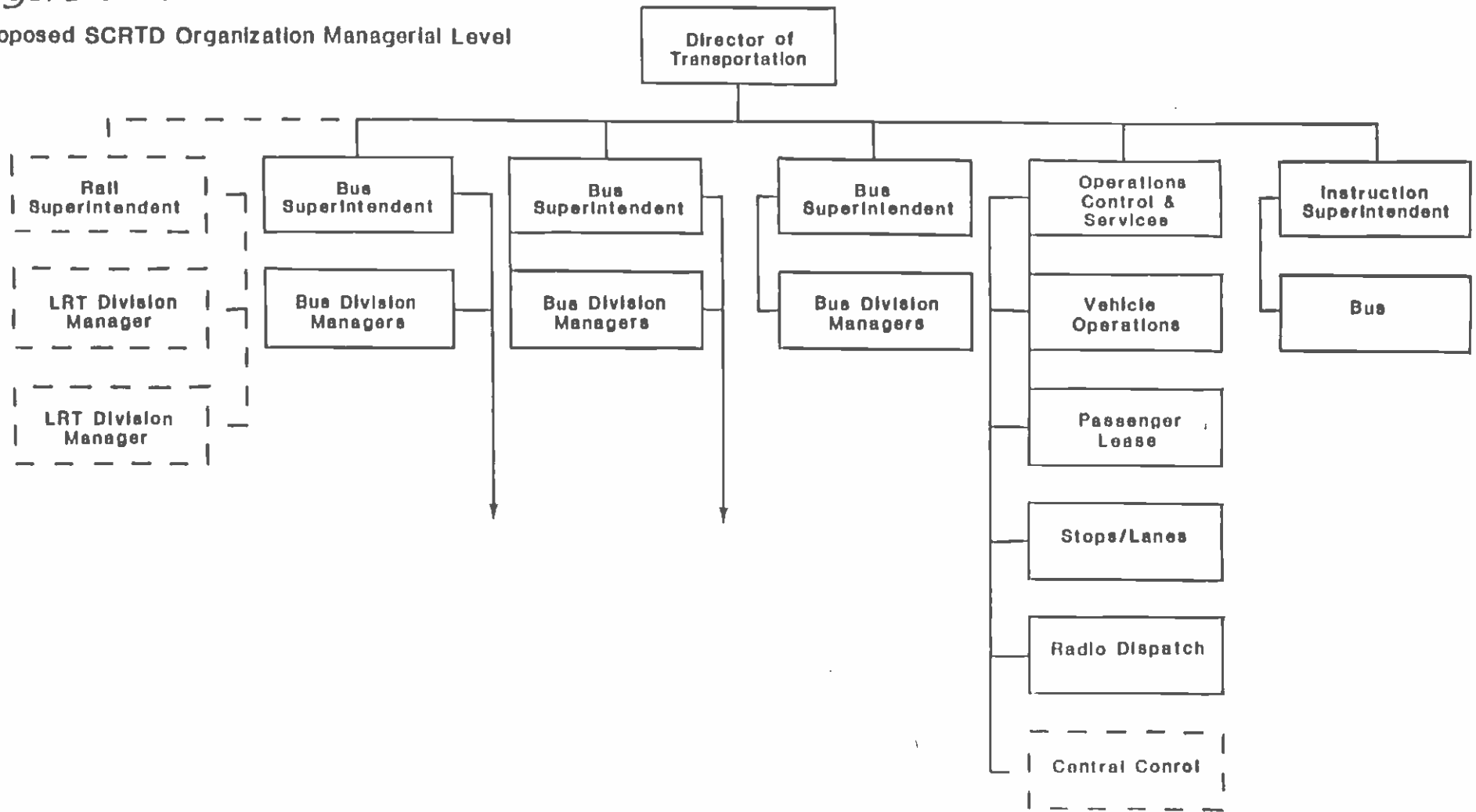


FIGURE 2-12

Proposed SCRTD Organization Managerial Level

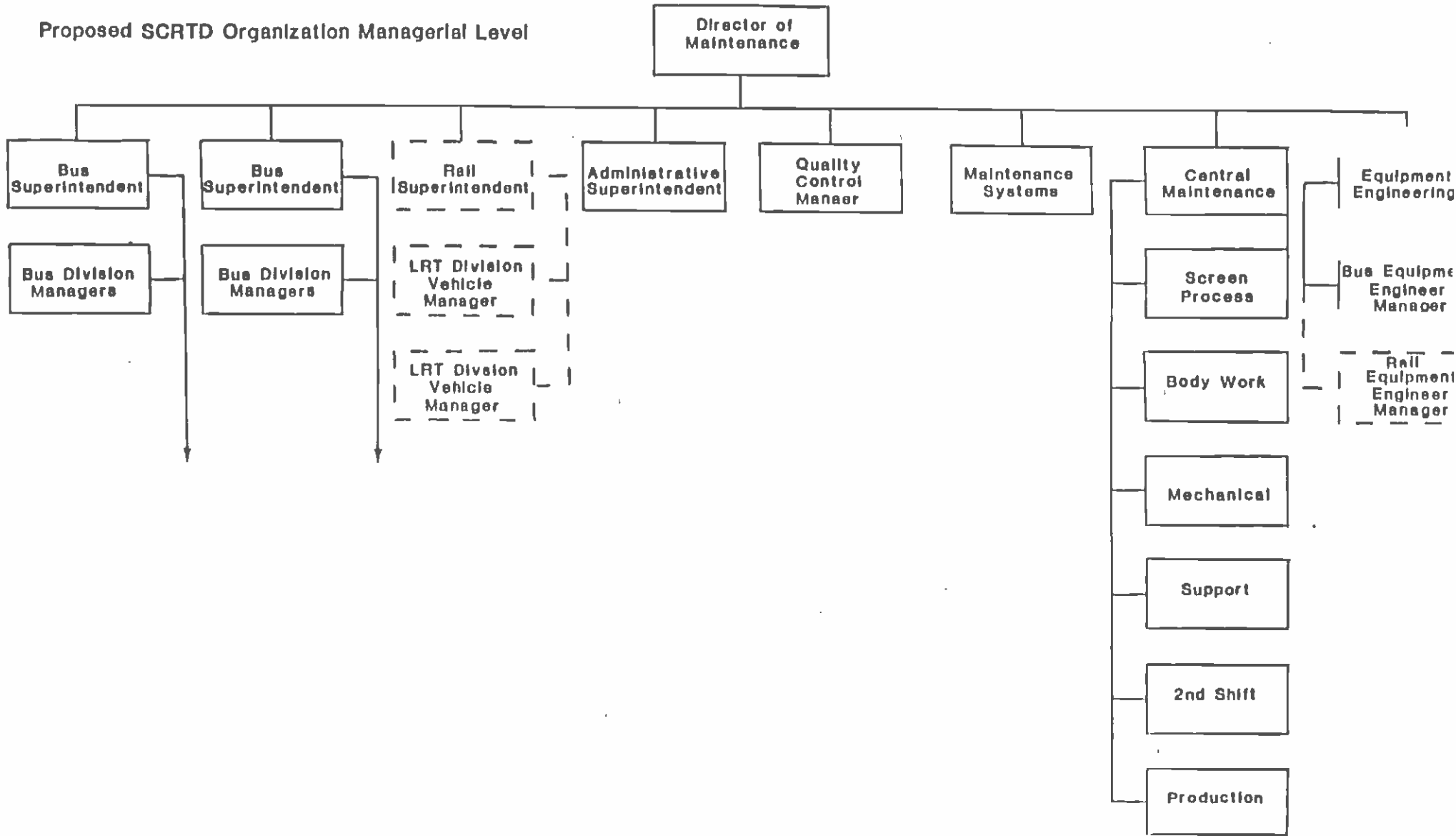
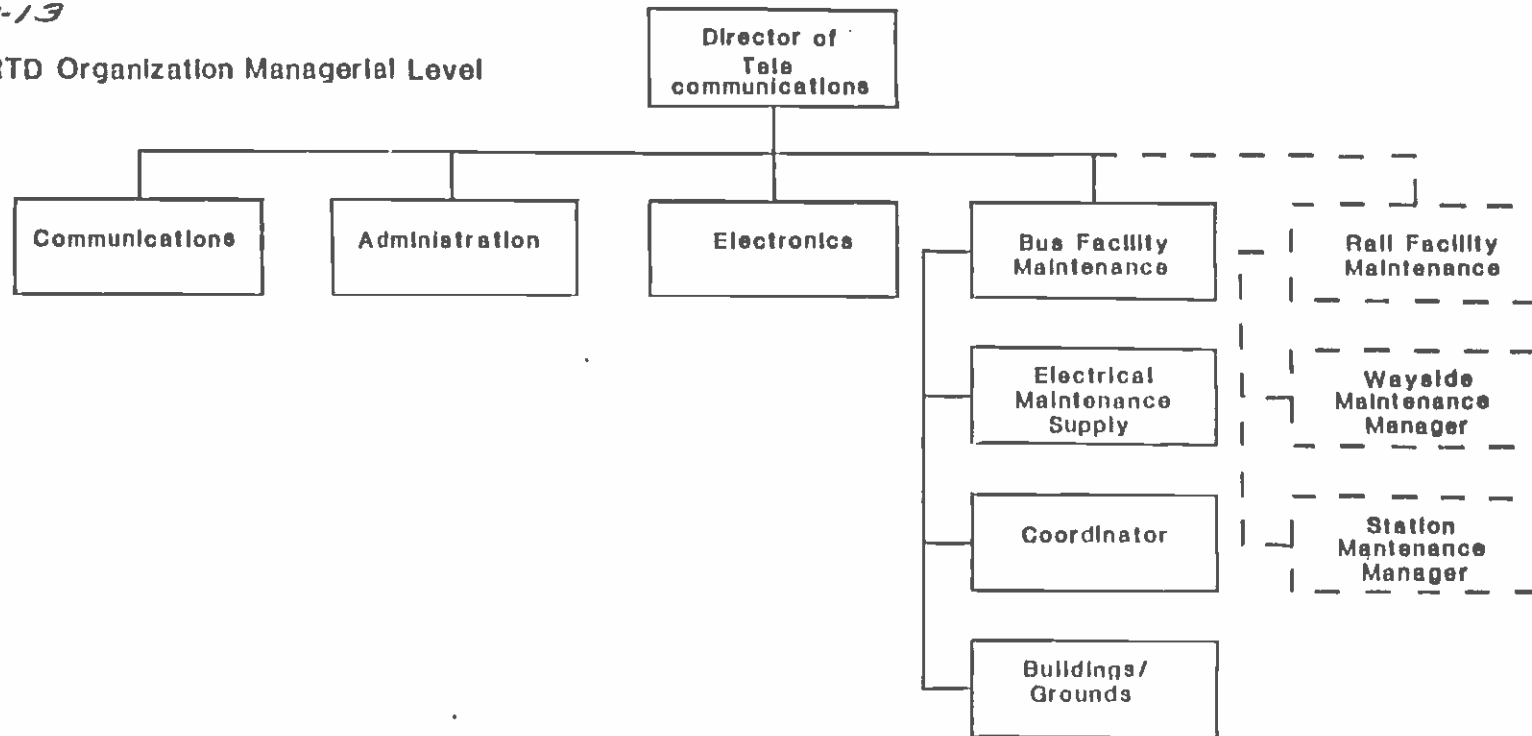


Figure 2-13

Proposed SCRTD Organization Managerial Level



### 3. STAFFING REQUIREMENTS

The recommended organizational approach for operating the Los Angeles-Long Beach LRT line has been outlined in the preceding chapter. The approach provides a sound foundation for Metrorail and expanded LRT operations in the region that will maximize operating efficiencies and take full advantage of existing staff capabilities at the District. In this chapter, staffing requirements for the initial operations of the Long Beach-Los Angeles LRT line are examined for each of the four major RTD departments reporting to the RTD's Assistant General Manager for Operations which are affected by the startup of LRT operations-- transportation, maintenance, telecommunications, and police. Staffing requirements for other RTD departments providing support services are also examined, although these requirements are limited.

Staffing requirements for the Long Beach-Los Angeles LRT line have been estimated based on a detailed analysis of proposed operations, selected comparative data obtained from other rail transit operators in North America concerning staffing for rail transit operations and maintenance functions, and current RTD staffing levels for bus operations and maintenance functions.

#### 3.1 TRANSPORTATION

Figure 3-1 illustrates the four groups within the RTD's Transportation Department, and shows by shading those groups for which LRT staffing requirements have been identified.

##### 3.1.1 Transportation General (3299)

Two positions are affected within this departmental unit.

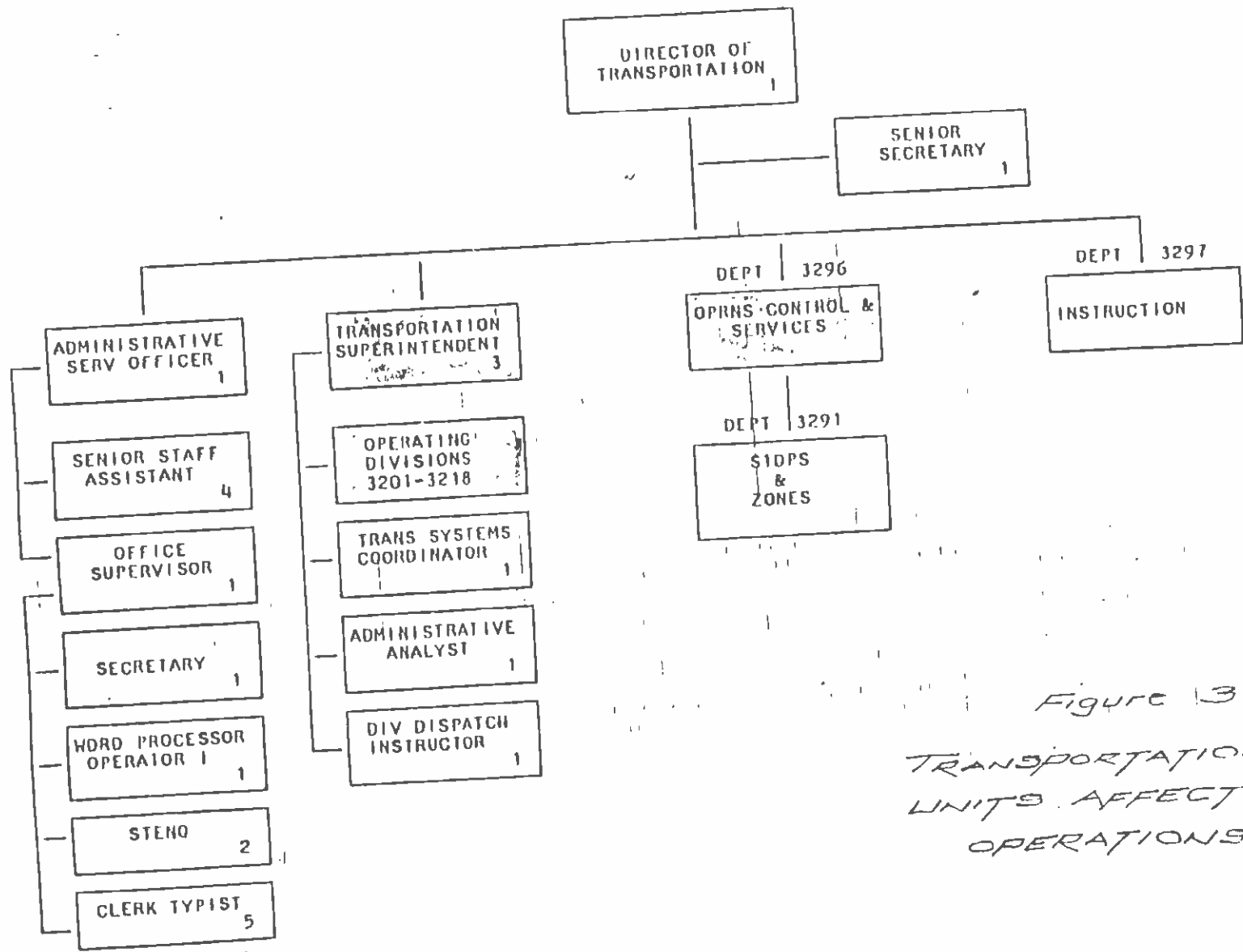


Figure 13-1  
 TRANSPORTATION DEPARTMENT  
 UNITS AFFECTED BY LRT  
 OPERATIONS STARTUP



#### 3.1.1.1 Transportation Superintendent (Rail)

Currently, three Transportation Superintendents are responsible for management of the RTD's transportation operations at twelve operating divisions. For rail operations, an additional Transportation Superintendent position will be required with responsibility for both light rail and operations reporting directly to the RTD's Director of Transportation. Initially, this individual will be responsible for establishing rail operating procedures and work rules as well as for monitoring system design and construction activities. As vehicle and systems testing activities are undertaken, responsibilities will become more directed to operational management tasks. For rail transit systems development and operations planned for the rest of this century, only one Transportation Superintendent position will be necessary. Since the position is independent of the size of rail systems being operated, it has not been incorporated into the model structure.

#### 3.1.1.2 Clerk Typist (BRAC)

It is possible that an additional Clerk Typist position will be required to support rail operations activities, reporting to the Transportation General's Administrative Services Officer. However, the need for this position depends on the workload of the existing office support staff and the degree to which this workload may be reduced in the near future due to the implementation of TRANSMIS transportation information systems. For modeling purposes, this position has not been included as being required for LRT operations.

#### 3.1.2 Operations Control and Services (3296)

This department is presently responsible for on-the-street supervision of bus operations, stops and zones maintenance, and bus radio dispatching. With the

introduction of LRT operations, this Department will assume added responsibilities for the line and control functions of LRT operations. A summary of staffing requirements is presented in Table 3-1, and an organization chart for the added positions is shown as Figure 3-2.

#### 3.1.2.1 Chief Central Control Supervisor

This position will be implemented to supervise central control personnel responsible for line and yard train monitoring, traction power, and communications. The position is proposed as reporting to the RTD's Radio Dispatch Manager. The position will be covered one shift per day, five days per week.

As RTD rail operations expand with additional LRT and Metrorail lines, it is suggested that a Central Control Manager be added to this group. For startup of the Long Beach-Los Angeles line, this position should not be required.

#### 3.1.2.2 Central Control Supervisor

This position will be responsible for monitoring systemwide train performance and operations from the central control facility. Coverage for this position will be on a three shift per day, seven day per week basis by at least one supervisor. More specifically, staffing requirements may be estimated as follows.

1. Train dispatching -- at least one person per shift for three shifts per day, seven days per week backed up by the Chief Rail Traffic Supervisor for selected shift coverage, busy time periods, and emergencies. Depending on the complexity of line operations (for example, consist of changes and use of the satellite yard), it may be

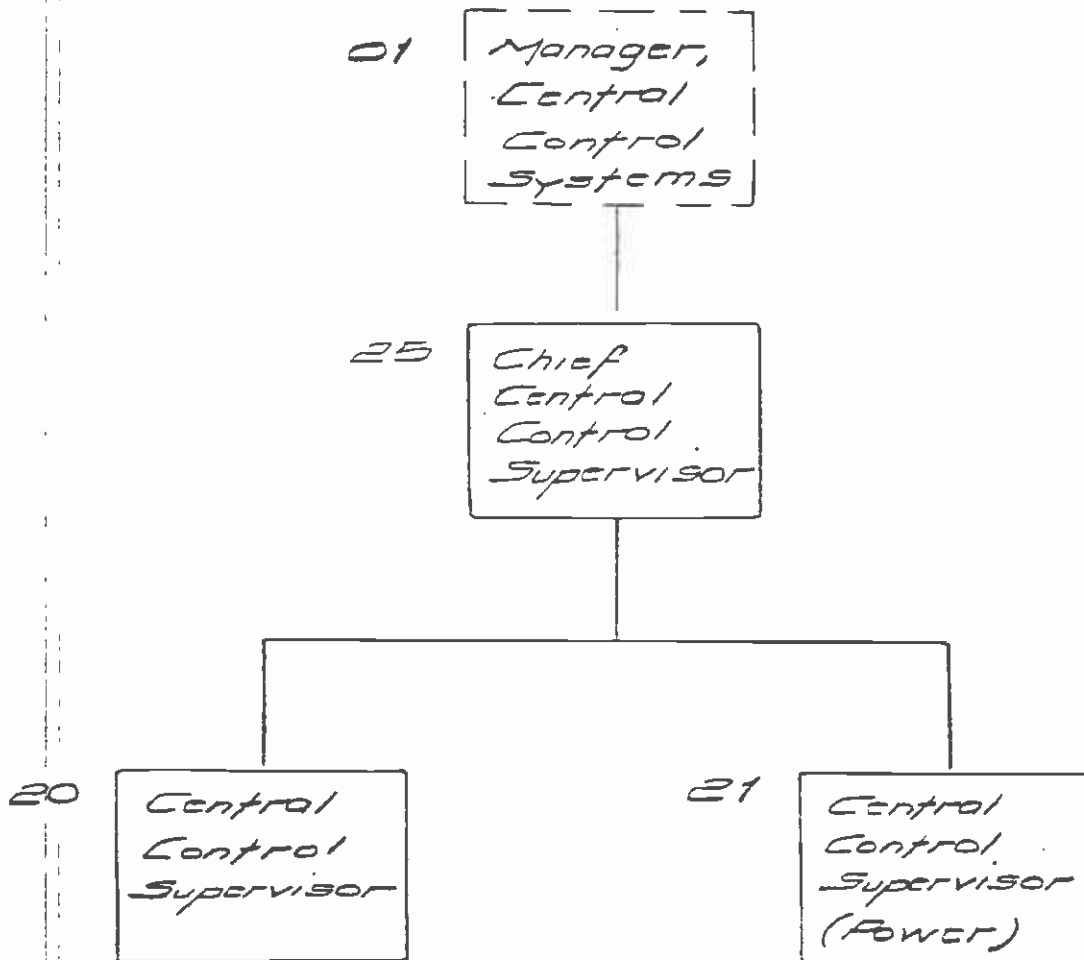
TABLE 3-1

STAFFING SUMMARY FOR OPERATIONS  
CONTROL AND SERVICES DEPARTMENT (3296)

Position	Estimated Number Low	Estimated Number High
Central Control Manager	(a)	(a)
Chief Central Control Supervisor	1	1
Central Control Supervisor/ Line Operations	4	5
Central Control Supervisor/Power	0	2

Note: (a) Position not required for the Long Beach-Los Angeles LRT line, but should be added for additional LRT and Metrorail Lines.

Figure 3-2  
 OPERATIONS CONTROL AND  
 SERVICES DEPARTMENT  
 ORGANIZATION CHART



Department Numbers

SCRTD	3296
Model	220

advisable to provide for an additional supervisor working a split shift on weekdays to assist with peak period train operations.

2. Yard supervision -- if the central control facility is located at the main yard, the monitoring of train movements in the yard will require coverage for two shifts per weekday only. If the central control facility is located elsewhere as currently planned by the Commission, coverage will be necessary for three shifts per day, seven days per week. Also in this case, this position should be shifted to the responsibility of the Division Transportation Manager for the LRT operating division. For modeling purposes, it has been assumed that the central control facility will not be situated at the main yard as planned by the Commission and that yard supervision duties will be assigned to the Operating Division Department
3. Traction power monitoring -- the staffing of this position may be provided on two shifts per weekday only. The monitoring of the power distribution system could be done by train control supervisors without the need for additional staffing even during the two shifts per weekday. To a large extent, the requirement for additional traction power monitoring personnel is based on providing for maximum system safety in view of the potential hazards associated with the train power distribution system.

### 3.1.3 Transportation Operating Divisions (3201-18)

Currently, the RTD runs twelve operating divisions throughout the metropolitan area with transportation operations as these divisions under the direction of

the Transportation Superintendents. A new operating division (designated division 3219) will be created for Long Beach-Los Angeles LRT operations.

#### 3.1.3.1 Division Transportation Manager

The Division Transportation Manager will be responsible for all train operating personnel, line operations supervision, crew dispatching, and yard operations.

