# Route Identification Study


**METRO** Municipality of Metropolitan Seattle

A report from The Route Renumbering and Renaming Task Force on the development and implementation of a route identification system.

**March, 1977**

# Acknowledgements

*This report is a product of the Route Renumbering and Renaming Task Force's work on developing and implementing a route identification system for Metro Transit. The Task Force included the following Metro staff members: Paul Alexander, Chairman, Pete Arneil, John O'Bryan, Vic Citron, Dave Day, Jon Laughlin, Glen Lee, Michelle Marshall, Bob Ridgeway, Mike Voris, and Rick Walsh. Special appreciation is extended to Larry Coffman, David Charhon, John Earley, Linda Hender, and Joe MacKechnie, who participated in the Task Force's work. The Task Force members acknowledge George Pressley, Jeannie Barnes, Eunice Cochran for documenting their efforts. Also, a special thanks is expressed for the Citizens' Transit Advisory Committee's Operation Subcommittee and Focus group participants, for providing direction and ideas during the course of the study.*

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# CHAPTER I

## Summary and Recomendations

SUMMARY

Background

A significant portion of Metro Transit's existing route names and numbering can be traced back to the renumbering and re-naming effort that took place in 1940, with the change from street cars to rubber tire vehicles. Since that time, many extensions, deletions and revisions have occurred in response to population growth, new arterials and freeways and shifts in the location of activity centers. With the acquistion and merger of Seattle Transit and Metropolitan Transit Corporation, Metro inherited the present route identification system.

Major Problems

The major problems with the existing route identification system, as perceived through public input, focus group interviews and the Citizens Transit Advisory Committee, are as follows:

1. The present combination of route number and route name in the route identification display limits and restricts present and future expansion and restructuring of Metro's transit service system. Also, the identification of a route by name and number is redundant, since the use of either element provides, sufficient information to tell passengers where a bus is going.

2. The use of a route number and route name without clearly distinguishing "via" from "destination" information is confusing and inconsistent.

3. It is difficult for passengers to easily identify their coaches since route information is located at several places on a coach.

4. Several terms are used to describe similar service modes, e.g. Express, Flyer and Blue Streak.

5. Some coaches have the same route number, even though they travel significantly different routes.

6. The various makes, models and styles of coaches carry different roller sign curtains and different formats. Thus information is presented in an inconsistent manner.

7. Coaches operating route turnbacks, and night, weekend and holiday service are not signed in a manner that enhances rider confidence in using the transit system.

8. The complexities and inconsistencies of the existing route identification system makes it difficult for drivers to give clear instructions to transit patrons.

9. The present route identification system has been a major obstacle to the smooth coordination of the elements in the consumer information system.

There have been past attempts at resolving the problems associated with the present route identification system. Although these efforts have made significant progress, their narrow focus limited their application to the entire Metro Transit system.

## Major Objectives

Based on the identified problems, the following major objectives were developed to guide this route identification study.

1. To provide clear and consistent route identification information.
2. To coordinate the signing of coaches with the other elements of the consumer information system.
3. To minimize the need for operators to change coach signing.
4. To provide adequate opportunity for citizen, staff and CTAC input.
5. To minimize the amount of change in the transit system.

## Alternatives To The Existing System

Three alternative route identification concepts were considered as alternatives to the existing system. The alternatives differ primarily in the manner in which routes are associated and the particular route information elements emphasized to describe a route.

*Corridor Concept*

Under this concept routes are associated on the basis of the corridor they serve. Route numbers are assigned to corridors radiating from the Seattle Central Business District in a clockwise manner, beginning in Northwest Seattle and ending in Southwest Seattle. Other major corridors, such as Rainier Avenue or Evergreen Bridge, are numbered according to their respective distances (in miles) from downtown. Local feeder routes are also numbered on the basis of the primary area served. Letters are assigned to routes to indicate deviations from the corridor or feeder route. Route names may be used to further describe a route. This concept emphasizes the path (via) a bus travels, with less concern for the area(s) served (destination) or mode of service.