#### 3.1.3.2 Transportation Operations Supervisor (Rail)

The Transportation Operations Supervisor will be responsible for the monitoring of line operations, crew dispatching at the main yard, and operator instruction. For crew dispatching, coverage is required for three shifts per day, seven days per week by one person. For line supervision, staffing requirements depend on the level of service operated, length of the line, and complexity of operations (e.g., line junctions where trains may be turned back). For the Long Beach-Los Angeles LRT line, it is estimated that line supervision can be effectively accomplished using 3 supervisors for two weekday shifts and 1-2 supervisors working two weekend shifts (in addition to assistance from the supervisor responsible for main yard crew dispatching). The number of positions required to implement these work assignments is between 9 and 10, including an additional position for relief and instruction work.

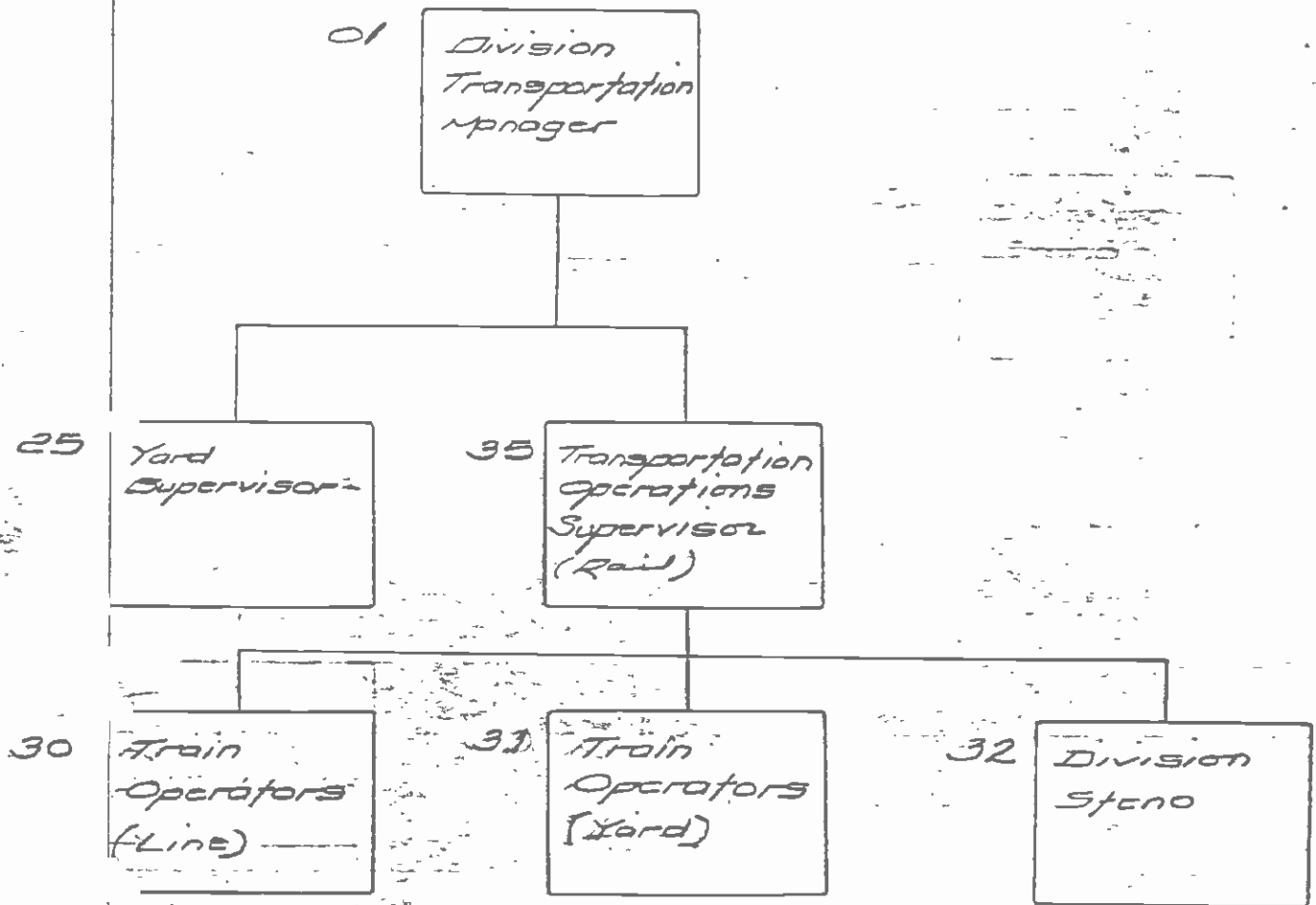
These positions have been assigned to the Operating Division Department for all supervisory functions in order to permit maximum flexibility in the scheduling of work assignments for crew dispatching, route supervision, and instruction. For bus operations, Transportation Operations Supervisors are assigned to operate departments separately for line supervision, operator dispatching, and instruction duties. This approach is not recommended for the Long Beach-Los

TABLE 3-2

STAFFING SUMMARY FOR TRANSPORTATION  
OPERATING DIVISION (3219)

Position	Estimated Number Low	Estimated Number High
Division Transportation Manager	1	1
Transportation Operations Supervisor (Rail)	9	10
Yard Supervisor	4	4
Train Operator/Line Operations	40	50
Train Operator/Yard Operations	6	6
Division Steno	2	2

*Figure 3-B*  
*OPERATING DIVISION (SCD)*  
*ORGANIZATION CHART*



Department Number

SCRTD 3219

210



Angeles LRT operations, but might be implemented in the future with expanded LRT and Metrorail operations.

### 3.1.3 Yard Supervisor

This position was already described in connection with central control staffing requirements. Since the main yard will be located separately from the central control facility, this position will be assigned to the Operating Divisions Department. Coverage is required for three shifts per day, seven days per week by one Yard Supervisor.

### 3.1.3.4 Train Operator (UTU)

The number of train operators required is dependent on the number of train hours operated and work rules governing the use of train operators. The operating schedules assumed for Long Beach-Los Angeles LRT line operations result in the following estimated number of train hours:

Weekday	-	171
Saturday	-	144
Sunday	-	120

Assuming an average of 7.0 train hours per operator assignment results in a total of 32 five-day work runs. Factoring this for extra board duties, it is estimated that 44 train operators are needed to operate the proposed schedules. Additionally, train operators will be required to move trains in the yard, to move trains to and from the mainline, and for other unscheduled train movements that may be necessary for operations and maintenance purposes. It is estimated that six rail attendants will be required for this work. For planning purposes, it is reasonable to assume that the number of train operators required for line operations will be between 40 and 50. With the modeling capabilities being

provided in conjunction with this preliminary staffing plan, the number of train operators required for line operations can be estimated for different line operating plans.

#### 3.1.3.5 Division Steno (BRAC)

This position will be implemented to assist with office and recordkeeping tasks. Two positions are proposed in connection with initial Long Beach-Los Angeles LRT operations based on the level of service being operated.

#### 3.1.4 URAMPS Model Inputs

Positions are modeled within the URAMPS package as being fixed, dependent on the numbers assigned to other selected positions, or variable depending on system characteristics. Tables 3-3 through 3-5 show the URAMPS model inputs for each Transportation Department position associated with the startup of LRT operations.

#### 3.1.5 Comparison with LACTC Estimated Staffing Requirements

Table 3-6 provides a comparison of staffing levels for the Long Beach-Los Angeles LRT line for positions in the RTD's Transportation Department.

### 3.2 MAINTENANCE

Two groups within the RTD's Maintenance Department will be affected by the introduction of LRT operations. For the startup of LRT operations, it is not recommended that any Superintendent positions be added to this Department. The RTD has identified the need to add an Assistant Director position for the Maintenance Department, and it is believed that this position will require some background and familiarity with rail transit vehicle maintenance. If this



Table 3-4  
 TRANSPORTATION  
 DEPENDENT POSITIONS

	1	2	3	4	5	6	7	8	9	10
	Position Number	Dependent Position			Number Per Position		Based On			
1		Transportation Operations Supervisor (Rail)	35	Train Operators/Line (30)	0.225 (0.167-0.250)		Transit Operator Survey Data			
2		Train Operators/Yard	31	Train Operators/Line (30)	0.150		Estimated based on planned operation			
3		Division Steno	32	Train Operators/Line (30)	0.010		RTD Operating experience			

Table 3-5  
 TRANSPORTATION  
 VARIABLE POSITIONS

Prepared by  
 Approved by

	1	2	3	4	5	6	7	8	9	10	11	12	13
	Position Number	Days Per Week	Shifts Per Day	Days Worked	(1)	System Character			BTICB (3)	Based On			
						(2)							
Train Operators/Line	30	Default		205	Weekday Train Hours	0.133	Saturday Train Hours	0.057	Sunday Train Hours	0.027	RTD operating experience		
Central Control Supervisor	20	Default									Transit Operator Survey Data		
Yard Supervisor	25	7	3	230	Number of Yards	100					Planned Operations		

Table 3-6

COMPARISON WITH LAETC  
STAFFING ESTIMATES

(to be added)

position is not created or filled by an individual with rail transit experience, the possibility of adding a Maintenance Superintendent for rail operations might be considered by the District. For expanded light rail and Metrorail operations, it will be necessary to provide the additional Superintendent position regardless of how the filling of the Assistant Maintenance Director position may be handled.

### 3.2.1 Maintenance Operating Divisions (3301-18)

A new operating division headed by a Division Maintenance Manager will be created for vehicle maintenance functions to support the Long Beach-Los Angeles LRT operations. At the main yard, vehicle maintenance will be carried out primarily on two shifts per weekday, as one from approximately 8:00 a.m. to 4:00 p.m. and the second from 8:00 p.m. to 4:00 a.m. Electro-mechanical repairs will be done primarily on one of the shifts, and electronic systems repair work will be carried out on the second vehicle maintenance shift. Vehicle service and inspection (S&I) activities, including minor corrective repairs and component changeouts, will be carried out on all work shifts for seven days per week in order to provide for the maximum availability of train equipment.

#### 3.2.1.1 Division Maintenance Manager

A Division Maintenance Manager will be responsible for the management of electrical, electronic, and mechanical vehicle systems repairs for LRT operations.

#### 3.2.1.2 Equipment Maintenance Supervisor (Rail)

An Equipment Maintenance Supervisor will be assigned to lead repair activities on each of the work shifts. Based on the background of the supervisors, one

will be responsible for vehicle service and inspection electro-mechanical repair, and cleaning activities with the second individual responsible for vehicle electronic and communications systems repairs. It is proposed for initial operations that two Equipment Maintenance Supervisor positions be filled. Should the number of vehicle maintenance personnel be higher than estimated for this study, additional supervisory personnel might be required.

#### 3.2.1.3 Rail Vehicle Maintenance (ATU)

It is estimated that 12-14 Rail Vehicle Maintainers will be required for service and inspection (S&I) work and electro-mechanical systems repairs. This number provides for two S&I work assignments on three shifts per day and seven days per week, and 4-6 electro-mechanical repair work assignments for one weekday shift. The expansion of other rail transit operators is not conclusive as the basis for estimating electro-mechanical repair personnel requirements, and the staffing of this position may need to be adjusted as actual experience with the maintenance characteristics of the LRT vehicles purchased for the Long Beach-Los Angeles line is obtained by the District.

#### 3.2.1.4 Electronics and Communications Technicians (ATU)

On the second of the two weekday shifts, vehicle electronic and communications systems repairs will be carried out requiring an estimated 6-8 Electronic and Communications Technicians. As was noted for vehicle electro-mechanical repairs, available operating experience is not conclusive regarding staffing requirements for vehicle electronic systems repairs. Consequently, a range for recommended staffing has been suggested for manpower planning purposes.



#### 3.2.1.5 Cleaner (ATU)

It is estimated that five Cleaners be adequate for LRT vehicle cleaning.

#### 3.2.1.6 Equipment Records Specialist (BRAC)

To assist with vehicle maintenance recordkeeping, one Equipment Records Specialist will be required for the new LRT operating division.

#### 3.2.1.7 Clerk Typist (BRAC)

One Clerk Typist position is recommended to support LRT vehicle maintenance operations.

#### 3.2.2 Equipment Engineering (3400)

Rail equipment engineering support will be provided by this Department which reports directly to the Director of Maintenance and Equipment. Two engineering positions have been identified to provide the mechanical and electronics systems support for the Long Beach-Los Angeles LRT line operations.

This department might also provide engineering support for the fare collection systems. For the single LRT line, specialized engineering support should not be necessary beyond that available within the District for other functions and provided by vendor representatives.

#### 3.2.3 URAMPS Model Inputs

Positions are modeled within the URAMPS package as being fixed, dependent on the numbers assigned to other selected positions, or variables depending on system characteristics. Tables 3-8 through 3-10 show the URAMPS model inputs for each Maintenance Department position associated with the startup of LRT operations.

TABLE 3-7

STAFFING SUMMARY FOR MAINTENANCE  
OPERATING DIVISION (3319)

Position	Estimated Low	Estimated High
Division Maintenance Manager	1	1
Equipment Maintenance Supervisor (Rail)	2	2
Rail Vehicle Maintainer	12	17
Electronics and Communications Technicians	8	11
Clerk Typist	1	1
Equipment Records Specialist	1	1

Figure 3-4

MAINTENANCE OPERATING  
DIVISION ORGANIZATION  
CHART

Department Numbers

SCRTO 3319

Model 310

01  
Division  
Maintenance  
Manager

02  
Typist  
Clerk

03  
Equipment  
Records  
Specialist

25  
Equipment  
Maintenance  
Supervisor  
(Rail)

20  
Rail  
Vehicle  
Maintainer

21  
Cleaner

22  
Electronics  
and  
Communicative  
Technician

Table 9-8  
 MAINTENANCE  
 FIXED POSITIONS

	1	2	3	4	5	6	7	8	9	10
	Position Number	Fixed Number								
1	Division Maintenance									
2	Manager	01	1							
3										
4										
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Table 3-9  
 MAINTENANCE  
 DEPENDENT POSITIONS

	1	2	3	4	5	6	7	8	9	10	
	Position Number	Dependent Position			Number Per Position		Based On				
1	Equipment Maintenance Supervisor (Rail)	28	Rail Vehicle		0.058		RTD operating experience				
2			Maintainer (20)		(0.097-						
3			Cleaner (21)		0.075)						
4			Electronics and Comm- UNICATIONS Technicians (22)								
5											
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Table 3-10  
 MAINTENANCE  
 VARIABLE POSITIONS

Prepared By  
 Approved By

	1	2	3	4	System Characteristics			Based On
					(1)	(2)	(3)	
	Position Number	Days Per Week	Shifts Per Day	Days Worked				
Rail Vehicle Maintainer	20		Default		Car Hours Weekday	Car Hours Saturday	Car Hours Sunday	Transit Operator Survey Data
					(0.030- 0.030)	(0.006- 0.010)	(0.006- 0.010)	
Electronic and Communications Technicians	30				0.020 (0.020 -0.020)	0.004 (0.004 -0.012)	0.004 (0.004 -0.012)	Transit Operator Survey Data
Cleaner	21				Number of Peak Cars	0.50 (0.50- 0.50)		Transit Operator Survey Data
Equipment Records Specialist	03					0.025		Planned operation
Typist Clerk	02					0.025		Planned operation

Table 3-11

(to be added)

#### 3.2.4 Comparison with LACTC Estimated Staffing Requirements

Table 3-11 provides a comparison of staffing levels for the Long Beach-Los Angeles LRT line for positions in the RTD's Maintenance Department.

### 3.3 TELECOMMUNICATIONS

Maintenance of the main line and yard tracks, wayside and grade signals, stations, central train control systems, shop and other buildings, fare collection equipment, and power distribution systems will be provided by the District's Telecommunications Department. While this will reinforce the existing staff capabilities of the department, it will also result in LRT system maintenance responsibilities being split between departments. Within the Telecommunications Department, it is not clear how these maintenance functions should be organized except that functions relating to the maintenance of stations, shops and other buildings, and cleaning of the right-of-way should be assigned to the Facility Maintenance Department which is currently responsible for the District's property maintenance activities. For expanded LRT and Metrorail operations, it is recommended that the position of Superintendent, Rail Systems Maintenance be created to direct the maintenance of rail tracks, signals, central control systems, and power distribution systems. This position would report directly to the Director of the Telecommunications Department. For the startup of the Long Beach-Los Angeles LRT line, it is proposed that these maintenance functions be supervised by a Manager, Rail Systems Maintenance, assigned appropriately within the Telecommunications Department.

#### 3.3.1 Rail Systems Maintenance

This organizational unit will be responsible for the maintenance of mainline and yard tracks, wayside and grade crossing signals, central train control systems,

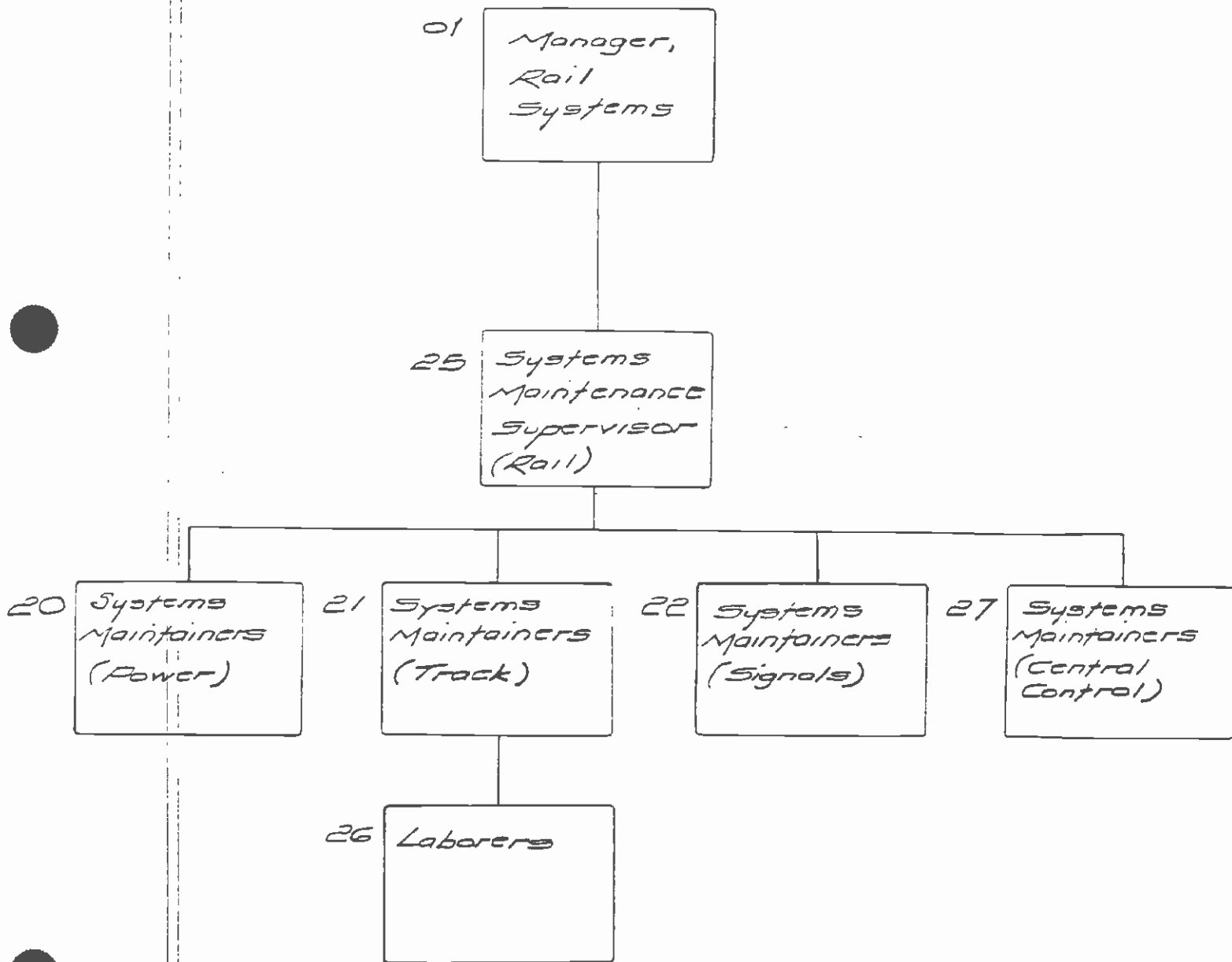


TABLE 3-12

## STAFFING SUMMARY FOR RAIL SYSTEMS MAINTENANCE

Position	Estimated Low	Estimated High
Manager, Rail Systems Maintenance	1	1
Clerk Typist	1	1
Systems Maintenance Supervisor	2	2
Systems Maintainer/Power	9	9
Systems Maintainer/Signals	8	8
Systems Maintainer/Track	4	4
Systems Maintainer/Central Control	4	4
Laborers	2	2

Figure 3-5  
TELECOMMUNICATIONS  
DEPARTMENT ORGANIZATION  
CHART (RAIL SYSTEMS  
MAINTENANCE)



fare collection equipment, and power distribution systems for the Long Beach-Los Angeles LRT line. As noted above, it will be assigned within the Telecommunications Department as appropriate. The unit will be based at the main yard facilities for the line.

#### 3.3.1.1 Manager, Rail Systems Maintenance

This position will be required for the management of rail systems maintenance work.

#### 3.3.1.2 Systems Maintenance Supervisor

Systems maintenance activities will require a Systems Maintenance Supervisor for two shifts, five days per week. For other work shifts, a Systems Maintainer (probably for central trail control systems assigned at the central control facility) will be responsible for supervision.

#### 3.3.1.3 Systems Maintainer/Power (ATU)

Two Systems Maintainer/Power work assignments will be required for these shifts per day, seven days per week for power distribution inspection and repair work. These personnel would also be responsible for inspecting fare collection equipment and making minor field repairs to this equipment. To implement these work assignments, nine positions will need to be created (providing three open daily work assignments).

The working with power distribution systems requires specialized capabilities. Furthermore, it is recognized that power systems are essential for train operations. Consequently, the work assignment schedule has been developed for 24-hour per day shift coverage. Additionally, two person work crews have been

scheduled in review of the safety hazards involved in working with power distribution systems.

#### 3.3.1.4 Systems Maintainer/Signals (ATU)

It is estimated that right System Maintainer/Signals personnel will be required for the inspection and repair of wayside and grade crossing signals. Since this work involves being on the main line, these personnel will also be responsible for inspecting and making minor repairs to fare collection equipment.

#### 3.3.1.5 Systems Maintainer/Track (ATU)

It is estimated that four Systems Maintainer/Track personnel working one shift per day, five days per week are needed for track inspection and repair work.

#### 3.3.1.6 Systems Maintainer/Central Control

Coverage is required for three shifts per day, seven days per week for this position, assigned to the central control facility.

#### 3.3.1.7 Laborer

Two Laborer positions are recommended for track and other heavy repair work.

#### 3.3.1.8 Clerk Typist

One Clerk Typist position will provide for clerical and office support tasks in connection with rail systems maintenance functions.

#### 3.3.2 Facility Maintenance (3334)

Maintenance of station areas, shops and other buildings, and the main line right-of-way will be incorporated into the on-going responsibilities of the

Facility Maintenance Department under the direction of the existing Building and Grounds Superintendent (this existing position fits into the organizational structure as a 'manager' position).

#### 3.3.2.1 Building and Grounds Supervisor

Currently, the RTD has four Building and Grounds Supervisors responsible for 65 property maintenance employees. This same 'ratio' should be kept in connection with the addition of property maintenance personnel for LRT operations.

#### 3.3.2.2 Property Maintainer (ATU)

For planned LRT operations, it is estimated that 12-15 Property Maintainers will be required for maintaining station areas, yards, buildings, and other LRT facilities. These personnel would be incorporated into the Buildings and Grounds group of the District's Facility Maintenance Department, reporting to a Buildings and Grounds Maintenance Supervisor.

#### 3.3.3 URAMPS Model Inputs

Positions are modeled within the URAMPS package as being fixed, dependent on the numbers assigned to other selected positions, or variables depending on system characteristics. Tables 3-14 through 3-16 show the URAMPS model inputs for each Telecommunications Department position associated with the startup of LRT operations.

#### 3.3.4 Comparison with LACTC Estimated Staffing Requirements

Table 3-17 provides a comparison of staffing levels for the Long Beach-Los Angeles LRT line for positions in the RTD's Telecommunications Department.

TABLE 3-13

STAFFING SUMMARY FOR FACILITY  
MAINTENANCE DEPARTMENT (3334)

Position	Estimated Low Number	Estimated Low Number
Buildings and Ground Superintendent	(a)	(a)
Buildings and Grounds Supervisor	1	1
Property Maintainer	12	15

Note: (a) Existing SCRTD position.

Figure 3-6

TELECOMMUNICATIONS  
DEPARTMENT ORGANIZATION  
CHART (FACILITIES MAINTENANCE)

01 Buildings  
and Grounds  
Superintendent

25 Building  
and Grounds  
Maintenance  
Supervisor

20 Property  
Maintainer



Table 3-14  
 TELECOMMUNICATIONS  
 FIXED POSITION

	1	2	3	4	5	6	7	8	9	10	11
	Position Number	Fixed Number									
1	Manager, Rail Systems										
2	Maintenance	01	1								
3											
4	Typist Clerk	02	1								
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Table 3-15  
TELECOMMUNICATIONS  
DEPENDENT POSITIONS

	1	2	3	4	5	6	7	8	9	10	11
	Position Number	Dependent Position		Number Per Position		Based On					
1											
2											
3											
4											
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Table 9-16  
TELECOMMUNICATIONS  
VARIABLE POSITIONS

Prepared By  
Approved By

	Position Number	Days Per Week	Shifts Per Day	Days Worked	System Characteristics			Based On
					(1)	(2)	(3)	
Systems Maintainer/ Power	20	7	3	230	Number of lines	2.00		Planned operations
Systems Maintainer/ Track	21		Default		Number of Track Miles	0.20 (0.20- 1.10)		Transit operator survey data
Systems Maintainer/ Signals	22				Number of Track Miles	0.40		Transit operator survey data
Systems Maintainer/ Central Control	27	7	3	230	Number of lines	1.00		Planned operations
Laborers	26		Default		Number of Track Miles	0.10		Transit operator survey data
Property Maintainers	20				Number of Stations	0.20 (0.40- 0.50)	Number of Track Miles 0.20	Planned operations

*Table 3-17*

*(to be added)*

### 3.4 TRANSIT POLICE

This department will assume responsibility for line and train security, fare inspection, and CCTV system monitoring functions in connection with the Long Beach-Los Angeles LRT line operations. With regard to line and train security, police officer requirements have been estimated based on the assumption that stations will be unattended (except for assigned operations supervisory personnel) and fare payment will be on an 'honor' basis enforced by roving on-train inspectors. Staffing requirements have been estimated based on discussions with the District's police chief, and on available data regarding fare inspection requirements.

For line and train security, it is recognized that the line will operate through some neighborhoods having crime rates among the highest in Los Angeles County. However, the development of a quantifiable relationship that reflects this operating environment has not been possible. It has been estimated that 17 Transit Police Officer positions will be required based on factoring the number of system train hours, and then adjusting for vacation and sick relief requirements. Further, it has been assumed that five Transit Police Investigator positions will be required based on the proportion of these positions to officer positions that currently exists in the department. Four security guard positions have been recommended to provide 24-hour coverage at the main yard.

Other studies have indicated the need for eight CCTV Monitor positions and 14 Fare Inspector positions. It is proposed that these positions be considered as a single job classification with work assignments varied between inspection and monitoring duties. The combined position has been designated as System Monitor.

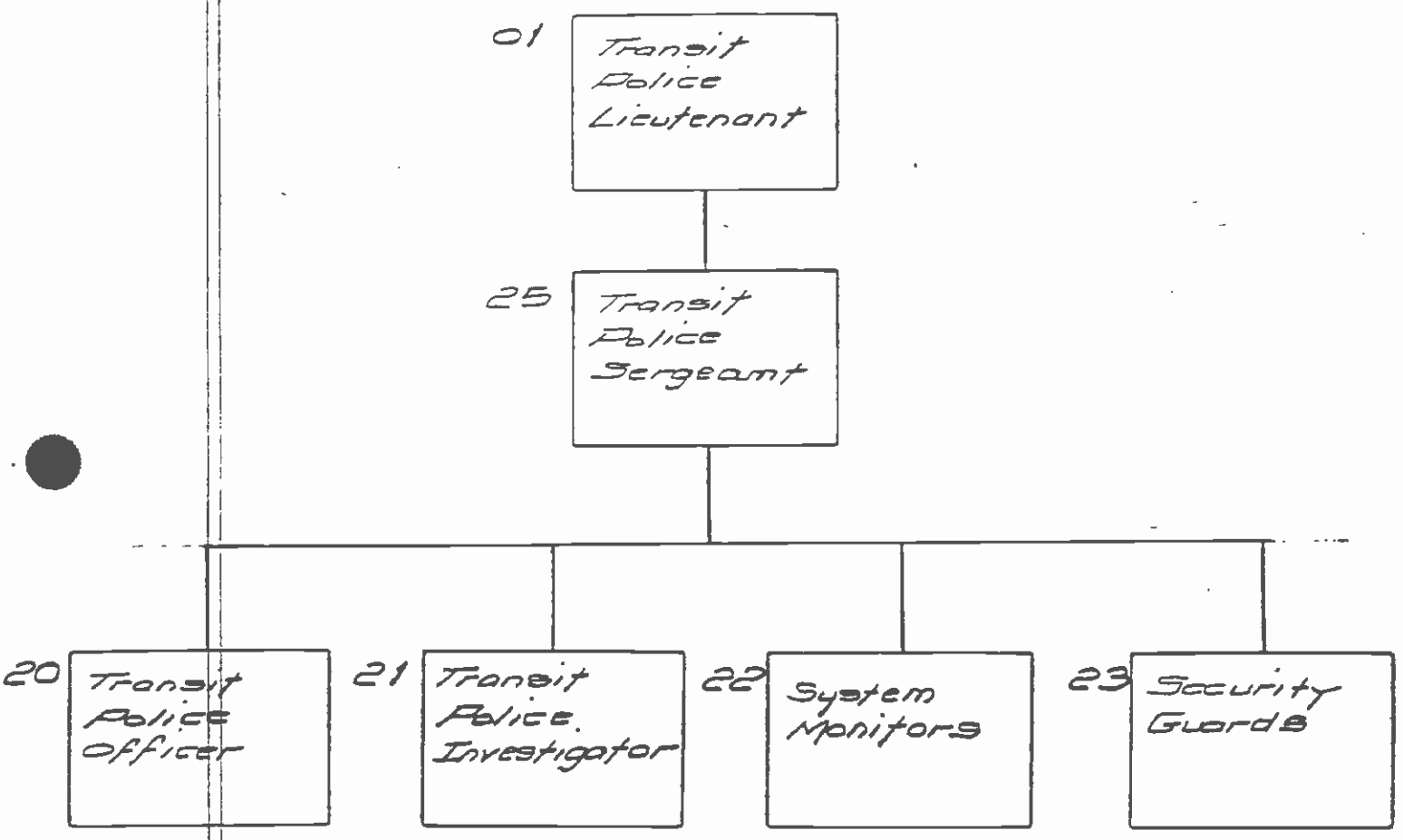
TABLE 3-18

STAFFING SUMMARY FOR  
TRANSIT POLICE DEPARTMENT (3800)

Position	Estimated Low Number	Estimated High Number
Transit Police Lieutenant	1	1
Transit Police Sergeant	4	4
Transit Police Officer	5	5
Transit Police Investigator	17	17
Security Guard	4	4
System Monitors	22	22

Figure 3-B

# TRANSIT POLICE DEPARTMENT ORGANIZATION CHART



Department Numbers

SCRTD 3800  
Modul 230

Supervision for these functions will be provided by four Transit Police Sergeants who will be responsible to a Transit Police Lieutenant designated for LRT operations. This level of supervision is consistent with current levels employed in the department. For expanded LRT and Metrorail operations, it is likely that a second Assistant Transit Police Chief would be necessary with overall rail operations responsibility.

Positions are modeled within the URAMPS package as being fixed, dependent on the numbers assigned to other selected positions, or variables depending on system characteristics. Tables 3-19 through 3-21 show the URAMPS model inputs for each Transit Department position associated with the startup of LRT operations.

### 3.5 SUPPORT SERVICES

Staffing will be required to support the startup of LRT operations from the Office of Contracts, Procurement & Material for 1-2 Storekeepers and 2-3 Store Clerks at the main yard, and from probably the Accounting and Fiscal Department for the collection of monies at LRT stations.

Table 3-19  
 TRANSIT POLICE  
 FIXED POSITIONS

	1	2	3	4	5	6	7	8	9	10	11
	Position Number	Fixed Number									
1	Transit Police										
2	Lieutenant	01	1								
3											
4											
5											
6											
7											
8											
9											
10											
11											
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35											



Table 3-20  
 TRANSIT POLICE  
 DEPENDENT POSITIONS

	1	2	3	4	5	6	7	8	9	10
	Position Number	Dependent Position		Number Per Position		Based On				
1	Transit Police	25	Transit Police							
2	Sergeant		Officer (20)		0.25		RTD operating			
3							experience			
4	Transit Police	21	Transit Police		0.25		RTD operating			
5	Investigator		Officer (20)				experience			
6										
7										
8										
9										
10										
11										
12										
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35										

Table 3-21  
 TRANSIT POLICE  
 VARIABLE POSITIONS

Prepared By: \_\_\_\_\_  
 Approved By: \_\_\_\_\_

	1	2	3	4	5	6			7	8	9	10	11	12	13
	Position Number	Days Per Week	Shifts Per Day	Days Worked	(1)	System Characteristics			(2)	(3)	Based On				
Police Officer	20	—	Default	—	Weekday Train hours	0.050	Saturday Train hours	0.010	Sunday Train hours	0.010	Planned operations				
Security Guard	23	7	3	230	Number of Yards	1.0			Planned operations						
System Monitor	22	—	Default	—	Daily Rideship (000's)	0.050	Number of stations	0.040			Planned operations				

#### 4. TIMETABLE FOR HIRING AND TRAINING

As noted in the introductory chapter, the Long-Beach Los Angeles LRT line is planned for the start of revenue service in October, 1989. This schedule is based on the Commission's meeting its design and construction schedule milestones for the development of the line. Figure 4-1 summarizes selected system development milestones.

In this chapter, staffing requirements for the operations and maintenance functions of the line are related to the system development schedule. Where possible, hiring actions are related to system development milestones. Factors affecting these hiring actions such as training program requirements and the possible sources of the personnel (which may serve to lengthen the hiring time-frame where specialized sources are necessary) are discussed.

##### 4.1 OPERATIONS PERSONNEL HIRING

Table 4-1 summarizes the recommended timing for the hiring of operations personnel for the Long Beach-Los Angeles LRT line. The hiring program for operations personnel might be roughly summarized as:

- o A superintendent to lead RTD planning and coordination activities hired prior to the startup of final system design activities.
  
- o A small group of supervisory employees with rail transit experience hired prior to the initial vehicle delivery to form the nucleus of an expanding training program in train operations.

Figure 4-1

(to be added)

Table 4-1  
HIRING PLAN FOR OPERATIONS PERSONNEL

Position	Number of Positions		Source	When Hired	Date Based on Current Schedule
	Low	High			
Transportation Superintendent (Rail)	0	1	Transit industry search	At commencement of active system design work	April 1988
Division Transportation Manager	1	1	Transit industry search	At least two years prior to the startup of revenue service at the discretion of the Transportation Superintendent (Rail)	September 1988
Transportation Operations Supervisor (Rail)	9	10	SCRTD	Two positions filled at 3 months prior to the delivery of the first vehicle. Other positions filled prior to three months the startup of the integrated testing program.	8 - March 1988 Others prior to September 1988
Chief Central Control Supervisor	1	1	Transit industry search	Six months prior to the delivery of the first vehicle.	January 1988
Central Control Supervisor	4	8	SCRTD/possible transit and railroad industry	Two at approximately three months from the delivery of the first vehicle. Other positions filled at least three months prior to the startup of the integrated testing program.	8 - March 1988 Others prior to September 1988
Rail Operators	15	20	SCRTD	Approximately three months prior to the startup of revenue service as required for training and pre-revenue service operations	July - September 1988

- o Additional supervisory employees hired to conduct operational testing of the vehicles and systems.
  
- o Operating and support employees hired for pre-revenue and revenue service operation.

This approach to the hiring of operations personnel has been successfully employed by other transit operators starting up rail service. For the RTD, it represents a sound approach that will provide for the effective blending of existing staff capabilities with those of experienced rail transit supervisory personnel.

#### 4.1.1 Operations Personnel Training Requirements

The training of supervisors, dispatching, and operating employees will be a significant task. It will be necessary to develop a well-trained operating staff which can be certified for revenue service by successfully executing operational tests involving the performance of the various duties.

Prior to the start of the initial vehicles testing, a small group of supervisory employees will be hired to establish operating rules and procedures, develop training programs, and assist in the performance of early vehicle and systems testing. Their basic training will have been derived from manufacturers' training programs, experience with other transit operators, and operation of the train during early periods of system verification. This small group will form the nucleus of an expanding training program in all aspects of train operations. Its members will train other supervisors and personnel who will, in turn, train and certify personnel who will ultimately operate the trains in revenue service.

For the thorough training of the additional supervisory staff, it is estimated that a period of approximately three months will be required. For most supervisory employees, this training will be reinforced by 'on the job' responsibilities in connection with the carrying out of the integrated testing program. The training for supervisory employees will be intensive, covering all phases of train and station operation, including troubleshooting and emergency situations where the evacuation of trains and stations may be necessary. They will also be trained in methods of instructing other operating and support employees.

The training of rail operators will require one week of classroom instruction followed by an additional three to four weeks of line and yard operations instruction in the field. While complete course details remain to be developed prior to the start of training activities, the classroom training would be designed to emphasize the following subjects.

- o System orientation
- o Safety
- o Track and wayside description
- o Station operation detail
- o Vehicle familiarization
- o Communications
- o Emergency procedures

The field training in train operations would provide instruction in both line and yard service. Specific training items to be covered would include the following.

- o Safety
- o Simulation of abnormal conditions
- o Normal yard and line operation
- o Emergency procedures
- o Troubleshooting
- o Communications

Throughout the rail operator training program, considerable emphasis on safety and responding to emergencies will be required. The operation of rail trains involves an operating environment of underground and overhead facilities where the track switches, and other potentially hazardous equipment will be relatively unfamiliar to most RTD employees. Proper use of the facilities, including prompt and effective action in the handling of emergencies should be emphasized in all training and operating activities.

The training of transit police personnel would encompass both regular police training and specialized instruction in rail transit system operations. For transit police officers, at least 16 weeks of academy instruction is required followed by a period of on-the-job training covering all aspects of transit police work. The Transit Police Department has been in touch with the Bay Area Rapid Transit District (BARTD) in anticipation of obtaining BARTD assistance in initiating rail transit operations familiarity for RTD transit police officers.

#### 4.2 MAINTENANCE PERSONNEL HIRING

Table 4-2 summarizes the recommended timing for the hiring of vehicle and systems maintenance personnel for the Long Beach-Los Angeles LRT line. In order to allow ample time for proper orientation and training, it is recommended that the buildup of maintenance personnel be scheduled from approximately six months prior to the start of the integrated testing through three months prior to the start of pre-revenue service. As with the hiring of operations personnel, a small group of supervisory employees would be hired initially to establish training procedures and program content.



Table 4-B

HIRING PLAN FOR MAINTENANCE PERSONNEL

Prepared by: \_\_\_\_\_  
 Approved by: \_\_\_\_\_

Position	Number of Positions		Source	When Hired	Date Based on Current Schedule
	Low	High			
Division Maintenance Manager	1	1	Transit industry search	At least two years prior to the startup of revenue service	September 1987
Manager, Rail Systems Maintenance	1	1	Transit and railroad industry search	At least two years prior to the startup of revenue service	September 1987
Rail Equipment Maintenance Supervisor	2	2	Transit industry search	Three months prior to the delivery of the first vehicle	March 1988
Vehicle Maintainers			SCRTD/possible transit industry search		
Electronics and Communications Technicians			SCRTD/local		
Rail Systems Maintenance Supervisor	2	2	Transit and railroad industry search	At least three months prior to the completion of systems installation	
Systems Maintainers			SCRTD/local		

The hiring of the vehicle maintenance supervisory group is tied to the acquisition and delivery of vehicles. Familiarization with the vehicle may be initiated prior to delivery of the manufacturer's site or test track facility. It is proposed that these personnel be added at least three months prior to the delivery of the first vehicle, depending on the length of time necessary to hire personnel and the nature of problems anticipated in the manufacture of the vehicle. During this time, the equipment maintenance supervisors would assist the Division Maintenance Manager in the preparation of shop and repair procedures and in planning for the reception of vehicles (outside contractors, railroads, and other RTD departments). Also, during this period prior to vehicle delivery, a time schedule for the hiring of additional vehicle maintenance personnel may be finalized taking into account the manufacturer's training program and on-site availability of personnel at the main yard until all vehicles are delivered and accepted.

Systems maintenance personnel should be hired so that they may be assigned as inspectors during the construction or installation period for the power distribution, signal, fare collection, and track systems. In addition, vendor training would be required as a condition of the installation contracts. This approach will require close coordination with the Commission which is responsible for system construction management.

#### 4.3 HIRING TIME SCHEDULE MODULE OF THE URBAN RAIL MANPOWER PLANNING SYSTEM (URAMPS)

URAMPS time schedule module has been developed using the Multiplan package. An example program output is shown in Figure 4-2 this module will be provided for the final version of this report.



## 5.0 LABOR AGREEMENT ANALYSIS

An examination of the labor rules pertaining to bus and rail operations which are in use by transit operators in several other cities was conducted. The transit systems analyzed were those for which labor agreement data were available. Follow-up contact with appropriate managers and labor relations specialists assigned to these organizations was also undertaken. The analysis indicates two areas of particular importance to the implementation of rail operations: (1) the development of rules governing the transition of personnel from bus-related positions to rail-related positions for the start-up of rail operations and (2) the development of rules governing the transfer of personnel between bus operations/maintenance positions and rail operations/maintenance positions once rail operations are ongoing. In particular, the timing and seniority impacts of such moves are pertinent.

The discussion which follows will examine the policies and procedures governing personnel transfers used by four other transit operators who provide both bus and rail service: MDTA (Miami), MARTA (Atlanta), Calgary Transit and Edmonton Transit. These four operators are believed to use the primary alternative methods of regulating bus/rail personnel transfers. First, the rules pertaining to operators will be examined as they apply to (1) initial rail operations, (2) general shakeups (although not every operator studied uses the term "general shake-up", that term will be used for consistency throughout this discussion to refer to the process of general sign-up for shifts, off-days, etc.), and (3) vacancies which occur between general shakeups. The same format will be used to present rules and regulations applicable to maintenance personnel. Finally, the

key issues for SCRTD will be identified and recommendations presented.

## 5.1 RULES USED TO REGULATE TRANSFER OF BUS AND RAIL OPERATORS

The labor agreement analysis isolated the rules used by the four transit operators to regulate the movement of operators between bus and rail positions. There are three primary points in time at which regulations must be applied in order to ensure efficient operation of the transit system: (1) at initial commencement of rail operations, (2) at general shakeups and (3) when vacancies occur between general shake-ups.

### 5.1.1 Metropolitan Dade County Transportation Administration (Miami)

#### 5.1.1.1 Initial Rail Operations

All new rail operator positions were first offered to bus operators, who were eligible to be selected for rail training in accordance with their seniority as bus operators. Once selected, these operators were allowed to transfer their seniority to a new rail operations seniority list. In addition to the operators selected for initial rail training, a signup for other operators wishing to be considered eligible for future rail operator training was also held. In order for an operator to be eligible to retain seniority when transferring from bus to rail in the future, it was necessary to participate in this signup.

#### 5.1.1.2 General Shake-ups

An operator may transfer from bus to rail at a general shake-up, but only if a vacancy exists. Miami has separate seniority lists for bus and rail operators. Operators transferring from rail to bus operations are placed at the bottom of the bus operator seniority list. Operators transferring from bus to rail operations, if they have participated in the signup noted above, are permitted to carry their bus seniority over to rail. Operators who did not participate in the rail-eligibility signup and later transfer to rail are placed at the bottom of the rail operator seniority list.

#### 5.1.1.3 Filling Vacancies Between General Shake-ups

Operators may bid on vacant positions at any time, with selection dependent upon qualifications and seniority. Seniority rules for these transfers are the same as noted above. Operators transferring from bus to rail operations, if they have participated in the signup for rail, are permitted to carry their bus seniority over to rail. Operators who did not participate in the rail-eligibility signup and later transfer to rail are placed at the bottom of the rail operator seniority list. Operators transferring from rail to bus operations are placed at the bottom of the bus operator seniority list.

#### 5.1.2 MARTA (Atlanta)

##### 5.1.2.1 Initial Rail Operations

MARTA negotiated a supplementary agreement at the commencement of rail operations. New positions in the Rail Division were posted for selection by bus operators according to seniority. Bus operators who received rail training were

required to remain in rail operations for at least one year.

#### 5.1.2.2 General Shake-ups

Operators have three general shake-ups per year. Bus and rail operators in Atlanta occupy one seniority unit. After completing the one-year initial rail obligation, operators with sufficient seniority can theoretically move between rail and bus operations at every general shake-up. It is required that an employee give at least six weeks notice to leave the Rail Division and must leave at the next shake-up after giving notification. Selection for the Rail Operator Training Program occurs at the six-week notice point in accordance with seniority. In practice, Atlanta has found that movement between bus and rail is not common, perhaps because of a local law which limits overtime for bus drivers, which removes one of the primary incentives for an operator to return to bus operations.

#### 5.1.2.3 Filling Vacancies Between General Shake-ups

Vacancies are advertised and filled through monthly interim shake-ups. In accordance with the supplementary agreement, however, transfers to and from the Rail Division occur only during general shake-ups. Vacancies within the Rail Division between general shake-ups are usually filled using spare operators and overtime.

### 5.1.3 Calgary Transit

#### 5.1.3.1 Initial Rail Operations

Information will be available in the final report

#### 5.1.3.2 General Shake-ups

General shake-ups for operators are held every three months. Calgary has a single seniority list for bus and rail operators. Operators may switch between bus and rail operations only at a special shake-up held every six months (Calgary Transit is currently attempting to change this to once a year). There is a three-month advance notification requirement for operators desiring to transfer between bus and rail. The reason for seeking the one-year bus/rail transfer restriction is that there is only one vacation list and, with a single seniority list, there are difficulties coordinating vacations and ensuring adequate numbers of operators are available for both bus and rail operations.

#### 5.1.3.3 Filling Vacancies Between General Shake-ups

Vacancies in operations positions between shake-ups are filled only from the spareboard. There is also a contingency list of trained rail operators. In cases where there are vacancies which will exist until the next general shake-up, the vacancy will be filled from the spareboard and the spareboard will be filled from the contingency list.

#### 5.1.4 Edmonton Transit

##### 5.1.4.1 Initial Rail Operations

Information will be available in the final report



#### 5.1.4.2 General Shake-ups

Operators have general shake-ups five times per year. There is one seniority list for bus and rail operators. Operators can transfer between bus and rail at every general shake-up. Any surface transit operators with sufficient seniority may sign up for LRT training at a general shake-up. It is not necessary in Edmonton that a vacancy exist for an operator to transfer between bus and rail. For example, an senior operator is allowed to bump a more junior LRT operator at a general shake-up, even if the junior operator is already qualified in LRT operations and the senior operator is not. As a practical matter, Edmonton Transit has found this does not happen often, primarily because they do not have a large number of rail operator positions.

#### 5.1.4.3 Filling Vacancies Between General Shake-ups

Vacancies occurring between general shake-ups are filled from the spareboard.

#### 5.1.5 Summary

The conclusions indicated by examination of these rules and associated issues include:

- new rail operator positions at the initial implementation of rail operations in the two U.S. transit systems studied were offered to bus operators for selection on the basis of seniority.
- once initial requirements are met, there is an issue of timing of future

transfers to rail operations. There are two alternatives to addressing this situation: (1) allow transfers only at specified times such as general shake-ups, as in Atlanta and Edmonton, or at special shake-ups, as in Calgary, and (2) allow transfers at any time a vacancy exists, as in Miami.