*Area to Area Concept*

This concept develops an association among routes serving the same geographic area by assigning a group of numbers to identified areas. Each route serving the area is designated a specific number from that areas route number account. A single code number may be used to indicate commonality of paths, terminals or activity centers while a dual code number may be utilized to indicate route variations. Names are also assigned on the basis of the primary area served. Thus, emphasis is on the destination a route serves.

*Point to Point (European) Routing Concept*

This system is similar to the existing Metro point-to-point system in the assignment of route numbers or names. Routes are associated on the basis of the area served (destination) and path traveled (via). Bus service between any two points is assigned a number. The next consecutive point is also assigned the same number. This process continues until points are grouped into a route.

A route may be coded as either a through route or non-through route. The major difference between these two codes is in regard to identifying routes terminating and passing through the Seattle Central Business District. In non-through routing, the route is divided into two segements. The first segment is the portion of the route between the terminal and the CBD. The part of the route that extends from the CBD to the other terminal is considered as the second segment. Each of these segments are assigned a different number and name. In contrast, through routing incorporates a single number between terminals.

## RECOMMENDATIONS

### Recommended Plan

The Corridor Concept and the Area-to-Area Concept were eliminated because both were limited in their ability to respond to the needs of Metro's transit service system. They tended to over emphasize either where a bus goes (Area-to-Area Concept) or the path traveled (Corridor Concept). Also, a system of designating a range of numbers to a general area or to a specific corridor begins to collapse if the number of new routes introduced are greater than the route numbers available for assignment. Similarly, the use of too many letters to express variations could promote confusion.

The recommended plan is basically a point-to-point "demand responsive" identification system. It incorporates both the through routed and non-through routed approaches. If on a particular route a significant number of passengers want to ride beyond downtown Seattle, then both legs of the route will receive the same number. On the other hand, if two interconnected routes have downtown Seattle as the major destination, separate numbers will be assigned to both legs.

This demand responsive concept is consistent with the approach currently taking place in service planning. The trend is toward shifting service to areas of higher demand, where these areas can be identified.

The other major features of the recommended plan are:

*Level Of Change*

In general, the recommended plan represents a moderate level of change. New roller signs will be produced to accommodate the new signage requirements to the existing equipment.

*Route Identification*

The most significant change occurs in the deletion of route names and the separation of the route number from destination, via and mode information. Most of the existing route numbers will be retained. Under this system the route number identifies the route and the other information elements provides supporting information i.e. where a route goes (destination points), the path traveled (via) and the type of service offered (mode).

*Service Modes*

Service mode classifications will be primarily limited to "local" and "express". In some cases the term "shuttle" may be used to identify service that remains within one major activity area. Color will be used to enhance mode identification.

*Route Deviations*

The destination roller will indicate route turnbacks with the name of a general area, or land mark. Similarly, variations in the path traveled by a bus will be noted in the via roller. In both of these instances it may be necessary to use a street name to provide clearer information.

*Evening, Weekend and Holiday Service*

If service offered during these time periods differs significantly from the regular day base service it will be identified by a different route code. Insignificant or minor service deviations will be indicated by the via and destination roller signs.

*Bus Roller Signs*

On the older equipment the front roller will contain the route number and the destination. Dash signs will be used to indicate via/mode information. The same information will appear on the side of the bus if it can be accommodated in the roller and dash sign equipment. The dependency on dash signs will be significantly reduced as the older coaches are phased out. The new AM General coaches and articulated buses will carry the route number, destination and via /mode information on the front and side of coaches in the roller signs. Also, the route number will appear in the rear window.

Implementation Strategy

In developing the implementation plan, primary concern was on estimating cost, identifying sources of funding, coordinating activities in a timely manner and assigning areas of responsibility.

*Cost*

It is estimated that approximately $535,000 will be needed to implement the recommended plan Staff will apply for monies from UMTA to fund the sign program. Metro's share of the total project cost will be about $107,000 (or 20 percent).