- There is also an issue of whether a vacancy must exist for an operator to transfer between bus and rail. This is a requirement in Miami, but not at general shake-ups in Atlanta and Edmonton and special shake-ups in Calgary.

- Finally, there is the issue of transferring seniority between bus and rail operators. There are also two alternatives to this issue suggested by the analysis: (1) a single seniority list, as in Atlanta, Edmonton and Calgary, or (2) separate seniority lists for bus and rail operators, as in Miami.

## 5.2 RULES USED TO REGULATE TRANSFER OF BUS AND RAIL MAINTENANCE PERSONNEL

Examination of the four transit operations suggests that transfer of personnel between bus and rail maintenance is somewhat less common than occurs with operators because of the variety of skill requirements. However, each of the four transit operators analyzed have rules and regulations in place which regulate the movement of personnel between maintenance positions. In addition, rules were created to cover filling of new positions at rail service implementation.

### 5.2.1 Metropolitan Dade County Transportation Administration (Miami)

#### 5.2.1.1 Initial Rail Operations

New rail positions were offered to qualified bus maintenance personnel. Selection was made in accordance with qualifications and seniority. Technicians selected for transfer were given additional training (primarily vendor-supplied) and also allowed to carry full seniority to new positions. In practice, however, Miami found that few maintenance technicians transferred to rail and most rail maintenance initial hires were made from outside. In addition, Management negotiated the prerogative for the first year of rail operations to use all maintenance personnel at its discretion, regardless of specific job classifications.

#### 5.2.1.2 General Shake-ups

In Miami, general shake-ups are held for maintenance personnel twice a year. Selection is made within job classification seniority. The classifications used are: car cleaners, mechanics, electricians, and electronic technicians. An employee transferring from one classification to another moves to the bottom of the new classification seniority list.

#### 5.2.1.3 Filling Vacancies Between General Shake-ups

An employee may change classifications within the maintenance department only by bidding on a vacancy. All vacancies are posted and advertised in-house as they become available. An employee transferring to a new classification loses all classification seniority and moves to the bottom of the list within the new classification.

## 5.2.2 MARTA (Atlanta)

### 5.2.2.1 Initial Rail Operations

New positions at the commencement of rail operations were offered to maintenance personnel, along with additional training (primarily vendor-supplied), according to seniority. MARTA also agreed to establish at least 7 electronic technician apprentice positions for in-house development of rail technicians. In Atlanta, all maintenance personnel occupy one seniority unit, therefore, new seniority lists were not required at system opening.

### 5.2.2.2 General Shake-ups

There are no general markups for maintenance. Atlanta has a system whereby senior personnel can bump junior personnel in their craft at any time providing the senior employee has been in his current position at least six months. This cannot be done outside of craft, however. In addition, MARTA negotiated an agreement after the initial start-up of rail operations that maintenance personnel transferring to rail will be allowed to transfer at the apprentice level only, although these individuals would retain their full maintenance seniority. This rule was developed to prevent the loss of key bus personnel.

### 5.2.2.3 Filling Vacancies Between General Shake-ups

Vacancies are posted for all maintenance personnel and may be applied for by all qualified personnel at any time. As noted above, all maintenance personnel - bus and rail - occupy one seniority unit. Employees may not transfer between

bus and rail maintenance, or between different crafts, unless there is a vacancy. However, when a transfer does occur, the employee will carry full seniority to the new position. The employee remain in the new position for at least six months.

### 5.2.3 Calgary Transit

#### 5.2.3.1 Initial Rail Operations

Information will be available for the final report

#### 5.2.3.2 General Shake-ups

There are no general shake-ups for maintenance personnel.

#### 5.2.3.3 Filling Vacancies Between General Shake-ups

Vacancies are filled by a system of "posted weekly orders" and are awarded according to qualifications and seniority. A vacancy must exist for an employee to transfer between bus and rail maintenance, or between skill classifications. Calgary has a single seniority list for all maintenance personnel. Once a transfer has been approved from one Maintenance position to another, the employee will carry full seniority over to the new position. The employee is required to stay in the new position for a minimum of six months.

### 5.2.4 Edmonton Transit

#### 5.2.4.1 Initial Rail Operations

Edmonton has separate seniority classifications for the different trades. When rail operations first began in 1978, a new seniority classification was developed for electro vehicle mechanics (EVM) by allowing interested trolley-bus and auto mechanics to apply, then giving them extra training. Since this list was established, any employee transferring to this craft is placed at the bottom of the seniority list.

#### 5.2.4.2 General Shake-ups

Maintenance personnel in Edmonton have two general shake-ups per year (summer & winter). Personnel cannot transfer between bus and rail maintenance at general shake-up unless there is a vacancy.

#### 5.2.4.3 Filling Vacancies Between General Shake-ups

Seniority in Edmonton is based on time in trade. Edmonton has not experienced significant personnel movement among the different trades. An employee may apply for a vacancy in another trade, but will lose all seniority in former trade. Cleaners occupy one seniority unit. Servicemen in LRT are in a different seniority unit. Once they have been trained and complete six months probation, returning to bus operations will cause the employee to be placed at the bottom of the bus service seniority list.

#### 5.2.5 Summary

The conclusions indicated by examination of these rules and associated issues include:

- in the systems studied, new rail maintenance positions at the initial implementation of rail operations, along with additional (usually vendor-supplied) training, were offered to bus maintenance personnel for selection on the basis of seniority.
- in all the systems studied, once the initial positions have been filled, transfer between bus and rail maintenance positions and to different skill classifications is allowed only when there is a vacancy in the new position.
- The primary issue in the transferring of maintenance personnel between bus and rail positions is transferring of seniority. There are basically two alternatives to this issue suggested by the analysis: (1) a single seniority list, as in Atlanta and Calgary, or (2) separate seniority lists for different job classifications, as in Miami and Edmonton.

### 5.3 RECOMMENDATIONS FOR SCRTD

As a result of the above analysis, along with analysis of the existing agreements previously made by the SCRTD, the following policies are recommended.

#### 5.3.1 Recommendations for Rail Operations Positions

##### 5.3.1.1 Initial Rail Operations

It is recommended that new Rail Operator positions and Rail Operator training be offered to bus operators based on seniority and that bus operators receiving rail training be required to remain in Rail Operations for a minimum period of one year. It is further recommended that there be a single seniority list for bus and rail operators

#### 5.3.1.2 General Shake-ups

It is recommended that operators not be permitted to transfer between bus and rail operations at every general shake-up. Rather, it is recommended that operators desiring to transfer between rail and bus operations be subject to the same restrictions as currently in effect for transferring between bus divisions (allowed twice a year at specified times only).

#### 5.3.1.3 Filling Vacancies Between General Shake-ups

It is recommended that vacancies occurring between general shake-ups be filled from within the Rail Division only and that operators desiring to transfer between rail and bus operations be subject to the same restrictions as currently in effect for transferring between bus divisions (allowed twice a year at specified times only).

### 5.3.2 Recommendations for Rail Maintenance Positions

#### 5.3.2.1 Initial Rail Operations

It is recommended that new Rail Maintenance positions and vendor-supplied Rail



Maintenance training be offered to bus maintenance personnel operators based on qualifications and seniority and that maintenance personnel receiving this training be required to remain in Rail Maintenance for a minimum period of one year.

It is further recommended that there be an additional Departmental seniority list for Rail Maintenance personnel in accordance with Section 15 of the SCRTD/ATU agreement. Personnel transferring to rail maintenance positions at initial start-up of rail operations be permitted to transfer their full departmental seniority to rail maintenance. After start-up of rail operations, it is recommended that maintenance personnel transferring from bus maintenance be placed at the bottom of the rail maintenance seniority list.

#### 5.3.2.2 General Shake-ups

It is recommended that maintenance personnel not be permitted to transfer between bus and rail maintenance at every general shake-up, but only when a vacancy in the new position exists.

#### 5.3.2.3 Filling Vacancies Between General Shake-ups

It is recommended that vacancies occurring between general shake-ups be filled as currently provided for in existing agreements. Vacancies should be offered to personnel in the same classification and department prior to allowing bids from other qualified employees. In this manner, bus maintenance personnel would be allowed to bid on a vacancy in rail maintenance, but only after the position has been first offered to rail maintenance personnel. Assuming a new

departmental seniority list is prepared for rail maintenance personnel,  
employees transferring between bus and rail maintenance would then be placed at  
the bottom of the appropriate departmental seniority list.

APPENDIX A:

SYSTEM POSITION DESCRIPTIONS

Note: Position descriptions have not been included for the following jobs.

Transportation Superintendent  
Division Transportation Manager  
Division Steno  
Division Maintenance Manager  
Clerk Typist  
Equipment Records Specialist  
Manager, Rail Systems Maintenance  
Laborer  
Building and Grounds Maintenance Supervisor  
Property Maintainer  
Transit Police Lieutenant  
Transit Police Sergeant  
Transit Police Officer  
Transit Police Investigator  
Security Guard  
Storekeeper  
Stock Clerk

## CHIEF CENTRAL CONTROL SUPERVISOR

### Basic Function

Under administrative supervision, directs and coordinates light rail transportation activities at the Central Control facility; supervises Central Control Operation activities, including overseeing and resolving scheduled operating problems, monitoring revised scheduled operations caused by service interruptions, and implementing emergency plans as necessary to ensure safe operation of the light rail system; performs other related work.

### Classification Characteristics

Supervision Received From:

Supervision Exercised Over:

### Examples of Duties

Plans, directs, coordinates and controls the activities and personnel of the Central Control operations center. Promulgates operational rules, regulations and related procedures for the efficient operation of Central Control.

Enforces operational safety policies and reviews problem areas to determine the need for changes to improve safety procedures and policies.

Implements contingency plans, making necessary changes to scheduled service during disruptions or other emergencies to minimize the length of delays and discomfort to passengers.

Supervises and coordinates the flow of communications from Central Operations to supervisors, passengers on trains, in stations, and to other Operations Department entities. Coordinates the releases of news media items with the Office of Public Affairs.

Maintains close liaison with the Transit Police relative to police and fire department assistance; coordinates the entry on to transit property of all fire, life, and safety agencies.

Formulates work schedules and makes assignments to subordinates.

Estimates staffing and material requirements, analyzes efficiency of the Central Control Center and submits recommendations for required equipment and personnel.

Implements and executes appropriate training programs.

Discusses complaints and grievances with employees, attempting to resolve complaints in accordance with sound employee relations practices and operating requirements. Evaluates and discusses performance of personnel, recommending laudatory or disciplinary action as appropriate.

Maintains a required level of understanding of technical problems in order to contribute to the resolution of electrical and electro-mechanical malfunctions.

Reviews and completes operational and other reports.

#### Required Knowledge and Abilities

Knowledge of rapid rail transit system functions, operating regulations and scheduling techniques; functions and services of all other departments involved in transit operation interruptions; electrical distribution systems and switching facilities; knowledge of, or the ability to rapidly attain knowledge of SCRTD rules, regulations and procedures and the ability to implement them for passenger safety during emergencies; ability to coordinate the functions of Central Control Operations Center with other functions of SCRTD and be able to obtain effective cooperation from them; ability to devise new and improved methods for handling transit interruptions; ability to supervise and train new personnel; ability to communicate effectively, orally and in writing; ability to deal tactfully and effectively with others.

#### Desirable Qualifications

Any combination of training, education and experience which demonstrates the ability to perform the duties of this position. A bachelor's degree in a related field and three years supervisory experience, preferably in transit operations, are preferred.

#### Special Requirements

Must possess a valid California driver's license.

## CENTRAL CONTROL SUPERVISOR

### Basic Function

Under administrative supervision, is responsible for efficiently controlling and operating the light rail transit system; receiving, by way of numerous methods of communication, data relative to breakdown, incidents, occurrences and delays or changes in pre-scheduled operations, coordinating any necessary corrective action with other District divisions or outside agencies.

### Classification Characteristics

Supervision received from:

Supervision exercised over: All operations and maintenance field personnel, either directly or thru their immediate supervisor.

### Examples of Duties

Monitors the light rail operation, promulgating the rules, regulations and procedures, thereof; constantly reviewing their application in order to maintain or improve the standard.

Monitors the Status of the many systems and devices related to the light rail operation, such as; interlockings, gate crossings, traction power, AC electric, ventilation, air conditioning, pumps, fire alarms and intrusion alarms.

Coordinates the correction of malfunctions in any of the above.

Maintains communication with Rail Attendants, Rail and Maintenance Supervisors, Maintenance Crews, and Yard Control towers.

Coordinates the correction of any problem, relative to safe and timely movement of passengers on the rail system.

Monitors and directs the safe movement of non-revenue vehicles over the main line; and, the safe re-routing or diversion of passenger vehicles in emergency situations.

Properly receives and disseminates to the pertinent divisions or section all reports incidental to the rail operation; such as; accidents, disabled vehicles, sick/injured, disorderly passengers, fare evasion, assaults, robberies, etc.

Properly tests and operates the power distribution system; analyzing any failures therein and recommending corrective action.

Functions, during his/her tour of duty as surrogate Superintendent and provides said Superintendent with a daily, comprehensive report relative to rail operation activities.

Participates in the training of candidates for the Rail Traffic Controller position, or as needed for instructions of newly hired personnel.

Performs duties during time periods as directed.

#### Required Knowledges and Abilities

Knowledge of, or the ability to rapidly attain knowledge of: SCRTD rules and regulations; rail transit operating functions and procedures; current Labor Relations agreements, electrical power distribution systems, interlocking/switching facilities. Ability to coordinate the Central Control function with other functions of SCRTD. Ability to design and implement contingency procedures to overcome rail operation interruptions. Ability to participate in the training of new personnel. Ability to communicate effectively, orally and in writing with peers, supervisors and subordinates. Knowledge of and ability to modify rail operating schedules. Ability to evaluate facts, exercise good judgment, take appropriate action and effectively document actions taken in stress situations. Ability to work variable hours.

#### Desirable Qualifications

Bachelor's degree in transportation administration, or related field preferably with responsible transportation experience that required the resolution of operational problems related to scheduled services, equipment failure and other service disruptions, is desirable. Rail operations or related experience, including successfully demonstrated rail supervisory experience, or an equivalent combination of education and experience may also be acceptable.

#### Special Requirements

Must possess a valid California driver's license.



## TRANSPORTATION OPERATIONS SUPERVISOR (RAIL)

### Basic Function

Under administrative supervisor, is responsible for direct supervision of Rail Attendants and the monitoring and direction of mainline rail operations in the field.

### Classification Characteristics

Supervision received from: Central Control.

Supervision exercised over: Rail Attendants.

### Examples of Duties

Supervises Rail Attendants relative to all activities involved in the movement of trains on the mainline, including the conduct of Rail Attendants in the performance of their duties.

Monitors the operation of vehicles, performs troubleshooting techniques to determine vehicle defects, and recommends to Central Control a disposition of said vehicle.

Reports violations of operating rules and procedures.

Coordinates with Central Control in the Maintenance of Schedule and adjustments in headway.

Provides roving Supervision of mainline right-of-way, station platforms and structures, and other operational equipment for fault or abnormal function.

Trains candidate Rail Attendants in train operations and operating rules and procedures.

Maintains a working knowledge of passenger vehicles, yard, mainline, station and terminal operation and applies same in a professional manner.

Investigates passenger, employer and rail vehicle accidents, reporting same to Central Control with follow up written reports.

Operates wayside switches in an emergency and safely routes vehicle thru them, at the discretion of Central Control.

Coordinates with other SCRTD divisions and other outside agencies at the direction of Central Control in order to relieve and correct operational problems.

### Required Knowledges and Abilities

Knowledge of all operating rules and procedures; insuring adherence to and reporting violations thereof. Knowledge of rail passenger vehicles. Knowledge of procedures for use of emergency telephones and trip stations. Knowledge of

schedules and ability to make adjustment thereto. Ability to properly utilize radio communications and insure proper use by those in their charge. Ability to exercise prudence and good judgment, make evaluations in emergencies and concisely report and record same.

Desirable Qualifications

Prior experience as a Rail Attendant, or a transit employee familiar with rail operation is desirable graduation from high school or equivalency certificate. An equivalent combination of education and experience may be acceptable.

## RAIL VEHICLE MAINTAINER: (ELECTRO-MECHANICAL)

### Basic Function

Under direction of a Rail Vehicle Maintenance supervisor, is responsible for the proper inspection preventive maintenance, and repair of rail vehicles and their various systems and equipment, adhering to pre-established maintenance procedures and instructions and utilizing any necessary diagrams, and manuals.

### Classification Characteristics

The Rail Vehicle Maintainer class is electro-mechanical in nature with supervision received from the Vehicle Maintenance Supervisor.

### Examples of Duties

Based on assignment this employee inspects, repairs and replaces rail vehicle trucks and truck monitored equipment, such as wheels, axles, gear units, traction motors, friction brake equipment and air suspension systems.

Maintains, repairs and overhauls hydraulic/air systems and equipment, such as compressors, hydraulic pumps, brake control units and valves.

Operates heavy-duty machine tools, overhead cranes and hoists and other special equipment.

Inspects, repairs and replaces doors and door operating units, couplers, drawbars and control equipment.

Repairs equipment according to instructional diagrams, manuals, and manufacturers direction using proper tools and precisions testing equipment.

Repairs or replaces directive or worn parts; installs special parts in Systems and devices; lubricates and cleans.

Rides rail vehicles as assigned during peak operating periods to trouble-shoot minor problems in transit to preclude removal of vehicle from revenue service.

Performs related duties as required, and works variable hours.

### Required Knowledge and Abilities

Ability to read and properly interpret diagrams, sketches, operations manual and vendor's repair/maintenance instructions and procedures.

Knowledge of and ability to use precision measuring instruments, such as micrometers, calipers, etc.

Ability to operate lathes, drill presses, grinders, welding equipment and other metal working tools.

Ability to comprehend and adhere to safety regulations in the performance of assigned tasks.

Ability to communicate effectively and courteously while dealing with others.

Ability to pass any test required for a candidate for this classification.

Desirable Qualifications

Completion of at least the 10th grade with supplemental vocational training in mechanics, hydraulics or air conditioning. Considerable experience in rail vehicle repair or a closely related field. An equivalent combination of education and experience may be acceptable.

Special Requirement:

Must possess a valid California driver's license.

## SYSTEMS MAINTAINER: (POWER)

### Basic Function

Under direction of the Systems Maintenance Supervisor, is responsible for the electrical inspection, repair, adjustment, testing and normal maintenance of high voltage substation equipment, fare machine equipment and the overhead contact wire (trolley wire). Responsible for adherence to pre-established maintenance procedures and utilizing proper diagrams and manuals.

### Classification Characteristics

The Systems Maintainer class is electro-mechanical in nature with some dedicated electronic applications under the supervision of the Systems Maintenance Supervisor.

### Examples of Duties

Based on assignment this employee performs scheduled maintenance, installation, repair, modification and testing of electrical power distribution systems, transformers, rectifiers, power conversion equipment, high voltage switch gear and DC switch gear.

Inspects for guage and integrity, maintains, repairs and replaces the overhead contact wire and all related parts and devices.

Performs scheduled inspection and maintenance of fare machines, including repair or replacement of defective modules, parts or devices.

Maintains records and presents reports of inspection, testing and repair as required.

Adheres to and gives instructions regarding high voltage safety procedures.

Responds to equipment failure reports, determines the cause and restores equipment to service.

Responds to transportation emergencies and performs related duties as directed.

### Required Knowledge and Abilities

Ability to read and interpret diagrams, manuals and vendors repair/maintenance instructions and procedures.

Ability to perform complex wiring. Ability to utilize conduit, measuring, cutting, threading, bending, assembling and properly installing.

Ability to work from scaffolding, ladders and hydraulically raised platforms or below grade in manholes.

Ability to participate in training and instruction of candidates for this classification.

Knowledge of and ability to use precision measuring instruments.

Ability to comprehend and adhere to safety regulations and procedures in the performance of assigned tasks.

Ability to communicate effectively and courteously while dealing with others, orally and in writing.

Ability to pass any test required for a candidate for this classification.

Desirable Qualifications

Completion of at least the 10th grade with supplemental, training at a trade school or as an apprentice in high voltage electrical systems and three to five years experience in installation, testing and maintenance of high voltage electrical equipment, wire and cable. Training or experience in electronic applications and DC power conversion equipment. An equivalent combination of education and experience may be acceptable.

Special Requirement

Must possess a valid California driver's license.

## SYSTEMS MAINTAINER (SIGNAL)

### Basic Function

Under direction of the Systems Maintenance Supervisor performs inspection, maintenance, installation and repair work under scheduled or emergency conditions.

### Classification Characteristics-

An employee in this class performs work that may be electronic, electro/mechanical in nature during specified shifts, as directed by the Shift Supervisor providing insurance against disruptive loss of the signal or fare collection systems.

### Examples of Duties

Based on assignment this employee inspects, tests, adjusts, cleans, lubricates, properly maintains and repairs, installs or replaces major or minor parts or devices related to the fare and signal systems; adhering to instructions as set forth in wiring diagrams, schematics and maintenance manuals as provided by vendors.

Inspects, maintains and insures the safe and proper function of all signals and the track circuitry and/or interlocked switching that they govern in the yards and on the mainline.

Inspects, maintains/repairs grade crossing gates and insure the proper functioning of the tract circuitry and signals that govern their operation.

Monitor and insure the synchronization of the operation of rail signals with that of city street signals to allow non-conflicting traffic flow.

Insures by inspection and maintenance the proper functioning of the yard tower, route locking system, track circuit control, display boards and operating console.

Inspects, maintains and insures the proper function of fire and intrusion alarms in structures and stations, the proper operation of subway fans.

Performs scheduled inspection and maintenance of fare machines, including repair or replacement of defective modules, parts or devices.

Maintains valid records and presents reports of inspection, testing and repair as required.

Adheres to and gives instructions regarding safety procedures.

Responds promptly to equipment failure reports, determines the cause and restores equipment to service.

Responds to transportation emergencies and performs related duties as directed.

### Required Knowledge and Abilities

Ability to read and properly interpret diagrams, manuals and vendors repair/maintenance instructions and procedures.

Ability to perform complex wiring.

Ability to utilize conduit, measuring, cutting, threading, bending, assembly and property installing.

Ability to work from scaffolding, ladders, raised platforms or below grade in manholes.

Ability to participate in training and introduction of candidates for the classification.

Knowledge of and ability to use pertinent precision instruments.

Ability to comprehend and adhere to safety regulations and procedures in the performance of assigned tasks.

Ability to properly perform under operating conditions with high-speed rail vehicles passing on adjacent track.

Ability to communicate effectively and courteously while dealing with others, orally and in writing.

Ability to pass any test required for a candidate for this classification.

### Desirable Qualifications

Completion of at least the 10th grade with supplemental training at a trade school or as an apprentice in electrical systems and three to five years experience in installation, testing and maintenance of electrical equipment. Training or experience in electronic applications. An equivalent continuation of education and experience may be acceptable.

### Special Requirement

Must possess a valid California Driver's License.



## SYSTEMS MAINTAINER (TRACK)

### Basic Function

Under the direction of the Track Maintenance Supervisor, this employee is responsible for the proper inspection, maintenance, repair or replacement of track and switches in yards and on the mainline; including ties, ballast, embedding material, direct fixation pads, and appurtenant structures, stations and protective enclosures.

### Classification Characteristics

Track Maintainer class is chiefly mechanical in nature requiring considerable physical effort, and a basic knowledge of various mechanical crafts and skills.

### Examples of Duties

Inspects, gauges and adjusts mainline track on a scheduled basis or as required.

Removes and replaces track plates, ties and tie rail.

Performs welding and grinding operation as needed.

Mixes and applies concrete and asphalt as required.

Assists in the placement of rails.

Installs drainage pipes and may dig ditches as needed.

Operates impact machines, rail saws, rail drills and related track repair equipment and vehicles.

Maintains track related tools and vehicles.

Performs maintenance and repair tasks on transit stations and structures as directed.

Works in the fabrication of rail, repairing or preparing track and related components.

Performs related duties as required.

### Required Knowledge and Abilities

Knowledge of, or the ability to acquire the knowledge necessary to properly, effectively and safely operate assigned tools.

Ability to perform difficult physical tasks such as lifting and moving heavy objects.

Ability to work from written or oral instructions.

Ability to work variable hours while exposed to various weather conditions.

Ability to transmit and receive messages by radio and telephone.

Ability to comprehend and adhere to safety regulations and procedures in the performance of assigned tasks.

Ability to perform during operating hours with high speed rail vehicles passing on adjacent tracks.

Ability to pass any test required for a candidate for this classification.

Desirable Qualifications

Completion of, at least, the 8th grade or equivalent vocational training, with at least two years experience as a laborer, track repairer or related work. A good work record and demonstrated abilities. Equivalent education and experience may be acceptable.

## POWER MONITOR

### Basic Function

Under the direction of the Chief Rail Traffic Controller or Central Control Supervisor, monitors and safety tests, according to pre-established procedures, the electrical power distribution system within the limitations and constraints of the operating console located within central control. Is responsible for the provision of power necessary for scheduled rail operations, and the prompt shutdown of power when an emergency situation requires it.

### Classification Characteristics

The power monitor classification technical by nature requiring a thorough understanding of the discipline as applied in rail transit, but, not a practicable field expertise. It requires, at times, the calm handling of stressful situations under the supervision of a Central Control Supervisor.

### Examples of Duties

Tests and operates the contact wire and its associated distribution systems, substation and emergency trip station facilities as allowed from the Power Console in Central Control.

Maintains a comprehensive updated knowledge of established power sections.

Coordinates the establishment of emergency contingency plans relative use of power with the Central Control Dispatchers to minimize disruptions of rail service.

Maintains a thorough knowledge of the mainline trackage, pocket tracks, switches, yards and terminals.

Coordinates with the Central Control Dispatcher relative to the safe restoration of power subsequent to a power outage.

Analyses failures as allowed by the Central Console as an assist in the identity of cause of failure and method of corrective action.

Strictly adheres to pre-established rules and procedures to insure safe use of power.

Prepares reports and performs related duties as required.

### Required Knowledge and Abilities

Knowledge of, or the ability to rapidly acquire a knowledge of the Rail Transit System and associated rules and regulations governing the use of power particularly with regard to operations and safety.

Ability to communicate effectively orally and in writing. Ability to work variable hours.

Ability to pass any test required for candidates for this classifications.

Desirable Qualifications

Graduation from high school or vocational school with a rail transit background preferred. Experience in field of power distribution, industrial or transit. Electrical background. An equivalent combinations of education and experience may be acceptable.

## YARD SUPERVISOR

### Basic Function

Under administrative supervision, is responsible for the safe and timely movement of rail vehicles within the limits of the yard and shop areas and for coordinating with Central Control the movement of rail vehicles to and from the mainline.

### Classification Characteristics

An employee in this class performs primarily as an expeditor and coordinator limited by pre-set schedule and the technical constraints built in to the operating console. The Yard Tower Controller is subordinate to the Rail Traffic Control at Central Control and exercises supervision over personnel operating rail vehicles within the Yard Tower control.

### Examples of Duties

Expedites the safe and timely entry of rail vehicles into scheduled or unscheduled mainline, revenue or non-revenue service coordinating with Central Control.

Expedites the safe and timely removal of rail vehicles from scheduled and unscheduled mainline revenue or non-revenue service, coordinating with Central Control.

Coordinates with the Rail Vehicle Maintenance Supervisor relative to vehicle movements to and from the stop and storage areas.

Insures safe control of power within yard limits, maintaining an updated record of the yard power sections.

Promptly shuts power down where emergencies or operations demand and insures the safe restoration where the shut down is over.

Monitors the various alarms on the tower panel.

Keeps an updated log as to the location and status of the rail vehicles in the shop and storage.

Reports all unusual occurrences, accidents, power outages, switch and signal failures, etc. to Central Control.

Participates in the training of any candidate for entry into this classification.

### Required Knowledge and Abilities

Knowledge of or the ability to rapidly attain knowledge of SCRTD rules and regulations, rail transit operating functions and procedures, current labor agreements pertinent to yard activities, yard power distribution system.

Ability to communicate effectively, orally and in writing with peers, subordinates and superiors.

Ability to function safely and properly in stress situations.

Ability to work variable hours.

Desirable Qualifications

Completion of high school education and rail transit experience, yard, tower, or supervisory experience preferred.

Special Requirements

Must possess a valid California driver's license.

## ELECTRONIC TECHNICIAN (VEHICLE)

### Basic Function

Under supervision, this employee is responsible for performing highly skilled maintenance, repair, trouble-shooting and diagnostic testing of rail transit vehicle equipment; at times, employing independent judgment and action within pre-established guidelines.

### Classification Characteristics-

An employee in this class performs technical maintenance and repair work of a difficult and complex nature under the supervision of a Rail Vehicle Maintenance Supervisor.

### Examples of Duties

Performs diagnostic testing of all car/equipment systems utilizing computer controlled transit car diagnostic equipment as necessary.

Performs highly skilled electronic maintenance duties involving calibration, inspection, testing, adjustments, repair and design modifications. Determines operational reliability of equipment.

Uses wiring diagrams, schematics, manuals and manufacturers maintenance instructions with appropriate test equipment in the inspection, trouble shooting and repair of transit car systems, subsystems, components and printed circuit boards.

Evaluates equipment malfunctions and prepares failures reports; maintains a log of system, subsystem and component failure.

Performs calibrations, repair and modification of various electronic test equipment, digital volt meters, counters, oscilloscopes, precision power supplies, resistance, bridges, etc.

Participates in training programs and instructs personnel as necessary.

Performs related duties as required.

### Required Knowledge and Abilities

Knowledge of safety rules and procedures.

Thorough knowledge of and ability to trouble shoot solid-state devices; integrated circuitry, operational amplifiers, silicone control rectifiers, shift registers, digital to analog and analog to digital convertors, etc.

Ability to analyze/interpret computer printouts is desirable.

Ability to locate, diagnose, repair, install, replace or modify rail vehicle electronic systems and components.

Ability to read, properly interpret and use schematics, line and wire diagrams, operations manuals, vendors maintenance instructions.

Ability to operate diagnostic computer to perform diagnostic testing of rail vehicle/equipment as necessary.

Ability to give technical assistance to other personnel and participate in training programs.

Ability to distinguish basic colors for wire and safety identification.

Ability to work variable hours.

Ability to communicate effectively, orally and in writing with peers, subordinates and superiors.

Ability to pass any test required for entry into this classification.

#### Desirable Qualifications

Graduation from high school or possession of high school equivalency certicator. Completion of an acceptable Electronics Maintenance course and three to five years responsible experience in the inspection, maintenance, trouble shooting and calibration/repair of digital systems, control systems, communications systems and components. An equivalent combination of education and experience may be acceptable.

#### Special Requirement

Must possess a valid California driver's license.



## RAIL VEHICLE MAINTAINER (ELECTRICAL)

### Basic Function

Under administrative supervision, this employee is responsible for maintaining and repairing rail transit vehicles electrical systems and equipment in accordance with schematics, wiring diagrams, operations manuals and manufacturers' instructions.

### Classification Characteristics-

An employee in this class performs electrical maintenance work under direction of a Rail Vehicle Maintenance Supervisor; but, with latitude for independent judgment and action according to pre-established guidelines.

### Examples of Duties

Based on assignment, maintains and repairs rail vehicle electrical equipment using such test instruments as volt meters, ohmmeters, oscilloscopes, etc.

Performs preventive maintenance, trouble shoots and tests vehicle electrical systems, sub-systems and equipment.

Disassembles, cleans, overhauls/repairs, replaces, tests and installs rail vehicle traction motors generators, door operators and auxiliary electric motors.

Tests, troubleshoots, repairs/replaces electric control signal systems equipment, including circuitry and rebuilding of assemblies and sub-assemblies.

Tests, troubleshoots repairs/replaces and calibrates electronic solid-state systems and control equipment; power supplies, amplifiers, control boards.

Tests, troubleshoots and repairs system interfaces, including train line circuits and electric couplers.

Maintains, repairs/replaces and tests electro-mechanical equipment and devices; destination signs, cam controllers, unit switches, motor controls, solenoid valves and switches.

Replaces and repairs batteries and associated equipment.

Rides rail vehicles as assigned during peak operating periods to trouble-shoot problems in transit to preclude removal of vehicle from revenue service.

Inspects used parts and equipment for changes in calibration and dimension requirements.

Repairs/replaces defective or worn parts. Lubricates and cleans parts and equipment.

Operates special shop equipment/tools to make/repair parts.

Performs other related duties as required.

Required Knowledge and Abilities

Ability to read and properly interpret schematics, wiring diagrams, operational manuals and manufacturers' maintenance instructions.

Ability to effectively analyze and correct assigned technical problems.

Ability to use electrical test equipment efficiently.

Ability to communicate effectively, orally and in writing with peers, subordinates and superiors.

Knowledge of safety rules and regulations.

Ability to work variable hours.

Ability to pass any test required for entry into this classification.

Desirable Qualifications

Graduation from high school or possession of a high school equivalency certificate. Vocational training in electrical/electronic courses. Three to five years of experience maintaining rail transit vehicles electrical systems or related work. An equivalent combination of education and experience may be acceptable.

Special Requirement

Must possess a valid California driver's license.

## MAINTAINER (CENTRAL CONTROL)

### Basic Function

Under administrative supervision, this employee is responsible for the inspection and maintenance of all equipment and devices, including CCTV equipment contained within the Central Control Unit in order to insure its proper function, and to minimize operational interruption by prompt diagnosis and repair of any malfunction.

### Classification Characteristics

The work of this class is principally electronic in nature, requiring a basic electro-mechanical aptitude and ability. This employee prime function is to respond to malfunction and insure prompt correction. While performing at Central Control he/she takes direction from the Central Control Supervisor; when, in the shop, from the Systems Supervisor.

### Examples of Duties

Performs highly skilled Electronic Maintenance duties, involving inspection, testing, adjustment and modification.

Uses wiring diagrams, schematics, manuals and vendors maintenance instructions with appropriate test equipment in the inspection, trouble shooting and repair of central control systems, subsystems, components and printed circuit boards.

Evaluates equipment malfunctions and prepares equipment failure reports; maintains a log of system, subsystem and component failure.

Calibrates, repairs, and modifies various electronic test equipment, when necessary and as directed.

Performs shop work of an electronic nature when so directed.

### Required Knowledge and Abilities

Ability to locate, diagnose, repair, install, replace or modify electronic systems and components.

Ability to read, properly interpret and use schematics, line and wire diagrams, operations manuals, vendor's maintenance instructions.

Ability to provide technical assistance to other employees and participate in training programs.

Ability to distinguish basic colors for wire and safety identifications.

Ability to communicate effectively, orally and in writing with peers, subordinates and superiors.

Ability to work variable hours.

Ability to pass any test required for entry into this classification.

Knowledge of the rail system rules and procedures.

Desirable Qualifications

Graduation from high school or possession of a high school equivalency certificate. Completion of an acceptable electronics maintenance course. Three to five years responsible experience in the inspection, maintenance, trouble shooting and calibration/repair of digital systems, control systems, communications systems and components. An equivalent combination of education and experience may be acceptable.

Special Requirement

Must possess a valid California driver's license.

## VEHICLE MAINTENANCE SUPERVISOR (ELECTRONIC)

### Basic Function

Under direction, oversees a major component of the District's electronic systems and equipment installation and maintenance program; performs other related duties.

### Classification Characteristics

Supervision Received From: Manager (Vehicle Maintenance)

Supervision Exercised Over: Rail Vehicle Maintainers and Electronic Technicians

### Examples of Duties

Manages the installation, repair and maintenance of electronic systems in revenue or non-revenue equipment.

Develops and administers staff training programs.

Participates in preparation of annual budget requests and records expenditures.

Assists the Manager of Rail Vehicle Maintenance in the search for and selection of Rail Vehicle Maintenance personnel.

Supervises subordinate staff.

Conducts first-level hearings of employee discipline and grievance cases.

Develops and implements telecommunications equipment preventive maintenance programs, abiding by manufacturers recommendations and the demands of warranty.

Coordinates the resolution of installation and maintenance programs between user departments, telecommunications staff and outside vendors.

Investigates incidents involving telecommunications equipment failure.

Prepares written and oral reports.

### Required Knowledge and Abilities

Knowledge of operation of current communications and digital electronic systems; repair and maintenance procedures for electronic equipment and radio telecommunications systems; rules and regulations for operation of radios and closed circuit television and related F.C.C. licensing requirements; principles and practices of supervision. Ability to analyze and solve complex electronic system problems; supervise subordinate staff; prepare and manage a budget; understand and interpret labor/management agreements; prepare and report via computer terminal; develop equipment preventive maintenance programs; communicate effectively orally and in writing; ability to work variable hours; ability to pass any test required for this classification.

### Desirable Qualifications

Any combination of training, education and experience which demonstrates the ability to perform the duties of the position. An Associate's Degree in Electronics including advanced courses in telecommunications, digital electronics and computer applications in telecommunications, and two years' experience supervising the maintenance of electronic systems are preferred.

### Special Requirements

Must possess a valid California driver's license.

Must possess a valid General Radiotelephone Operator's License issued by the F.C.C.

Incumbents are on-call for emergency repair problems.

## VEHICLE MAINTENANCE SUPERVISOR (ELECTRO-MECHANICAL)

### Basic Function

Under direction, oversees a major component of the District's Electro-Mechanical Systems and equipment installation and maintenance program: performs other related duties.

### Classification Characteristics

Supervision received from: Manager (Rail Vehicle Maintenance)

Supervision exercised over: Rail Vehicle Maintainers and Electronics Technician

### Examples of Duties

Manages the inspection, maintenance, repair/installation of electro-mechanical systems in revenue and non-revenue rail equipment.

Develops and administers staff training programs, coordinates all vendor training as included in contracts with various manufacturers of vehicle systems and equipment.

Participates in preparation of annual budget requests and records expenditures.

Supervises subordinate staff.

Conducts first-level hearings of employer discipline and grievance cases.

Develops and implements electro-mechanical equipment preventive maintenance programs, abiding by manufacturer's recommendations and the demands of warranty.

Coordinates the resolution of maintenance problems between Rail Equipment Maintenance staff and outside vendors.

Investigates incidents involving electro-mechanical equipment failure.

Prepares written and oral reports.

Assists the Rail Vehicle Maintenance Manager in the search for and selection of Rail Vehicle Maintenance personnel.

### Required Knowledge and Abilities

A thorough knowledge of electro-mechanical components, parts, systems and devices as applied in a light rail vehicle.

A thorough knowledge of or the ability to develop maintenance procedures, and, the ability to enforce their use within the shop environment.

Ability to analyze and solve complex electrical system problems, using blue prints, specifications, and schematics.

Ability to supervise a subordinate staff, efficiently assigning tasks in order to enhance production.

Ability to prepare and manage a budget.

Ability to understand and properly interpret labor/management agreements.

Knowledge of or ability to obtain knowledge of the preparation of reports via computer terminal.

Ability to communicate effectively orally and in writing.

Ability to work variable hours.

Ability to pass any test required for this classification.

#### Desirable Qualifications

Any combination of training, education and experience which demonstrates the ability to perform the duties of this position. A license to perform as a Journeyman Electrician. Two years experience supervising the electro-mechanical maintenance of rail vehicles is preferred.

#### Special Requirements

Must possess a valid California driver's license.

Must be on-call for emergency repair problems.



## TRAIN OPERATOR

### Basic Function

This employee is responsible for properly carrying out those functions pertaining to the safe, courteous and efficient operation of an assigned vehicle. This may include pre-departure inspection and testing; monitoring passenger movements and the performance of the vehicle.

### Classification Characteristics

An employee in this class performs rail transit vehicle operations work under limited supervision, exercising prudent judgment in accordance with pre-established rules and regulations.

Supervision received from:

### Examples of Duties

Makes necessary announcements over public address systems; carries out, correctly, instructions issued by Central Control; safely maintains pre-established schedule and headway; reports all unusual occurrences to central control; provides information and assistance to passengers, supervisors and other appropriate personnel.

Under direction of Yard Control Tower or Yard Supervisor, inspects, makes up, tests and operates rail vehicles to transfer track or point of entry to mainline.

Operates designed vehicles from storage to shop and return.

Prepares defective vehicle and accident reports.

Participates in the on-the-job instruction of new personnel.

Performs platform, yard or train work as assigned.

### Required Knowledge and Abilities

Knowledge of components, systems and devices necessary for the propulsion and stopping of rail vehicles.

Ability and willingness to learn and comply with operating rules, regulations and procedures.

Knowledge of or the ability to acquire the knowledge of the location and method of de-energizing and re-energizing power and the rules and regulations governing these actions.

Ability to work variable hours.

Ability to communicate effectively, orally and in writing, with peers, superiors.

Ability to exercise prudent and timely judgment in normal and emergency situations.

Ability to properly and effectively utilize, intercom, PA and radio.

Ability to complete the training program and pass any test required for this classification.

Desirable Qualifications

Completion of 10th grade or equivalent vocational school. A minimum of two years satisfactory driving experience in the operation of a public passenger-carrying vehicle. An equivalent combination of education and experience may be acceptable.

Special Requirement

Possession of a valid California driver's license.

Applicants traffic records should reflect responsibility and a respect for traffic rules and regulations.

## SYSTEM MONITORS (CCTV)

### Basic Function

The employer in this class monitors activities in stations, fare collection areas and other designated locations within the light rail transit system and reports the results of these alterations to the Central Control Supervisor.

### Classification Characteristics

Supervision received from:

### Examples of Duties

Maintains a chronological log of activities observed in the various stations and localities of the rail transit system by means of closed circuit television.

Closely monitors the various closed circuit television sets in his/her charge, immediately reporting abnormal or unusual events.

Assists the Rail Traffic Controller as directed.

### Required Knowledge and Abilities

Knowledge of the geographic layout of the Rail Transit System and the physical characteristics of the stations and structures contained therein.

Ability to communicate effectively orally, by telephone or radio, and in writing.

Knowledge of the method of operation of a rail transit system.

Ability to work variable hours.

Ability to pass any test required for this classification.

### Desirable Qualification

Completion of the tenth grade. A record of at least two years of satisfactory performance in related or similar work. An equivalent combination of education and experience.

### Special Requirement

Possession of a valid California driver's license.

## SYSTEM MONITORS (FARE INSPECTION)

### Basic Function

Under administrative supervision is responsible for monitoring the proper payment of fare and the issuance of citations for any evasion thereof.

### Classification Characteristics

Supervision received from:

### Examples of Duties

Provides information to passengers relative to proper use of fare machines.

Reports any fare machine malfunction.

Checks passengers in stations or aboard vehicles in transit relative to the possession of a proper ticket for passage.

Issues citations, according to pre-established guidelines, to those passengers who do not possess proper tickets for passage.

Provides assistance, information or direction to passengers.

Assists the Rail Supervisor in emergency situations.

Reports abnormal or unusual occurrences to Central Control.

Provides testimony and documentation in a court of law as a result of the issuance of a citation for fare-evasion.

Performs other tasks as assigned.

### Required Knowledge and Abilities

Knowledge of or ability to acquire knowledge of the rules and procedures involved in the operation of a rail transit system.

Ability to communicate effectively with others orally and in writing, at times using hand-held radios and telephones.

Knowledge of the physical and geographic layout of the rail transit system and its interface with bus.

Ability to work variable hours.

Ability to handle stressful situations. Ability to pass any examination for entry into this classification.

Desirable Qualifications

Completion of high school or possession of a high school equivalency certificate. Some experience involving security or surveillance. Any combination of education and experience.

Special Requirement

Must possess a valid California driver's license.

## SYSTEMS MAINTENANCE SUPERVISOR

### Basic Function

Under direction, oversees a major component of the District's Electronic-Electro-Mechanical Systems and equipment installation and maintenance program; performs other related duties.

### Classification Characteristics

Supervision received from: Manager (Systems Maintenance)

Supervision exercised over: Rail Systems Maintainers, (Power-Signal-Fare)

### Examples of Duties

Manages the inspection, maintenance, repair/installation of electronic, electro-mechanical systems related to distribution of power, signals and telecommunications, and collection of fares.

Develop and administers staff training programs, coordinates all vendor training as included in contracts with various manufacturers of Rail Systems Equipment.

Participates in annual budget requests and records expenditures.

Supervises subordinate staff.

Conducts first-level hearings of employer discipline and grievance cases.

Develops and implements electronic-electro-mechanical equipment maintenance programs, abiding by manufacturer's recommendations and demands of warranty.

Coordinates the resolution of maintenance problems between Systems Maintenance staff and outside vendors.

Investigates incidents involving electronic-electro-mechanical equipment failure.

Prepares written and oral reports.

Assists the Rail Systems Maintenance Manager in the search for and selection of Rail Systems Maintenance personnel.

### Required Knowledge and Abilities

A thorough knowledge of electronic-electro-mechanical components, parts, systems and devices as applied in a light rail transit system.

A thorough knowledge of the ability to develop maintenance procedures, and the ability to enforce their use.

Ability to analyze and solve complex systems problems using blue prints, specifications and schematics.

Ability to supervise a subordinate staff, efficiently assigning tasks in order to enhance production.

Ability to prepare and manage a budget.

Ability to understand and properly interpret labor/management agreements.

Knowledge of or ability to acquire knowledge of the preparation of reports via computer terminal.

Ability to communicate effectively orally and in writing.

Ability to work variable hours.

Ability to pass any test required for this classification.

Desirable Qualifications

Any combination of training, education and experience which demonstrates the ability to perform the duties of this position. Formal training in electronics. Licensed Journeyman Electrician. Two years experience supervising electronic-electro-mechanical maintenance.

APPENDIX B  
URBAN RAIL MANPOWER PLANNING SYSTEM (URAMPS)



URBAN RAIL MANPOWER PLANNING SYSTEM (URAMPS)  
OPERATING INSTRUCTIONS

## 1.0 INTRODUCTION

The SCRTD Urban Rail Manpower Planning System (URAMPS) is designed to provide useful information for manpower planning by allowing the user to interrelate organizational, system and personnel-related data. URAMPS consists of two parts. First, URAMPS contains five Input Modules which encompass the primary factors impacting upon manpower planning. These are:

- (1) organizational structure
- (2) system characteristics
- (3) pay grade structure
- (4) union affiliation
- (5) personnel specifications

The Input Modules and their associated commands are used to enter and manipulate data. This data can also be stored on diskettes for future use.

The second part of the Manpower Planning Model is the Calculation Module. This Module allows the user to interrelate the five Input Modules and perform calculations which will produce comprehensive manpower planning information. The Calculation Module will provide the following outputs:

- (1) calculation of manpower requirements
- (2) calculation of labor costs, including salary and benefits, based on the calculated manpower requirements
- (3) calculation of labor costs based upon the calculated manpower requirements and affiliation
- (4) summary of labor costs by department
- (5) organization structure reports.

URAMPS has been designed with ease of use in mind. It is intended to be conversational, with numerous input prompts and multiple menus included throughout URAMPS for the benefit of the user.

## 2.0 LOADING URAMPS

The user must take the following steps to load URAMPS into the computer:

- a) An IBM Personal Computer with 128K of memory is required. The user must first load DOS 2.1 into the computer by placing a disk containing DOS 2.1 into the left disk drive (Disk Drive A) of the PC and turning it on. The computer will prompt the user to input the date and time. The user will know that DOS has been properly loaded when the "A>" symbol appears on the screen.
- b) The diskette containing URAMPS should be placed in the right disk drive (Disk Drive B) of the PC.
- c) The user must enter the command "b:" in order to load URAMPS from Disk Drive B. URAMPS should then be loaded into the computer by entering: URAMPS.

d) Finally, the diskette containing the files which the user intends to load into URAMPS (if different from the diskette which contains URAMPS) must be placed in Disk Drive B. URAMPS is now ready for use.

### 3.0 GENERAL ORGANIZATION OF URAMPS

As noted above, URAMPS consists of five Input Modules and a Calculation Module. To use the Calculation Module, the Input Modules must contain data. When the user first loads URAMPS, the Modules are empty. Data can be put in the Input Modules in two ways: directly entered by the user or loaded from a diskette.

Basically, the five Input Modules are made up of data lines which contain data on division structure, system characteristics, pay grade, personnel affiliation and personnel specifications entered by the user. The organization of the Input Modules is as follows: the first four Input Modules - Division Structure, System Characteristics, Pay Grade and Personnel Affiliation - all contain different types of information and exist independently of one another. The commands used with these four Modules are similar. URAMPS will prompt the user to provide the appropriate data in the correct formats to these Modules.