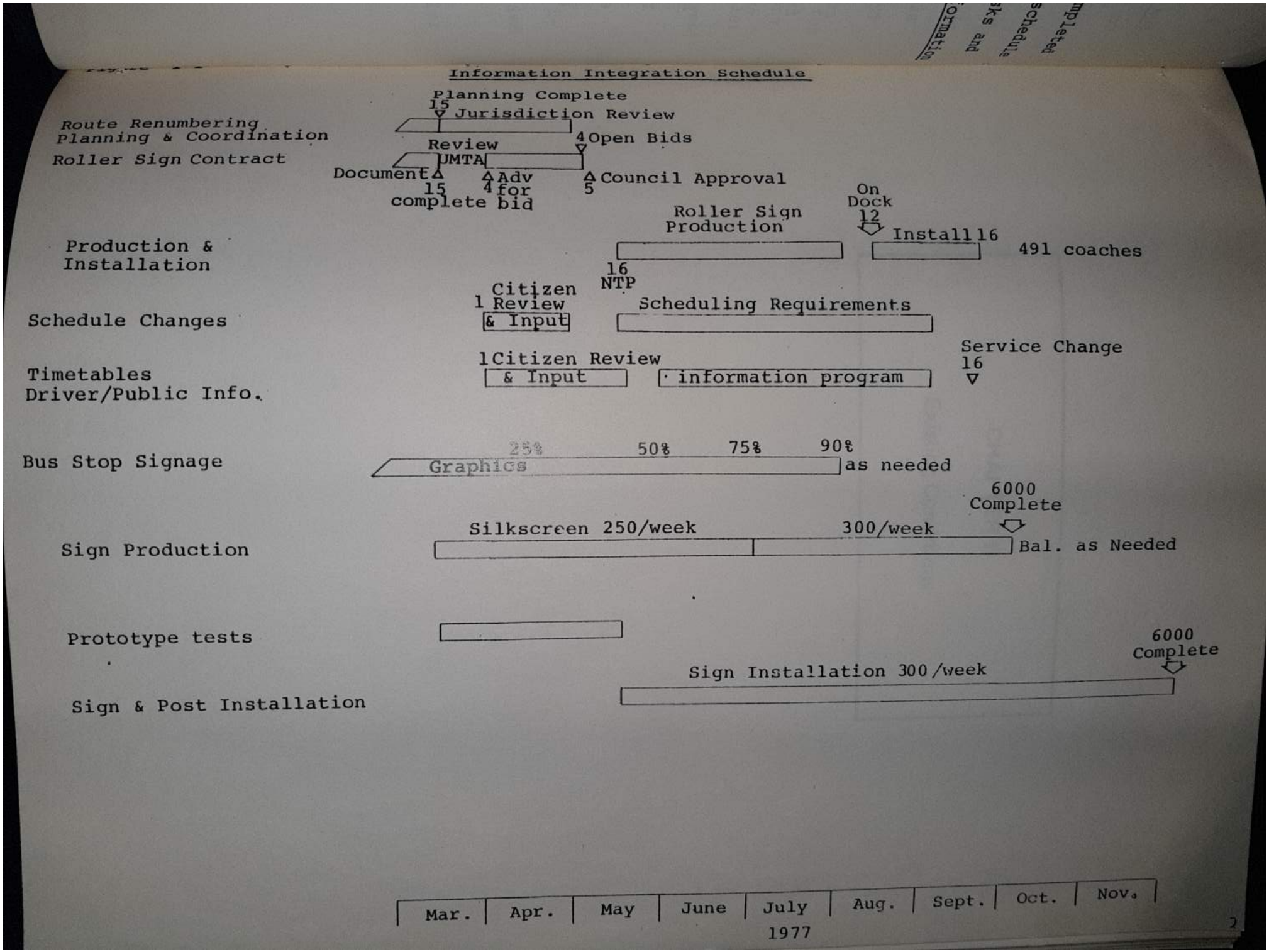
*Schedule*

The implementation of this project is scheduled to be completed by the end of September, 1977. Incorporated within the schedule are other ongoing projects. The major implementation tasks and the time required for completion are presented on the Information Intergration Schedule shown in Figure I-1.

Information Integration Schedule

Planning Complete
15
Jurisdiction Review

ute Renumbering


Information Integration Schedule
Planning Complete
15
Jurisdiction Review
Route Renumbering
Planning & Coordination
4 Open Bids
Review
Roller Sign Contract
UMTA
Document
15
Adv
4 for
complete bid
Council Approval
5
On
Dock
12
Roller Sign
Production
Install 16
Production &
Installation
491 coaches
16
NTP
Citizen
1 Review
& Input
Scheduling Requirements
Schedule Changes
Service Change
16
1 Citizen Review
& Input
information program
Timetables
Driver/Public Info.
25%
50%
75%
90%
Graphics
as needed
Bus Stop Signage
6000
Complete
Silkscreen 250/week
300/week
Bal. as Needed
Sign Production
Prototype tests
6000
Complete
Sign Installation 300/week
Sign & Post Installation
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
1977

# CHAPTER II

## Existing Conditions

BACKGROUND

A major portion of the Metro Transit existing route names and numbers can be traced to the renaming and renumbering effort that took place in 1940, with the change from streetcar to rubber tire vehicles. Since that time, a multitude of extensions, revisions, and deletions were made to routes originally established in 1940. These changes were done in response to increases in population growth, new arterials and freeways, and shifts in the location of activity centers.

Metro inherited the route identification system produced by these events, through the acquisition and merger of Seattle Transit and the Metropolitan Transit Corporation into a county-wide transit operation. This route identification system may be generally characterized as inconsistent and confusing to transit patrons, potential riders and visitors to the area. It has also made it difficult to coordinate the various elements of the consumer information system. In addition, it tends to be unresponsive to transit system growth and change.

Since its inception, the Marketing Division has played a major role in increasing public awareness and acceptance of Metro Transit. Initially, the emphasis was on consumer research and product development. The present trend, however, is toward marketing communications, which are intended to inform existing

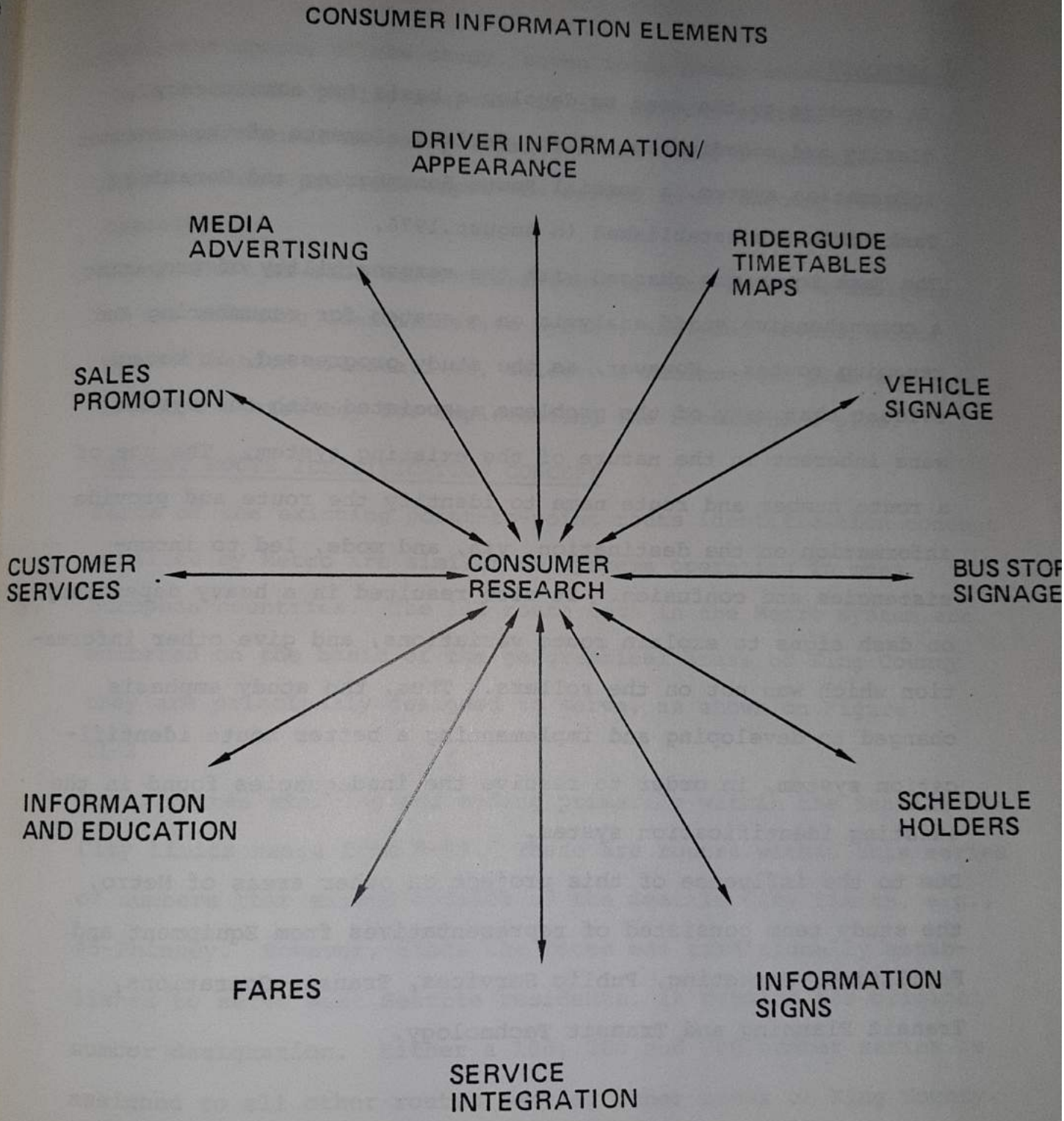
and potential customers about the benefits of transit service and attempts to persuade the latter group to use it, and the former group to increase their frequency of use.