The Personnel Specification Module is organized somewhat differently. It receives inputs from the other four Input Modules as well as from the user. Therefore, it is necessary that data be entered into the first four Input Modules before the user enters data into the Personnel Specification Module. In addition, the commands associated with the Personnel Specification module are significantly different from those used in the other Input Modules.

Input Modules are saved and retrieved separately, and different types of Input Modules may be saved under the same file name. For example, both a Division Structure Module and a Systems Characteristics Module may be saved under the name LITERAIL. However, these Modules are not required to be loaded and used together in URAMPS. This feature allows the user to have one file for a Module which does not change significantly, such as Pay Grade. This Module can be used with a number of other Input Modules which may be more variable, such as Systems Characteristics, without having to create multiple file names for the Pay Grade Module.

### 3.0 THE MAIN MENU

When URAMPS is first loaded into the computer, the Main Menu will appear on the screen. The Main Menu is organized into three sections, as shown in Figure 1. Sections A and B of the Main Menu list the five Input Modules and their associated data input and manipulation commands, respectively. Section C contains the commands associated with the Calculation Module.

## A. INPUT MODULES

- |                             |                            |
|-----------------------------|----------------------------|
| {1} Divisions Structure     | {2} System Characteristics |
| {3} Pay Grade               | {4} Personnel Affiliation  |
| {5} Personnel Specification |                            |

## B. DATA COMMANDS

- |            |           |
|------------|-----------|
| (1) Read   | (2) Save  |
| (3) Clear  | (4) Print |
| (5) Show   | (6) Input |
| (7) Delete | (8) Files |

## C. CALCULATION MODULE

- |                            |                                   |
|----------------------------|-----------------------------------|
| (71) Calculate Labor Costs | (72) Personnel Affiliation Report |
| (73) Produce Cost Summary  | (74) Save Summary Results         |
| (75) Print Files in Use    | (76) Organization Report          |
| (77) Input Title           | (78) Finish                       |

ENTER TWO DIGIT CODE

Figure 1  
MAIN MENU

Commands used from the Main Menu must be a two number combination and are entered on the Menu following the notation "ENTER TWO DIGIT CODE".

When working with Input Modules, Main Menu commands are composed of the number from Section A which corresponds to the Module the user wishes to work with, followed by the number from Section B which corresponds to the operation the user wishes to perform. For example, if the user wishes to work with the Division Structure Module and to Read data into that module, the command 11 would be used. If the user wishes to work with the Personnel Affiliation Module and to Input data to that Module, the command 46 would be entered.

When working with the Calculation Module, the commands contained in Section C of the Main Menu are used. These functions can be directly implemented by entering one of the 70-series commands listed in Section C of the Main Menu.

Each of Main Menu command combinations are discussed in further detail below.

#### 4.0 GENERAL INSTRUCTIONS

Before outlining the detailed commands, the following general instructions apply when using the Manpower Planning Model:

Inputting Commands to URAMPS - Instructions input by the user must be in lower case letters. If upper case is incorrectly used, the computer will beep. The computer will also beep if any other incorrect input to URAMPS is provided by the user. Restrictions on input formats which will cause this response can be found in the Module Organization descriptions provided for each Input Module in Section 5.0.

Default Responses - When using a number of URAMPS commands, URAMPS will prompt the user for an appropriate input. These prompts will be in one of several formats:

a) URAMPS may pose a question without providing alternative responses. For example,

DIVISIONS OLD FILE NAME?

is designed to prompt the user to provide the name of a file to be retrieved. In these cases, the user must enter the appropriate information in full.

b) URAMPS may pose a question and provide two alternative responses which are written out in full. For example,

TOTAL file or SINGLE division (total/single)?

is designed to prompt the user to specify the amount of a file to be retrieved. When this format is used, the user must specify the response to URAMPS by entering the first letter of the desired alternative ("t" or "s" in this case).

c) URAMPS may also pose a question and provide two alternative responses, one which is abbreviated and the other which is written out in full. For example,

Do you want to specify GLOBAL BENEFITS (y/no)?

is designed to specify the parameter GLOBAL BENEFITS to URAMPS. When this format is used, the alternative that is written out in full constitutes the default response and the user need only press the <ENTER> key to provide that response to URAMPS. If the user desires to enter the non-default response, the abbreviated alternative must be entered ("y" in the example above).

File Names - File names can be up to 8 characters. A file name must begin with a letter, but may have any combination of letters or numbers thereafter.

## 5.0 INPUT MODULES AND ASSOCIATED DATA COMMANDS

The sections which follow provide detailed instructions for using the Input Modules and their data commands. For each Module, the organization of the data contained within the Module and the formats of the data fields are presented, followed by a discussion of each command which can be used with the Module.

### 5.1 Division Structure Module

#### 5.1.1 Division Structure Module Data Organization

The Division Structure Module contains organizational inputs used by the Calculation Module. The user may input up to 30 organizational entities, each represented by a data line, into the Division Structure Module. A Division Structure data line consists of four fields (see Figure 2):

- (1) Line No. - a number from 1 to 30. This number is selected by the user and is significant only in identifying the data line. The data line number is a required entry. Data line numbers are not required to be sequential. For instance, it is acceptable to have a line 2 without a line 1. The data line number is a required entry. Changes and deletions to data contained in a data line are referenced using the line number.
- (2) Division Name - This field identifies the organizational entity and can be up to 15 characters in length. This is also a required entry.
- (3) Division Number - This field is used to represent the relationships between organizational entities. It is a required entry and may be 1 to 3 digits in length. The Division Number provides a means of representing the hierarchical structure of organizational entities and should be used to codify organizational structure.
- (4) Code - This field allows the user to enter any combination of up to 5 numbers and letters which may be associated with an organizational entity (such as an internally-used routing code), but which may not conform to the hierarchical structure of Division Numbers. This field will be printed wherever a Division Name is printed on an output report. It is an optional entry.

No.	Division Name	Division Number	Code
1	AGM-OPERATIONS	200	3099
2	TRANSPORTATION	210	3201

Figure 2  
Example of a Division Structure Data Line

### 5.1.2 Division Structure Module Commands

The following commands are associated with the Division Structure Module:

#### 11 - Read Division Structure

Use: To retrieve a Division Structure Module which has been previously entered and saved on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

DIVISIONS OLD FILE NAME ?

The name of the desired file should be entered. That file will then be retrieved from the diskette currently contained in the Disk Drive B and loaded into the Division Structure Module.

Related commands: The name of the file must be known prior to entering the 11 command. If the name of the desired file is not known, the user should return to the Main Menu by entering an asterisk (\*) and then review the names of the available files using the Division Structure Files command (18) outlined below.

#### 12 - Save Division Structure

Use: To save the Division Structure Module on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

DIVISIONS NEW FILE NAME ?

The desired file name under which the Division Structure Module is to be stored should be entered. The data will be stored under the entered name on the diskette contained in Disk Drive B.

#### 13 - Clear Division Structure

Use: To clear the Division Structure Module.

When the Command is Entered on the Main Menu: URAMPS will ask:

Do you REALLY want to CLEAR or DELETE DATA (y/n)?

Entering y will clear the Division Structure Module.

Entering n will return the user to the Main Menu. The Division Structure Module will be left intact.

#### 14 - Print Division Structure

Use: To print the Division Structure Module.

When the Command is Entered from the Main Menu: The screen will go blank and the Division Structure Module will be printed. When printing is complete, the user will be returned to the Main Menu.

#### 15 - Show Division Structure

Use: To display the Division Structure Module on the screen.

When the Command is Entered from the Main Menu: The Division Structure Module will be displayed. An auxiliary menu will also be presented at the bottom of the screen as follows:

menu/first/next/input/delete/line no.to change

The Division Structure Module is contained in either one or two pages. A page contains 16 data lines. If there are 16 data lines or less, the entire Module will be displayed on one page. If there are more than 16 data lines in the Division Structure Module, the display will require two pages. The second page may be viewed by entering the command "n" from the auxiliary menu as described below.

Related commands: Auxiliary menu commands may be entered as follows:

Entering m (for menu) will return the user to the Main Menu.

Entering f (for first) will display the first page of the Division Structure Module.

Entering n (for next) will display the second page of the Division Structure Module. When the second page is displayed, the remaining data lines will be overlaid on the first page display. As a result, lines from the first page which are not overlaid will continue to be shown on the screen.

Entering n when the second page of data is being displayed will result in the notation END OF INFO at the top of the screen. The user must press the <ENTER> key to return to the auxiliary menu.

Entering i (for input) will take the user to the input mode (discussed in further detail under command 16 below)

Entering d (for delete) will take the user to the delete mode (discussed in further detail under command 17 below)

Entering the number of a data line contained in the Division Structure Module will allow the user to change the data contained in that line. When an existing data line number is entered, that data line number will be displayed and the cursor will be placed on the Division Name field of the data line.

The user may then enter changes if necessary. If a field does not need to be changed, the cursor should be skipped to the next field by pressing <ENTER> and the original field will be left intact. After all fields in the data line have been either corrected or skipped, the user will be automatically returned to the auxiliary menu.

## 16 - Input Division Structure

Use: To input data to the Division Structure Module.

When the Command is Entered from the Main Menu: The Division Structure Module will be displayed in one of two formats. If the Division Structure Module contains less than 16 data lines (less than one page), the user will enter the input mode automatically. If the Division Structure contains 16 or more data lines (one page or more), the user must enter the input mode manually. The first page of the Module and the auxiliary menu will be displayed on the screen. The user must enter "i" (for input) in order to enter the input mode.

Once in input mode, the cursor will be placed on the Line No. field of the data line. Data can be entered by typing in the appropriate information, followed by the <ENTER> key. <ENTER> will move the cursor to the next field of the data line. Multiple data lines can be entered while in the input mode. After all new data lines have been entered, the user must enter an asterisk (\*) in column 1 of the screen. This will return the user to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the main menu.

Related Commands: Changes to existing data lines may not be made from the input mode. URAMPS will not accept the number of an existing data line while in input mode. Changes must be made by entering an existing data line number from the auxiliary menu as described above.

All other auxiliary menu commands may also be implemented as described above when the auxiliary menu is displayed.

## 17 - Delete Division Structure

Use: To delete data lines contained in the Division Structure Module.

When the Command is entered from the Main Menu: The first page of the Division Structure Module will appear and the auxiliary menu will be displayed on the screen. The user must enter "d" (for delete) to enter the delete mode.

Once in delete mode, URAMPS will ask:

Which line no. do you wish to DELETE?

The desired data line number should be entered. The designated line will be deleted and the indication DELETED will be displayed at the top of the screen. The user must press <ENTER> to return to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the Main Menu.

Related Commands: All auxiliary menu commands may be implemented as described above when the auxiliary menu is displayed.



## 18 - Division Structure Files

Use: To view the Division Structure files contained on the diskette in Disk Drive B. This list constitutes the files which can be entered into the Division Structure Module.

When the Command is Entered from the Main Menu: URAMPS will state:

AVAILABLE DIVISIONS FILES ARE:

followed by the names of the available Division Structure files. After the available files have been viewed, pressing the <ENTER> key will return the user to the Main Menu.

### 5.2 System Characteristics Module

#### 5.2.1 System Characteristics Module Data Organization

The System Characteristics Module contains operating characteristics inputs used by the Calculation Module. The user may input up to 99 characteristics, each represented by a data line, into the System Characteristics Module. A System Characteristics data line consists of four fields, all of which are required entries (see Figure 3):

- (1) Line No. - a number from 1 to 99. This number is selected by the user and is significant only in identifying the data line. Data line numbers are not required to be sequential. For instance, it is acceptable to have a line 2 without a line 1. Changes and deletions to data contained in a data line are referenced using the line number.
- (2) System Characteristic - This field identifies the operating characteristic and can be up to 15 characters in length.
- (3) Quantity - This field contains the numerical measure of the operating characteristic. This entry must be a number of any size and may include one decimal point. Numbers which are over 7 characters in length will be converted by URAMPS into scientific notation.
- (4) Units - This field provides the unit measure of the operating characteristic and can be up to 5 characters in length. Personnel calculations will be made based upon the number of units specified.

No.	System Characteristic	Qty.	Units
1	Peak Vehicles	68	No.
2	Peak Trains	17	No.

Figure 3  
Example of System Characteristic Data Line

### 5.2.2 System Characteristics Module Commands

The following commands are associated with the System Characteristics Module:

#### 21 - Read System Characteristics

Use: To retrieve a System Characteristics Module which has been previously entered and saved on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

SYSTEM OLD FILE NAME ?

The name of the desired file should be entered. The desired file will then be retrieved from the diskette currently contained in Disk Drive B and loaded into the System Characteristics Module.

Related commands: The name of the file must be known prior to entering the 21 command. If the name of the desired file is not known, the user should return to the Main Menu by entering an asterisk (\*) and then review the names of the available files using the System Characteristics Files command (28) outlined below.

#### 22 - Save System Characteristics

Use: To save the System Characteristics Module on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

SYSTEM NEW FILE NAME ?

The desired file name under which the System Characteristics Module is to be stored should be entered. The Module will be stored under the entered name on the diskette contained in Disk Drive B.

#### 23 - Clear System Characteristics

Use: To clear the System Characteristics Module.

When the Command is Entered from the Main Menu: URAMPS will ask:

Do you REALLY want to CLEAR or DELETE DATA (y/n)?

Entering y will clear the System Characteristics Module.  
Entering n will return the user to the Main Menu. The System Characteristics Module will be left intact.

#### 24 - Print System Characteristics

Use: To print the System Characteristics Module.

When the Command is Entered from the Main Menu: The screen will go blank and the System Characteristics Module will be printed. When printing is complete, the user will be returned to the Main Menu.

#### 25 - Show System Characteristics

Use: To display the System Characteristics Module on the screen.

When the Command is Entered from the Main Menu: The System Characteristics Module will be displayed. An auxiliary menu will also be presented at the bottom of the screen as follows:

menu/first/next/input/delete/line no.to change

The System Characteristics Module is contained in one or more pages. A page contains 16 data lines. If there are 16 data lines or less, the entire Module will be displayed on one page. If there are more than 16 data lines in the System Characteristics Module, the display will require multiple pages. The additional pages may be viewed by entering the command "n" from the auxiliary menu as described below.

Related commands: Auxiliary menu commands may be entered as follows:

Entering m (for menu) will return the user to the Main Menu.

Entering f (for first) will display the first page of the System Characteristics Module.

Entering n (for next) will display the next page of the System Characteristics Module. When additional pages are displayed, the next 16 data lines will be overlaid on the current display. The user must continue to enter "n" to view all available pages of data.

If the next page contains less than 16 data lines, the lines from the previous page which are not overlaid will continue to be shown on the screen. Entering "n" when the last page of data is being displayed will result in the notation END OF INFO at the top of the screen. The user must press the <ENTER> key to return to the auxiliary menu.

Entering i (for input) will take the user to the input mode (discussed in further detail under command 26 below)

Entering d (for delete) will take the user to the delete mode (discussed in further detail under command 27 below)

Entering the number of a data line contained in the System Characteristics

Module will allow the user to change the data contained in that line. When an existing data line number is entered, that data line number will be displayed and the cursor will be placed on the System Characteristic field of the data line. The user may then enter changes if necessary. If a field does not need to be changed, the cursor should be skipped to the next field by pressing <ENTER> and the original field will be left intact. After all fields in the data line have been either corrected or skipped, the user will be automatically returned to the auxiliary menu.

## 26 - Input System Characteristics

Use: To input data to the System Characteristics Module.

When the Command is Entered from the Main Menu: The System Characteristics Module will be displayed in one of two formats. If the System Characteristics Module contains less than 16 data lines (less than one page), the user will enter the input mode automatically. If the division structure contains 16 or more data lines (one page or more), the user must enter the input mode manually. The first page of the Module and the auxiliary menu will be displayed on the screen. The user must enter "i" (for input) in order to enter the input mode.

Once in input mode, the cursor will be placed on the Line No. field of the data line. Data can be entered by typing in the appropriate information, followed by the <ENTER> key. <ENTER> will move the cursor to the next field of the data line. Multiple data lines can be entered from the input mode. After all new data lines have been entered, the user must enter an asterisk (\*) in column 1 of the screen. This will return the user to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the main menu.

Related Commands: Changes to existing data lines may not be made from the input mode. URAMPS will not accept the number of an existing data line while in input mode. Changes must be made by entering an existing data line number from the auxiliary menu as described above.

All other auxiliary menu commands may also be implemented as described above when the auxiliary menu is displayed.

## 27 - Delete System Characteristics

Use: To delete data contained in the System Characteristics Module.

When the Command is entered from the Main Menu: The first page of the System Characteristics Module will appear and the auxiliary menu will be displayed on the screen. The user must enter "d" (for delete) to enter the delete mode.

Once in delete mode, URAMPS will ask:

Which line no. do you wish to DELETE?

The desired data line number should be entered. The designated line will be deleted and the indication DELETED will be displayed at the top of the screen. The user must press <ENTER> to return to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the Main Menu.

Related Commands: All auxiliary menu commands may be implemented as described above when the auxiliary menu is displayed.

## 28 - System Characteristics Files

Use: To view the System Characteristics files contained on the diskette in Disk Drive B. This list constitutes the files which can be entered into the System Characteristics Module.

When the Command is Entered from the Main Menu: URAMPS will state:

AVAILABLE SYSTEM FILES ARE:

followed by the names of the available System Characteristics files. After the available files have been viewed, pressing the <ENTER> key will return the user to the Main Menu.

### 5.3 Pay Grade Module

#### 5.3.1 Pay Grade Module Data Organization

The Pay Grade Module contains salary structure inputs used by the Calculation Module. The user may input up to 99 pay grades, each represented by a data line, into the Pay Grade Module. A Pay Grade data line consists of three fields, all of which are required entries (see Figure 4):

(1) Line No. - a number from 1 to 99. This number is selected by the user and is significant only in identifying the data line. Data line numbers are not required to be sequential. For instance, it is acceptable to have a line 2 without a line 1. Changes and deletions to data contained in a data line are referenced using the line number.

(2) Classification - This field identifies the position classification and can be up to 15 characters in length.

(3) Salary - This field contains the salary level of the position. This entry must be a number and may be any length. URAMPS will convert entries which are over 7 characters in length to scientific notation.

No.	Classification	Salary
1	Manager	50000
2	Secretary	18000

Figure 4  
Example of Pay Grade Data Line

#### 5.3.2 Pay Grade Module Commands

The following commands are associated with the Pay Grade Module:

### 31 - Read Pay Grade

Use: To retrieve a Pay Grade Module which has been previously entered and saved on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

PAYGRADE OLD FILE NAME ?

The name of the desired file should be entered. That file will then be retrieved from the diskette currently contained in Disk Drive-B and loaded into the Pay Grade Module.

Related commands: The name of the file must be known prior to entering the 31 command. If the name of the desired file is not known, the user should return to the Main Menu by entering an asterisk (\*) and then review the names of the available files using the Pay Grade Files command (38) outlined below.

### 32 - Save Pay Grade

Use: To save the Pay Grade Module on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

PAYGRADE NEW FILE NAME ?

The desired file name under which the Pay Grade Module is to be stored should be entered. The Module will be stored under the entered name on the diskette contained in Disk Drive B.

### 33 - Clear Pay Grade

Use: To clear the Pay Grade Module.

When the Command is Entered from the Main Menu: URAMPS will ask:

Do you REALLY want to CLEAR or DELETE DATA (y/n)?

Entering y will clear the Pay Grade Module.

Entering n will return the user to the Main Menu. The Pay Grade Module will be left intact.

### 34 - Print Pay Grade

Use: To print the Pay Grade Module.

When the Command is Entered from the Main Menu: The screen will go blank and the Pay Grade Module will be printed. When printing is complete, the user will be returned to the Main Menu.

## 35 - Show Pay Grade

Use: To display the Pay Grade Module on the screen.

When the Command is Entered from the Main Menu: The Pay Grade Module will be displayed. An auxiliary menu will also be presented at the bottom of the screen as follows:

menu/first/next/input/delete/line no.to change

The Pay Grade Module is contained in one or more pages. A page contains 16 data lines. If there are 16 data lines or less, the entire Module will be displayed on one page. If there are more than 16 data lines in the Pay Grade Module, the display will require multiple pages. The second page may be viewed by entering the command "n" from the auxiliary menu as described below.

Related commands: Auxiliary menu commands may be entered as follows:

Entering m (for menu) will return the user to the Main Menu.

Entering f (for first) will display the first page of the Pay Grade Module.

Entering n (for next) will display the next page of the Pay Grade Module. When "n" is entered, the next 16 data lines will be overlaid on the screen. The user must continue to enter "n" to view all available pages of data.

If the next page contains less than 16 data lines, the lines from the previous page which are not overlaid will continue to be shown on the screen. Entering "n" when the last page of data is being displayed will result in the notation END OF INFO at the top of the screen. The user must press the <ENTER> key to return to the auxiliary menu.

Entering i (for input) will take the user to the input mode (discussed in further detail under command 36 below)

Entering d (for delete) will take the user to the delete mode (discussed in further detail under command 37 below)

Entering the number of a data line contained in the Pay Grade Module will allow the user to change the data contained in that line. When an existing data line number is entered, that data line number will be displayed and the cursor will be placed on the Classification field of the data line. The user may then enter changes if necessary. If a field does not need to be changed, the cursor should be skipped to the next field by pressing <ENTER> and the original field will be left intact. After all fields in the data line have been either corrected or skipped, the user will be automatically returned to the auxiliary menu.

## 36 - Input Pay Grade

Use: To input data to the Pay Grade Module.

When the Command is Entered from the Main Menu: The Pay Grade Module will be displayed in one of two formats. If the Pay Grade Module contains less than 16

data lines (less than one page), the user will enter the input mode automatically. If the division structure contains 16 or more data lines (one page or more), the user must enter the input mode manually. The first page of the Module and the auxiliary menu will be displayed on the screen. The user must enter "i" (for input) in order to enter the input mode.

Once in input mode, the cursor will be placed on the Line No. field of the data line. Data can be entered by typing in the appropriate information, followed by the <ENTER> key. <ENTER> will move the cursor to the next field of the data line. Multiple data lines can be entered from the input mode. After all new data lines have been entered, the user must enter an asterisk (\*) in column 1 of the screen. This will return the user to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the main menu.

Related Commands: Changes to existing data lines may not be made from the input mode. URAMPS will not accept the number of an existing data line while in input mode. Changes must be made by entering an existing data line number from the auxiliary menu as described above.

All other auxiliary menu commands may also be implemented as described above when the auxiliary menu is displayed.

### 37 - Delete Pay Grade

Use: To delete data lines contained in the Pay Grade Module.

When the Command is entered from the Main Menu: The first page of the Pay Grade Module will appear and the auxiliary menu will be displayed on the screen. The user must enter "d" (for delete) to enter the delete mode.

Once in delete mode, URAMPS will ask:

Which line no. do you wish to DELETE?

The desired data line number should be entered. The designated line will be deleted and the indication DELETED will be displayed at the top of the screen. The user must press <ENTER> to return to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the Main Menu.

Related Commands: All auxiliary menu commands may be implemented as described above when the auxiliary menu is displayed.

### 38 - Pay Grade Files

Use: To view the Pay Grade files contained on the diskette in Disk Drive B. This list constitutes the files which can be entered into the Pay Grade Module.

When the Command is Entered from the Main Menu: URAMPS will state:

AVAILABLE PAYGRADE FILES ARE:

followed by the names of the available Pay Grade files. After the available files have been viewed, pressing the <ENTER> key will return the user to the Main Menu.



## 5.4 Personnel Affiliation Module

### 5.4.1 Personnel Affiliation Module Data Organization

The Personnel Affiliation Module contains fixed and salary-proportional benefit levels which can be associated with both union and non-union positions. These benefit levels are used by the Calculation Module. The user may input up to 99 benefit levels, each represented by a data line, into the Personnel Affiliation Module. A Personnel Affiliation data line consists of four fields, all of which are required entries (see Figure 5):

(1) Line No. - a number from 1 to 99. This number is selected by the user and is significant only in identifying the data line. Unlike the previously discussed Modules, the data line number has additional significance in the Personnel Affiliation Module. The Calculation Module assumes line numbers from 1 to 49 in the Personnel Affiliation Module are associated with union positions and line numbers from 50 to 99 are associated with non-union positions. Data line numbers are not required to be sequential. For instance, it is acceptable to have a line 2 without a line 1. Changes and deletions to data contained in a data line are referenced using the line number.

(2) Affiliation - This field identifies the affiliation (for example, a union name or a non-union benefits package) and can be up to 15 characters in length.

(3) Fixed - This field identifies the fixed amount of benefits that are associated with each employee. Fixed benefits are those which are not dependent upon the salary level of the employee. This entry must be a number and may be of any length. Entries which are over 7 characters in length will be converted to scientific notation by URAMPS.

(4) % of Salary - This field contains the level of benefits which are proportional to the salary level of the employee. This entry is expressed as a percentage of the salary. This entry must be a number up to 5 characters in length, which may include one decimal point.

No.	Affiliation	Fixed	% of Salary
1	BRAC	2000	23.5
2	UTU	1500	35.85
50	Non-union	2500	14

Figure 5  
Example of a Personnel Affiliation Data Line

### 5.4.2 Personnel Affiliation Module Commands

The following commands are associated with the Personnel Affiliation Module:

#### 41 - Read Personnel Affiliation

Use: To retrieve a Personnel Affiliation Module which has been previously entered and saved on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

AFFILIATION OLD FILE NAME ?

The name of the desired file should be entered. That file will then be retrieved from the diskette currently contained in Disk Drive B and loaded into the Personnel Affiliation Module.

Related commands: The name of the file must be known prior to entering the 41 Command. If the name of the desired file is not known, the user should return to the Main Menu by entering an asterisk (\*) and then review the names of the available files using the Personnel Affiliation Files command (48) outlined below.

#### 42 - Save Personnel Affiliation

Use: To save the Personnel Affiliation Module on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

AFFILIATION NEW FILE NAME ?

The desired file name under which the Personnel Affiliation Module is to be stored should be entered. The Module will be stored under the entered name on the diskette contained in Disk Drive B.

#### 43 - Clear Personnel Affiliation

Use: To clear the Personnel Affiliation Module.

When the Command is Entered from the Main Menu: URAMPS will ask:

Do you REALLY want to CLEAR or DELETE DATA (y/n)?

Entering y will clear the Personnel Affiliation Module.  
Entering n will return the user to the Main Menu. The Personnel Affiliation Module will be left intact.

#### 44 - Print Personnel Affiliation

Use: To print the Personnel Affiliation Module.

When the Command is Entered from the Main Menu: The screen will go blank and the Personnel Affiliation Module will be printed. When printing is complete, the user will be returned to the Main Menu.

Use: To display the Personnel Affiliation Module on the screen.

When the Command is Entered from the Main Menu: The Personnel Affiliation Module will be displayed. An auxiliary menu will also be presented at the bottom of the screen as follows:

menu/first/next/input/delete/line no.to change

The Personnel Affiliation Module is contained in one or more pages. A page contains 16 data lines. If there are 16 data lines or less, the entire Module will be displayed on one page. If there are more than 16 data lines in the Personnel Affiliation Module, the display will require multiple pages. The second page may be viewed by entering the command "n" from the auxiliary menu as described below.

Related commands: Auxiliary menu commands may be entered as follows:

Entering m (for menu) will return the user to the Main Menu.

Entering f (for first) will display the first page of the Personnel Affiliation Module.

Entering n (for next) will display the next page of the Personnel Affiliation Module. When "n" is entered, the next 16 data lines will be overlaid on the screen. The user must continue to enter "n" to view all available pages of data.

If the next page contains less than 16 data lines, the lines from the previous page which are not overlaid will continue to be shown on the screen. Entering "n" when the last page of data is being displayed will result in the notation END OF INFO at the top of the screen. The user must press the <ENTER> key to return to the auxiliary menu.

Entering i (for input) will take the user to the input mode (discussed in further detail under command 46 below)

Entering d (for delete) will take the user to the delete mode (discussed in further detail under command 47 below)

Entering the number of a data line contained in the Personnel Affiliation Module will allow the user to change the data contained in that line. When an existing data line number is entered, that data line number will be displayed and the cursor will be placed on the Affiliation field of the data line. The user may then enter changes if necessary. If a field does not need to be changed, the cursor should be skipped to the next field by pressing <ENTER> whereupon the original field will be left intact. After all fields in the data line have been either corrected or skipped, the user will be automatically returned to the auxiliary menu.

## 46 - Input Personnel Affiliation

Use: To input data to the Personnel Affiliation Module.

When the Command is Entered from the Main Menu: The Personnel Affiliation Module will be displayed in one of two formats. If the Personnel Affiliation Module contains less than 16 data lines (less than one page), the user will enter the input mode automatically. If the division structure contains 16 or more data lines (one page or more), the user must enter the input mode manually. The first page of the Module and the auxiliary menu will be displayed on the screen. The user must enter "i" (for input) in order to enter the input mode.

Once in input mode, the cursor will be placed on the Line No.-field of the data line. Data can be entered by typing in the appropriate information, followed by the <ENTER> key. <ENTER> will move the cursor to the next field of the data line. Multiple data lines can be entered from the input mode. After all new data lines have been entered, the user must enter an asterisk (\*) in column 1 of the screen. This will return the user to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the main menu.

Related Commands: Changes to existing data lines may not be made from the input mode. URAMPS will not accept the number of an existing data line while in input mode. Changes must be made by entering an existing data line number from the auxiliary menu as described above.

All other auxiliary menu commands may also be implemented as described above when the auxiliary menu is displayed.

## 47 - Delete Personnel Affiliation

Use: To delete data contained in the Personnel Affiliation Module.

When the Command is entered from the Main Menu: The first page of the Personnel Affiliation Module will appear and the auxiliary menu will be displayed on the screen. The user must enter "d" (for delete) to enter the delete mode.

Once in delete mode, URAMPS will ask:

Which line no. do you wish to DELETE?

The desired data line number should be entered. The designated line will be deleted and the indication DELETED will be displayed at the top of the screen. The user must press <ENTER> to return to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the Main Menu.

Related Commands: All auxiliary menu commands may be implemented as described above when the auxiliary menu is displayed.

## 48 - Personnel Affiliation Files

Use: To view the Personnel Affiliation files contained on the diskette in Disk Drive B. This list constitutes the files which can be entered into the Personnel Affiliation Module.

AVAILABLE AFFILIATION FILES ARE:

followed by the names of the available Personnel Affiliation files. After the available files have been viewed, pressing the <ENTER> key will return the user to the Main Menu.

5.5 Personnel Specification Module

5.5.1 Personnel Specification Module Data Organization

The Personnel Specification Module contains the characteristics of individual positions and calculates manpower requirements based on those characteristics. These calculations are also used by the Calculation Module.

The Personnel Specification Module differs from the other Input Modules in several ways. First, inputs for the Personnel Specification Module are provided by not only by the user, but also from other Input Modules as specified by the user. For this reason, the Personnel Specification Module should be loaded only after data have been provided to the other Input Modules. In addition, the Main Menu commands associated with the Personnel Specification Module are significantly different from those used with the other Input Modules. Finally, the Personnel Specification Module uses different formats for inputting and manipulating data depending upon the characteristics of the position. In the Personnel Specification Module, positions may be categorized as fixed, variable or dependent. Each of these categorizations has differing data requirements for which URAMPS will provide appropriate prompts and menus. Positions may be also distinguished as shift-dependent or non-shift-dependent. These terms are discussed in further detail below.

The user may input up to 30 positions per organizational entity, each represented by a Personnel Specification, into the Personnel Specification Module. A Personnel Specification consists of up to nineteen fields:

(1) Division No. - identifies the organizational entity in which the position is located. This field is entered by the user and must correspond to a Division Number contained in the Division Structure Module. It is a required entry for all categories of positions.

(2) Division Name - provides the Division Name associated with the Division No. This field is provided automatically by URAMPS from the Division Structure Module when the Division No. is entered by the user.

(3) Position No. - identifies the number of the position within the division. Significant for dependent positions\*\*\*, format conventions, required entry, can be the same for different divisions

(4) Position title - identifies the position title. This field is entered by the user. It is also is a required entry for all categories of positions.

\*\*\*format conventions

(5) Affiliation - identifies the affiliation associated with the position. This field is entered by the user and must match a data line number from the Personnel Affiliation Module. It is a required entry for all categories of positions.

(6) Pay Grade - identifies the pay grade associated with the position. This field is entered by the user and must match a data line number from the Pay Grade Module. It is a required entry for all categories of positions.

(7) Type of Position - this field is used to categorize the position as either fixed, variable or dependent as follows:

Fixed - a fixed position is one in which the number of personnel required is fixed. The number of personnel associated with this position is directly entered by the user in field (8).

Variable - a variable position is one in which the number of personnel required is dependent upon one or more System Characteristics. The appropriate System Characteristics and the multipliers which represent the manpower requirements based on the System Characteristics are entered by the user in fields (9) through (14).

Dependent - a dependent position is one in which the number of personnel required is dependent upon the number of employees in an organizational structure, usually a supervisory position. The multipliers for dependent positions are entered by the user in field (15).

(8) No. of employees - this entry identifies the number of employees required for the position. This field is a required entry by the user for fixed positions and is calculated by URAMPS for variable and dependent positions.

(9),(10),(11) Control Variable - these fields are associated with variable positions only and are used specify up to System Characteristics which the manpower requirements may be made dependent upon. Entry of a minimum of one control variable, with a maximum of three, by the user is required for each variable position. These entries must match data line numbers from the System Characteristics Module.

(12),(13),(14) Positions per variable - these fields are associated with the control variables entered in fields (9), (10) and (11). They are used for variable positions only. An entry by the user is required for each field which has an entry in the corresponding control variable field. These entries specify the manpower required for each unit of the control variable.

(15) Supervisors per employee - this field is associated with dependent positions only and is used to indicate the ratio of supervisors to employees. This field is entered by the user and is a required entry for dependent positions.

Shift-dependent positions - fields (16) through (19) are associated with shift-dependent positions only. After the data are provided for fields (1) through (15) for variable and dependent positions as appropriate, URAMPS will prompt the user to specify whether the position is shift-dependent. Variable and dependent positions only may be specified as shift-dependent. If the user

specifies a position as shift-dependent, URAMPS will prompt the user to provide inputs to fields (16) through (19). For fixed positions and positions specified by the user as non-shift-dependent, URAMPS will automatically enter the number 1 in fields (16) through (19).

- (16) Shifts per day - this field is used to specify the number of shifts per day which must be covered by the position. It is a required entry by the user for shift-dependent positions.
- (17) Days per week - this field is used to specify the number of days per week which must be covered by this position. It is a required entry by the user for shift-dependent positions.
- (18) Weeks per year - this field is used to specify the number of weeks per year which must be covered by this position. It is a required entry by the user for shift-dependent positions.
- (19) Shifts per year - this field is used to specify the average number of shifts per year that one employee can be expected to cover, reflecting factors such as work weeks, absenteeism rates, turnover rates etc. It is a required entry by the user for shift-dependent positions.

#### 5.5.2 Personnel Specification Module Commands

The following commands are associated with the Personnel Specification Module:

##### 51 - Read Personnel Specification

Use: To retrieve Personnel Specifications which have been previously entered and saved on a diskette. The Personnel Specification Module, unlike the previously discussed Input Modules, can be retrieved either in its entirety or by individual Personnel Specifications.

When the Command is Entered from the Main Menu: URAMPS will ask:

LABOR OLD FILE NAME ?

The name of the desired file should be entered. URAMPS will then ask:

TOTAL file or SINGLE division (total/single)?

The user must enter "t" or "s" depending upon the data which the user desires to retrieve from the diskette. If the user answers "s", URAMPS will prompt the user to provide the desired Division Number. The specified files will then be retrieved from the diskette currently contained in Disk Drive B and loaded into the Personnel Specification Module.

Related commands: The name of the file must be known prior to entering the 51 command. If the name of the desired file is not known, the user should return to the Main Menu by entering an asterisk (\*) and then review the names of the available files using the Personnel Specification Files command (58) outlined below.

## 52 - Save Personnel Specification

Use: To save either the entire Personnel Specification Module or a single Division from the Personnel Specification Module on a diskette.

When the Command is Entered from the Main Menu: URAMPS will ask:

LABOR NEW FILE NAME ?

The desired file name under which the Personnel Specification Module is to be stored should be entered. URAMPS will then ask:

TOTAL file or SINGLE division (total/single)?

The user must enter "t" or "s" depending upon the data which the user desires to retrieve from the diskette. If the user answers "s", URAMPS will prompt the user to provide the desired Division Number. The specified data will then be saved on the diskette currently contained in Disk Drive B.

## 53 - Clear Personnel Specification

Use: To clear the Personnel Specification Module.

When the Command is Entered from the Main Menu: URAMPS will ask:

Do you REALLY want to CLEAR or DELETE DATA (y/n)?

Entering y will clear the Personnel Specification Module.  
Entering n will return the user to the Main Menu. The Personnel Specification Module will be left intact.

## 54 - Print Personnel Specification

Use: To print all or part of the Personnel Specification Module. Either a single division or the entire Personnel Specification Module may be specified for printing by the user.

When the Command is Entered from the Main Menu: URAMPS will ask:

Which division to PRINT (Div./all)?

The user must enter either a Division Number or "all". If the user decides against printing any of the Personnel Specification Module, entering an asterisk (\*) in response to this question will return the user to the Main Menu. URAMPS will then ask:

To INCLUDE calculated no. of positions (y/no)?

The user must enter "y" if the number of positions calculated by URAMPS for each Position Specification is desired on the printout. Otherwise the user should press <ENTER>. URAMPS will then ask:

Do you want SORTED reports (y/no)?



The user must enter "y" if sorted reports are desired. Otherwise the user should press <ENTER>.

The Personnel Specification Module data specified by the user will then be printed.

## 55 - Show Personnel Specification

Use: To display a Personnel Specification on the screen.

When the Command is Entered from the Main Menu: URAMPS will ask:

Which position do you wish to SEE (division no.)?

The user must enter the Division Number for the desired position. URAMPS will then ask:

position no.?

The user must then enter the position number of the desired position. The Personnel Specification display will be presented for the requested position. In addition, an auxiliary menu will be displayed at the bottom of the screen as follows:

menu/next/previous/input/delete/transfer/item no. to change

Related commands: Auxiliary menu commands may be entered as follows:

Entering m (for menu) will return the user to the Main Menu.

Entering n (for next) will display the next position (according to position number) in the Division selected by the user. The user may continue to enter "n" until the last Personnel Specification in the Division has been displayed. Entering "n" at this point will return the user to the Main Menu.

Entering p (for previous) will display the previous position (according to position number) for the Division selected by the user. The user may continue to enter "p" until the first Personnel Specification in the Division has been displayed. Entering "p" at this point will return the user to the Main Menu.

Entering i (for input) will take the user to the input mode (discussed in further detail under command 56 below)

Entering d (for delete) will take the user to the delete mode (discussed in further detail under command 57 below)

Entering t (for transfer) allows the user to transfer the Personnel Specifications from the position currently displayed to another Division.

Entering the number of a data field contained in the Personnel Specification display will allow the user to change the data contained in that line. When an existing data field number is entered, the field label will be displayed at the bottom of the screen. The user must then enter the new data. The new

data must conform to the format outlined in the description of the data field above. After the new data has been entered, the user will be automatically returned to the auxiliary menu.

## 56 - Input Personnel Specification

Use: To input data to the Personnel Specification Module.

When the Command is Entered from the Main Menu: URAMPS will prompt the user to provide appropriate inputs. The input mode for the Personnel Specification Module consists of two parts. The first part consists of requests for data that are common to all types of positions. The fields will be presented sequentially on the screen and the user should respond as indicated.

The user will then be prompted to define the position as fixed, variable, or dependent. URAMPS will then prompt the user for the appropriate inputs based upon this response.

Related Commands: Changes to existing data fields wlines may not be made from the input mode. URAMPS will not accept the number of an existing data field while in input mode. Changes must be made by entering an existing data field number from the auxiliary menu as described above.

All other auxiliary menu commands may also be implemented as described above when the auxiliary menu is displayed.

## 57 - Delete Personnel Specification

Use: To delete data contained in the Personnel Specification Module.

When the Command is entered from the Main Menu: The first page of the Personnel Specification Module will appear and the auxiliary menu will be displayed on the screen. The user must enter "d" (for delete) to enter the delete mode.

Once in delete mode, URAMPS will ask:

Which division do you wish to DELETE?

The desired division number should be entered. The designated data will be deleted and the indication DELETED will be displayed at the top of the screen. The user must press <ENTER> to return to the auxiliary menu. Entering "m" from the auxiliary menu will return the user to the Main Menu.

Related Commands: All auxiliary menu commands may be implemented as described above when the auxiliary menu is displayed.

## 58 - Personnel Specification Files

Use: To view the Personnel Specification files contained on the diskette in Disk Drive B. This list constitutes the files which can be entered into the Personnel Specification Module.

When the Command is Entered from the Main Menu: URAMPS will state:

## AVAILABLE LABOR FILES ARE:

followed by the names of the available Personnel Specification files. After the available files have been viewed, pressing the <ENTER> key will return the user to the Main Menu.

### 6.0 CALCULATION MODULE DESCRIPTION AND COMMANDS

Documentation of the Calculation Module and associated commands will be provided in the final report.

APPENDIX C  
RAIL TRANSIT OPERATOR SURVEY  
DATA SUMMARIES

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Philadelphia

DATA PROVIDED: did not respond

Short range transit plan:

Organization charts:

Position descriptions:

Annual operating budget:

Labor agreements:

UMTA Section 15 annual submission:

Rail Operators Handbook:

System track map:

Management reports:

Questionnaire:

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Edmonton

DATA PROVIDED:

Short range transit plan: Yes

Organization charts: Yes

Position descriptions: Yes

Annual operating budget: Not applicable

Labor agreements: Yes

UMTA Section 15 annual submission: Not applicable

Rail Operators Handbook: Yes

System track map: Yes

Management reports: Yes

Questionnaire: Yes

B. Rail System Characteristics Data

a) Number of lines 1

b) Number of two-way rail track miles (not including yards)

At grade 4.9

Subway 1.0

Elevated \_\_\_\_\_

c) Number of stations

At grade 6

Subway 2

Elevated \_\_\_\_\_

d) Number of repair yards 1 (*midway, not at station*)

e) Number of storage only yards -0-

f) Number of vehicles (*21 artic total*)

Peak \_\_\_\_\_ (*5 min headway*)

Base \_\_\_\_\_ (*10 min headway*)

Early/late \_\_\_\_\_ (*15 min headway*)

g) Number of trains

Peak 6 (*2-3 cars*)

Base 3 (*1 car*)

Early/late 2

h) Annual vehicle miles \_\_\_\_\_

i) Annual vehicle hours \_\_\_\_\_

j) Annual service miles \_\_\_\_\_

k) Annual boarding passengers 6,400,000 (*1980 estd*)

l) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

P

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m) Number of personnel required to operate each train

Operators \_\_\_\_\_

Other (position and number) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

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o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

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C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.



1. Bus/Rail Personnel Transfers

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes \_\_\_\_\_

No \_\_\_\_\_

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

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(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

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(d) How is rail seniority established for transferring bus personnel?

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(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

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(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

From rail to bus? \_\_\_\_\_

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair \_\_\_\_\_

If yes, which components? \_\_\_\_\_

Vehicle/system engineering \_\_\_\_\_

Vehicle/system cleaning \_\_\_\_\_

Parking facility operations \_\_\_\_\_

Fare collection system maintenance \_\_\_\_\_

Security \_\_\_\_\_

Facilities maintenance \_\_\_\_\_

Other \_\_\_\_\_

(b) Are part-time personnel used for operations and maintenance functions? If so, please describe which functions and how many part-time personnel.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

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Use of suppliers/vendors \_\_\_\_\_

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Use of outside training programs at local universities, colleges, etc.

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---

Participation in testing/construction/inspection activities \_\_\_\_\_

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(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

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Use of suppliers/vendors \_\_\_\_\_

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Use of outside training programs at local universities, colleges, etc.

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4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

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Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Atlanta

DATA PROVIDED:

Short range transit plan: Yes

Organization charts: Yes

Position descriptions: Yes

Annual operating budget: Yes

Labor agreements: Yes

UMTA Section 15 annual submission: Yes

Rail Operators Handbook: Yes

System track map: Yes

Management reports: No

Questionnaire: Yes



SURVEY OF RAIL TRANSIT OPERATORS

NAME OF OPERATOR Metropolitan Atlanta Rapid Transit Authority

PERSON COMPLETING SURVEY Ann F. Johnson

POSITION/DEPARTMENT Manager of Research and Analysis

DATE May 31, 1985

A. Available Reports

Copies of the most recent version of the following documents are requested. Please bill us for any copying or related charges.

1. Short range transit plan.
2. Organization chart including the number of authorized positions and union designation.
3. Position descriptions, including pay grades, for bus and rail operations and maintenance functions. We are interested in bus position descriptions for comparative purposes. Position descriptions for administrative and support positions are not required.
4. Annual operating budget.
5. Labor agreements pertaining to bus and rail operations and maintenance positions.
6. UMTA Section 15 non-financial data reports for the most recent year.
7. Rail operations rule book or operators handbook.
8. Rail system track map or schematic showing the location of storage and repair yards, mainline switches and crossovers, signal towers, traction substations, and interlocking plants.
9. Any management reports concerning staff development and hiring for the startup of rail operations and maintenance functions.

B. Rail System Characteristics Data

a) Number of lines 2

b) Number of two-way rail track miles (not including yards) (Electrified Track)

At grade 26.4

Subway 15.8

Elevated 13.3

c) Number of stations (25)

At grade 6

\* Subway 12

\* Elevated 8

d) Number of repair yards 1

e) Number of storage only yards 1

f) Number of vehicles

Peak 110

Base 84

Early/late 110/54

g) Number of trains

Peak 21

Base 21

Early/late 21/13

h) Annual vehicle miles 7,622,000

i) Annual vehicle hours 371,500

j) Annual service miles 979,000

k) Annual boarding passengers 51,932,000

\* Civic Center rail station is both subway and elevated.

l) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

Manufacturer-Cubic Western. Faregates accept coins, tokens, magnetic strip cards and transfers. Certain stations have barrier free entrances (buses only) which do not require transfers.

m) Number of personnel required to operate each train

Operators 1

Other (position and number) None

n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

There is no charge for a transfer from bus/rail or rail/bus. For buses which enter a barrier-free intermodal transfer area of a rail station, no transfer document is required; for buses which discharge passengers outside the "paid" area of a rail station, the operator dispenses bus-to-rail transfers. Conversely, if a rail patron needs a transfer to bus, it maybe secured at the rail taregate, also at no charge.

o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

Rail Stations are generally unattended. A few part-time attendants are employed for situations or events of unusually high patronage, or expected crowds of persons unfamiliar with the system.

### C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.



1. Bus/Rail Personnel Transfers

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes   X   No           

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

Represented positions were filled in this manner. Non-represented  
positions were filled by both internal transfers and external hires.

(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

Many represented positions are still filled by transferring bus personnel  
or by transfers and promotions within the rail division. Some positions  
requiring specific background not normally part of bus operation are  
frequently filled by external hire.

(d) How is rail seniority established for transferring bus personnel?

Operators (Bus & Rail) occupy one seniority unit. In the maintenance  
unit, seniority in grade (for pay) is established by "time in craft".  
A transferring bus employee with no "time in craft" will start at the  
first step in grade.

(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

There are no restrictions on transfers. Employee will retain seniority  
for amount of time spent in a particular craft but will not be able to  
transfer any seniority gained in another craft.

(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

Approximately 60 Operators have transferred from bus to rail. There has been transferring in maintenance but that information is not available.  
From rail to bus? 24 operators approximately from rail to bus.

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair Wheel/axle work - All vital printed circuit boards

~~If yes, which components?~~ and all DC & AC motors

Vehicle/system engineering \_\_\_\_\_

Vehicle/system cleaning \_\_\_\_\_

Parking facility operations \_\_\_\_\_

Fare collection system maintenance \_\_\_\_\_

Security \_\_\_\_\_

Facilities maintenance \_\_\_\_\_

Other Elevator and Escalator maintenance

(b) Are part-time personnel used for operations and maintenance functions?  
If so, please describe which functions and how many part-time personnel.

No part-time personnel are used for maintenance functions nor rail operations.

However, part-time personnel are used as: \_\_\_\_\_

1. Facility Attendants - monitor washrooms (20)

2. Faregate Agents - assist passengers in faregate entry and exit (14)

3. Security Agents - Control parking lots (18)

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs In-house training included:

1. Walked the mainline to gain detailed knowledge of wayside signals and equipment.

2. 28-day Train Operator Development Program

Use of suppliers/vendors Vendors used were:

- 1. Societe Franco Belge, manufacturer of initial fleet of 120 cars.
- 2. Hitachi Itoh, manufacturer of second contract of 50 cars.
- 3. Pace Development - ATC (Automatic Train Control)
- 4. WABCO - Construction & placement of switch machines in yard area.
- 5. GRS - Signals and interlockets.

Use of outside training programs at local universities, colleges, etc.

Georgia State University trained in Public Relations. All training was conducted for Supervisory Personnel.

Participation in testing/construction/inspection activities \_\_\_\_\_

Performed "pre revenue service testing" over newly constructed tracks with inhouse system engineering and SFB Company.

(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs 6 month refresher on train operator development program. Line Instructors Development Program. Red Flag Procedures

Use of suppliers/vendors \_\_\_\_\_

Use of outside training programs at local universities, colleges, etc.

Accident/Incident Investigation Techniques, and various other rail related  
info administered by the Rail Institute of Oklahoma City.

4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring? \*

- (1) Asst. Director of Rail Transportation (9/77) internal
- (2) Deputy Asst. Director of Rail (9/77) internal
- (3) Manager of Central Control (9/77) internal
- (4) Rail Training Instructors (5/78)
- (5) \_\_\_\_\_

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

Central Control Dispatchers

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

\* Source of hiring came from within, except for the Training Instructor. He came from PATCO but drove a bus for MARTA approximately 2 years.

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs General Familiarization & Safety

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Use of suppliers/vendors System Suppliers & Vehicle Contractor  
contracted supplier maintenance training

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Use of outside training programs at local universities, colleges, etc.

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Participation in testing/construction/inspection activities \_\_\_\_\_

Limited prior to startup

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(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

\* In-house training programs Electronic Technician in various system  
types (i.e., ATC, Trans. Vehicle, Fare Collection, Computers, Communications,  
Power)

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Use of suppliers/vendors Job Task Analysis

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\*Note: In-house training of 1,340 hours was given to 186 people. Trainees included Electronic Technicians, Maintenance personnel and Supervisory personnel.

Use of outside training programs at local universities, colleges, etc.

Short period of Local Trade School Basic Electronics.

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4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring? Rail start-up 6/79.

- (1) Director of Maintenance Rail (8/77) - external Transit/RR
- (2) Foreman of Power/Maintenance (10/77 - external Transit/RR
- (3) \_\_\_\_\_
- (4) - \_\_\_\_\_
- (5) \_\_\_\_\_

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

Hiring: Highly technical positions, i.e. Journeyman, Electronic Technicians.

Personnel Admin: Contract administration - seniority in grade.

Training: Apprentice ET program

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Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Washington, DC

DATA PROVIDED:

Short range transit plan: No

Organization charts: Yes

Position descriptions: No

Annual operating budget: Yes

Labor agreements: No

UMTA Section 15 annual submission: No

Rail Operators Handbook: No

System track map: No

Management reports: No

Questionnaire: No

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Baltimore

DATA PROVIDED:

Short range transit plan: No

Organization charts: Yes

Position descriptions: No

Annual operating budget: No

Labor agreements: No

UMTA Section 15 annual submission: No

Rail Operators Handbook: No

System track map: No

Management reports: No

Questionnaire: No



RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Portland

DATA PROVIDED: did not respond

Short range transit plan:

Organization charts:

Position descriptions:

Annual operating budget:

Labor agreements:

UMTA Section 15 annual submission:

Rail Operators Handbook:

System track map:

Management reports:

Questionnaire:

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Calgary

DATA PROVIDED:

Short range transit plan: No

Organization charts: Yes

Position descriptions: Yes

Annual operating budget: Not applicable

Labor agreements: Yes

UMTA Section 15 annual submission: Not applicable

Rail Operators Handbook: Yes

System track map: Yes

Management reports: No

Questionnaire: Yes

B. Rail System Characteristics Data

a) Number of lines 1

b) Number of two-way rail track miles (not including yards)

At grade 7.0

Subway 0.7 (est'd)

Elevated -

c) Number of stations

At grade 16

Subway -

Elevated -

d) Number of repair yards 1 *Combined bus/rail facility at terminal -- south of station*

e) Number of storage only yards -

f) Number of vehicles *(27 total)*

Peak (5 minute headway)

Base (10 minute headway)

Early/late

g) Number of trains

Peak 10

Base 5

Early/late 3-5

h) Annual vehicle miles

i) Annual vehicle hours

j) Annual service miles

k) Annual boarding passengers

l) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

*Barrier free, proof of payment*

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m) Number of personnel required to operate each train

Operators \_\_\_\_\_

Other (position and number) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

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o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

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C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.

1. Bus/Rail Personnel Transfers

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes \_\_\_\_\_

No \_\_\_\_\_

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

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(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

*see s 20702 p 35*

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(d) How is rail seniority established for transferring bus personnel?

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(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

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(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

From rail to bus? \_\_\_\_\_

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair \_\_\_\_\_

If yes, which components? \_\_\_\_\_

Vehicle/system engineering \_\_\_\_\_

Vehicle/system cleaning \_\_\_\_\_

Parking facility operations \_\_\_\_\_

Fare collection system maintenance \_\_\_\_\_

Security \_\_\_\_\_

Facilities maintenance \_\_\_\_\_

Other \_\_\_\_\_

(b) Are part-time personnel used for operations and maintenance functions? If so, please describe which functions and how many part-time personnel.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

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Use of suppliers/vendors \_\_\_\_\_

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Use of outside training programs at local universities, colleges, etc.

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Participation in testing/construction/inspection activities \_\_\_\_\_

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(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

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Use of suppliers/vendors \_\_\_\_\_

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Use of outside training programs at local universities, colleges, etc.

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4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

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Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.



RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Toronto

DATA PROVIDED:

Short range transit plan: No

Organization charts: Yes

Position descriptions: Yes

Annual operating budget: Not applicable

Labor agreements: Yes

UMTA Section 15 annual submission: Not applicable

Rail Operators Handbook: Yes

System track map: Yes

Management reports: No

Questionnaire: No

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY New Orleans

DATA PROVIDED: did not respond

Short range transit plan:

Organization charts:

Position descriptions:

Annual operating budget:

Labor agreements:

UMTA Section 15 annual submission:

Rail Operators Handbook:

System track map:

Management reports:

Questionnaire:

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Boston

DATA PROVIDED: did not respond

Short range transit plan:

Organization charts:

Position descriptions:

Annual operating budget:

Labor agreements:

UMTA Section 15 annual submission:

Rail Operators Handbook:

System track map:

Management reports:

Questionnaire:

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY San Francisco

DATA PROVIDED:

Short range transit plan: Yes

Organization charts: Yes

Position descriptions: No

Annual operating budget: Yes

Labor agreements: No

UMTA Section 15 annual submission: No

Rail Operators Handbook: Yes

System track map: Yes

Management reports: Yes

Questionnaire: Yes



SURVEY OF RAIL TRANSIT OPERATORS

NAME OF OPERATOR San Francisco Municipal Railway

PERSON COMPLETING SURVEY \_\_\_\_\_

POSITION/DEPARTMENT \_\_\_\_\_

DATE \_\_\_\_\_

A. Available Reports

Copies of the most recent version of the following documents are requested. Please bill us for any copying or related charges.

1. Short range transit plan.
2. Organization chart including the number of authorized positions and union designation.
3. Position descriptions, including pay grades, for bus and rail operations and maintenance functions. We are interested in bus position descriptions for comparative purposes. Position descriptions for administrative and support positions are not required.
4. Annual operating budget.
5. Labor agreements pertaining to bus and rail operations and maintenance positions.
6. UMTA Section 15 non-financial data reports for the most recent year.
7. Rail operations rule book or operators handbook.
8. Rail system track map or schematic showing the location of storage and repair yards, mainline switches and crossovers, signal towers, traction substations, and interlocking plants.
9. Any management reports concerning staff development and hiring for the startup of rail operations and maintenance functions.

B. Rail System Characteristics Data

a) Number of lines 5 *6<sup>th</sup> planned*

b) Number of two-way rail track miles (not including yards)

At grade ~~30.4~~ 28.9 *40.8 total*

Subway ~~10.4~~ 11.9

Elevated 0

c) Number of stations

At grade 46

Subway 8

Elevated 0

d) Number of repair yards 2

e) Number of storage only yards 1

f) Number of vehicles ~~130~~ 130 total

Peak 92

Base \_\_\_\_\_

Early/late \_\_\_\_\_

*PP-26-SRTP*

g) Number of trains

Peak 3-4 car trains

Base 1-4 car trains off peak

Early/late \_\_\_\_\_

h) Annual vehicle miles 28,200 per car *3.25 million total \**

i) Annual vehicle hours 2,700 per car *(4 million FY82-83)*

j) Annual service miles \_\_\_\_\_ *(360,411 FY82-83)*

k) Annual boarding passengers 25.1 million *(48.2 million FY82-83) \**

1) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

Self service on cable cars

operator monitored on others, examining self service opt for LEV

m) Number of personnel required to operate each train

Operators 1 to 4

Can operate 2+3 car trains in subway with 1 operator P.44 SRTP

Other (position and number)

n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

transfer good for all modes

P.38 SRTP

extra 40¢ to transfer to cable car

transfers valid for 1.5 hrs.

o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.

1. Bus/Rail Personnel Transfers N/A

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes \_\_\_\_\_

No \_\_\_\_\_

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

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(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

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(d) How is rail seniority established for transferring bus personnel?

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(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

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(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

From rail to bus? \_\_\_\_\_

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair \_\_\_\_\_

If yes, which components? \_\_\_\_\_

Vehicle/system engineering \_\_\_\_\_

Vehicle/system cleaning \_\_\_\_\_

Parking facility operations \_\_\_\_\_

Fare collection system maintenance \_\_\_\_\_

Security \_\_\_\_\_

Facilities maintenance \_\_\_\_\_

Other power distribution contracted to Hetch Hetchy  
Water + Power Dept. - power substation maintenance

(b) Are part-time personnel used for operations and maintenance functions?  
If so, please describe which functions and how many part-time personnel.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Use of suppliers/vendors \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Use of outside training programs at local universities, colleges, etc.  
\_\_\_\_\_  
\_\_\_\_\_

Participation in testing/construction/inspection activities \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs 4 week program for entry level LEV  
employees on electricity + specifics of LEV - Door + brake courses  
for trolleys - self study programs for maint. mechanics +  
technicians

Use of suppliers/vendors \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Use of outside training programs at local universities, colleges, etc.

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4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

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Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Cleveland

DATA PROVIDED:

Short range transit plan: No  
Organization charts: No  
Position descriptions: No  
Annual operating budget: No  
Labor agreements: No  
UMTA Section 15 annual submission: No  
Rail Operators Handbook: No  
System track map: No  
Management reports: No  
Questionnaire: Yes



SURVEY OF RAIL TRANSIT OPERATORS

NAME OF OPERATOR Greater Cleveland Regional Transit Authority

PERSON COMPLETING SURVEY Calvin S. Cross

POSITION/DEPARTMENT Assistant Director of Rail Transportation

DATE May 1, 1985

A. Available Reports

Copies of the most recent version of the following documents are requested. Please bill us for any copying or related charges.

1. Short range transit plan.
2. Organization chart including the number of authorized positions and union designation.
3. Position descriptions, including pay grades, for bus and rail operations and maintenance functions. We are interested in bus position descriptions for comparative purposes. Position descriptions for administrative and support positions are not required.
4. Annual operating budget.
5. Labor agreements pertaining to bus and rail operations and maintenance positions.
6. UMTA Section 15 non-financial data reports for the most recent year.
7. Rail operations rule book or operators handbook.
8. Rail system track map or schematic showing the location of storage and repair yards, mainline switches and crossovers, signal towers, traction substations, and interlocking plants.
9. Any management reports concerning staff development and hiring for the startup of rail operations and maintenance functions.

B. Rail System Characteristics Data

a) Number of lines 1 (2 branches)

b) Number of two-way rail track miles (not including yards)

At grade 38.4

Subway .1

Elevated 0

c) Number of stations

At grade 28

Subway 1

Elevated 0

d) Number of repair yards 1

e) Number of storage only yards 1

f) Number of vehicles

Peak 28

Base 7

Early/late 5

g) Number of trains

Peak 18

Base 7

Early/late 5

h) Annual vehicle miles 1,064,598

i) Annual vehicle hours 37,198

j) Annual service miles 1,062,305

k) Annual boarding passengers 4,801,186

l) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

Cash, Pass, Tickets. Farebox on trains.

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m) Number of personnel required to operate each train

Operators 1

Other (position and number) Conductor 1

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n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

Passenger can transfer from one to the other. This system has been in effect since 1975. No major problems.

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o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

Unattended, except for main station in Cleveland. 4 Attendants.

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### C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.





(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

N/A

From rail to bus?

N/A

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair Track, some equipment.

If yes, which components?

Vehicle/system engineering in-house

Vehicle/system cleaning in-house

Parking facility operations in-house

Fare collection system maintenance in-house

Security in-house

Facilities maintenance in-house

Other

(b) Are part-time personnel used for operations and maintenance functions? If so, please describe which functions and how many part-time personnel.

Yes, part-time operators and conductors.

Season track work (labor).

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs Training instructors and training manuals.

Use of suppliers/vendors in-house

Use of outside training programs at local universities, colleges, etc.

Some.

This is due to budget.

Participation in testing/construction/inspection activities \_\_\_\_\_

Some in-house.

(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs Follow-ups, retraining, refresher courses, season courses.

Use of suppliers/vendors None

Use of outside training programs at local universities, colleges, etc.

Some, very little.

This is due to budget.

#### 4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

(1) This light rail system started in 1929, no records or

(2) personnel left that could remember this.

(3)

(4)

(5)

#### 5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

Not on entry interview.

Employee interaction with customers.

Physical and height requirements not considered.

Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Buffalo

DATA PROVIDED:

Short range transit plan: No

Organization charts: No

Position descriptions: No

Annual operating budget: No

Labor agreements: No

UMTA Section 15 annual submission: No

Rail Operators Handbook: No

System track map: No

Management reports: No

Questionnaire: Yes



SURVEY OF RAIL TRANSIT OPERATORS

NAME OF OPERATOR Niagara Frontier Transit Metro System Inc.

PERSON COMPLETING SURVEY Paul O'Brien

POSITION/DEPARTMENT Operations Control Center Manager/Rail Transporta

DATE April 20, 1985

A. Available Reports

Copies of the most recent version of the following documents are requested. Please bill us for any copying or related charges.

1. Short range transit plan.
2. Organization chart including the number of authorized positions and union designation.
3. Position descriptions, including pay grades, for bus and rail operations and maintenance functions. We are interested in bus position descriptions for comparative purposes. Position descriptions for administrative and support positions are not required.
4. Annual operating budget.
5. Labor agreements pertaining to bus and rail operations and maintenance positions.
6. UMTA Section 15 non-financial data reports for the most recent year.
7. Rail operations rule book or operators handbook.
8. Rail system track map or schematic showing the location of storage and repair yards, mainline switches and crossovers, signal towers, traction substations, and interlocking plants.
9. Any management reports concerning staff development and hiring for the startup of rail operations and maintenance functions.

B. Rail System Characteristics Data

a) Number of lines ONE

b) Number of two-way rail track miles (not including yards)

At grade 1

Subway 4

Elevated 0

c) Number of stations

At grade 6

Subway 6

Elevated 0

d) Number of repair yards 1

e) Number of storage only yards NONE

f) Number of vehicles

Peak 16

Base 8

Early/late 6

g) Number of trains

Peak 8

Base 4

Early/late 3

h) Annual vehicle miles 583,200 estimated

i) Annual vehicle hours 48,746 estimated

j) Annual service miles 291,600 estimated

k) Annual boarding passengers not available

1) Type of rail fare collection system (token/turnstile, magnetic strip card/turnstile, honor system with barrier free stations, etc.)

Free on surface

Barrier free ticket/transfer system in subway

m) Number of personnel required to operate each train

Operators ONE

Other (position and number)

~~\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_~~

n) What is bus/rail transfer policy? Please describe any additional personnel requirements or problems related to bus/rail transfers.

Rail ticket is transfer to bus at no  
extra charge

Bus transfer is fare for rail trip

o) Are rail stations normally attended or unattended? If attended, how many attendants are required?

Unattended

### C. Personnel Information

Data concerning a number of personnel policies and practices are of interest. This data may be contained in one or more of the requested reports, and, if so, need not be filled in below. Some questions relate specifically to the startup of rail transit operations and may not be applicable.

1. Bus/Rail Personnel Transfers

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes

No

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

All union positions except a few electrical workers who were hired from outside NFT Metro. Most managers were hired from outside NFT Metro

(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

Yes

(d) How is rail seniority established for transferring bus personnel?

Bus seniority carried over until approx December 1986 - then date of rail qualification

(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

Yes - at any time within 60 days After then by mutual agreement.



(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

~~20~~ 70

From rail to bus? \_\_\_\_\_

15

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair \_\_\_\_\_

If yes, which components? \_\_\_\_\_

Vehicle/system engineering \_\_\_\_\_

Vehicle/system cleaning \_\_\_\_\_

NONE

Parking facility operations \_\_\_\_\_

NONE

Fare collection system maintenance \_\_\_\_\_

NONE

Security \_\_\_\_\_

NONE

Facilities maintenance \_\_\_\_\_

NONE

Other \_\_\_\_\_

Snow hauling

(b) Are part-time personnel used for operations and maintenance functions? If so, please describe which functions and how many part-time personnel.

No

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

4 week operator training  
6 week rail supervisor training  
8 week rail controller training

Use of suppliers/vendors \_\_\_\_\_

GRS, CSC vendors did some controller training

Use of outside training programs at local universities, colleges, etc.

None in transportation

Participation in testing/construction/inspection activities \_\_\_\_\_

All Rail Supervisors, Operators, & Controllers participated in system testing

(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs \_\_\_\_\_

Use of suppliers/vendors \_\_\_\_\_

Use of outside training programs at local universities, colleges, etc.

4. Startup Hiring

For the startup of rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

- (1) Rail Transportation Superintendent - transit consultant
- (2) OCC Manager - NFT Metro
- (3) District Manager - NFT Metro
- (4) Rail Supervisor - NFT Metro
- (5) Way + Power Supt. + Rail Car Supt.

Consultant 5. Problem areas

two positions filled at same time

FRA

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

- ① Union Contract + restrictions
- ② Difficult to train on incomplete systems
- ③ Coordination with construction staff and vendors/suppliers
- ④ Poor scheduling of training activities by vendors/suppliers and construction managers

Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY Miami

DATA PROVIDED:

Short range transit plan: No

Organization charts: No

Position descriptions: Yes

Annual operating budget: No

Labor agreements: No

UMTA Section 15 annual submission: No

Rail Operators Handbook: No

System track map: No

Management reports: No

Questionnaire: No

RAIL TRANSIT OPERATOR DATA SURVEY RESPONSE

CITY San Diego

DATA PROVIDED:

Short range transit plan: Yes

Organization charts: Yes

Position descriptions: No

Annual operating budget: Yes

Labor agreements: Not applicable

UMTA Section 15 annual submission: No

Rail Operators Handbook: No

System track map: No

Management reports: Yes

Questionnaire: Yes



SURVEY OF RAIL TRANSIT OPERATORS

NAME OF OPERATOR Metropolitan Transit Development Board

PERSON COMPLETING SURVEY Tom Larwin

POSITION/DEPARTMENT General Manager

DATE 4/18/85

A. Available Reports

Copies of the most recent version of the following documents are requested. Please bill us for any copying or related charges.

1. Short range transit plan.
2. Organization chart including the number of authorized positions and union designation.
3. Position descriptions, including pay grades, for bus and rail operations and maintenance functions. We are interested in bus position descriptions for comparative purposes. Position descriptions for administrative and support positions are not required.
4. Annual operating budget.
5. Labor agreements pertaining to bus and rail operations and maintenance positions.
6. UMTA Section 15 non-financial data reports for the most recent year.
7. Rail operations rule book or operators handbook.
8. Rail system track map or schematic showing the location of storage and repair yards, mainline switches and crossovers, signal towers, traction substations, and interlocking plants.
9. Any management reports concerning staff development and hiring for the startup of rail operations and maintenance functions.

B. Rail System Characteristics Data

a) Number of lines 1

b) Number of two-way rail track miles (not including yards)

At grade 16

Subway \_\_\_\_\_

Elevated \_\_\_\_\_

c) Number of stations

At grade 18

Subway \_\_\_\_\_

Elevated \_\_\_\_\_

d) Number of repair yards 3

e) Number of storage only yards 1

f) Number of vehicles

Peak 19

Base 12

Early/late 2

g) Number of trains

Peak 6

Base 6

Early/late 2

h) Annual vehicle miles \_\_\_\_\_

i) Annual vehicle hours } see enclosed tables

j) Annual service miles \_\_\_\_\_

k) Annual boarding passengers \_\_\_\_\_





1. Bus/Rail Personnel Transfers

(a) When rail service was started, were rail operations and maintenance positions filled by personnel transferring from bus operations?

Yes \_\_\_\_\_

No ✓

(b) Which positions were filled in this manner? Were all available positions filled through transfers?

n/a

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(c) Are rail operations and maintenance vacancies currently filled by transferring bus personnel as described above?

no

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(d) How is rail seniority established for transferring bus personnel?

n/a

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(e) Are rail operations and maintenance personnel permitted to transfer back to bus operations? If so, under what circumstances may this be done?

n/a

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(f) In the past one year, approximately how many operations and maintenance personnel have transferred from bus to rail?

n/a

From rail to bus? \_\_\_\_\_

2. Use of Outside Contractors and Part-time Labor

(a) Which of the following operations and maintenance functions are contracted for?

Component repair Some

If yes, which components? Major electronic

components (e.g., traction motors)

Vehicle/system engineering Some

Vehicle/system cleaning Some

Parking facility operations Some

Fare collection system maintenance No

Security Yes

Facilities maintenance Some

Other \_\_\_\_\_

(b) Are part-time personnel used for operations and maintenance functions? If so, please describe which functions and how many part-time personnel.

Yes; see enclosed material

3. Training Programs

(a) For the startup of rail operations, please describe training programs implemented for rail operations and maintenance functions.

In-house training programs Basic 3 wk. training for operators; substantial variance in program depending on skill level

Use of suppliers/vendors dependent upon specific contractor and contract

Use of outside training programs at local universities, colleges, etc. not with start-up; does exist for existing new maintenance hires; enrolled in State apprenticeship program for maintenance in conjunction w/ Participation in testing/construction/inspection activities  
no special training program

local :  
communi  
college

(b) For ongoing rail operations, what training programs are in place for rail operations and maintenance functions.

In-house training programs above apprenticeship program; others are constantly going on in various areas

Use of suppliers/vendors none to speak of

Use of outside training programs at local universities, colleges, etc.

See above

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4. Startup Hiring

For the startup or rail operations, what were the first five positions filled (not counting positions concerned with system development and construction)? What was the source of hiring?

- (1) Managing Director (consultant helped)
- (2) Electro mechanics (in-house)
- (3) Electro mechanic (in-house)
- (4) Mgr. of Administration (in-house)
- (5) Mgr. of Transportation (in-house)

5. Problem areas

For the startup of rail operations and for on-going operations, what problem areas have required special attention for hiring, personnel administration, training, labor relations and related activities?

E/H lift; skilled electronic technicians

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Thank you for your assistance in completing this questionnaire. Any questions concerning this survey should be directed to Craig Fajnor, Senior Planner, at (213) 237-2133.