One of the requirements of a consumer oriented system is the coordination of the consumer information elements shown on Figure II-1. Previous route identification efforts have made significant progress toward correcting deficiencies in the existing system. However, since their focus was narrow, it was difficult to coordinate and apply the results to the entire Metro Transit system.

A previous route identification analysis was completed in February,1975. The draft report briefly discussed the need for revisions and proposed an entire new system, but several important considerations were overlooked:

1. Adequate attention was not given to present transit system trends.
2. The proposed system conflicted in some ways with the multi-center concept anticipated to be implemented by 1980.
3. The process used to develop the proposed alternative did not include public involvement.
4. Implementation of the system depended upon Metro acquiring specific signage and an automatic roller sign control system.

Figure II-1


CONSUMER INFORMATION ELEMENTS
DRIVER INFORMATION/ APPEARANCE
MEDIA ADVERTISING
RIDERGUIDE TIMETABLES MAPS
SALES PROMOTION
VEHICLE SIGNAGE
CUSTOMER SERVICES
CONSUMER RESEARCH
BUS STOP SIGNAGE
INFORMATION AND EDUCATION
SCHEDULE HOLDERS
FARES
INFORMATION SIGNS
SERVICE INTEGRATION

APPROACH

In response to the need to develop a basis for consistency, clarity and coordination of the various elements of the consumer information system, a special Route Renumbering and Renaming Task Force was established in August,1976.

The Task Force was charged with the responsibility of preparing a comprehensive staff analysis on a system for renumbering and renaming routes. However, as the study progressed, it became evident that many of the problems associated with the system were inherent in the nature of the existing system. The use of a route number and route name to identify the route and provide information on the destination, via, and mode, led to inconsistencies and confusion. It also resulted in a heavy dependency on dash signs to explain route variations, and give other information which was not on the rollers. Thus, the study emphasis changed to developing and implementing a better route identification system, in order to resolve the inadequacies found in the existing identification system.

Due to the influence of this project on other areas of Metro, the study team consisted of representatives from Equipment and Facilities, Marketing, Public Services, Transit Operations, Transit Planning and Transit Technology.

Over the course of the study, seven focus group interviews were held to obtain public response to the current system. The Citizens Transit Advisory Committee and Metro's Executive Staff members provided input and served in an ongoing review capacity.

The product of this effort represents a comprehensive analysis of the existing identification system, analyzes several route identification alternatives, selects a recommended plan and develops a strategy for implementing the recommended plan.

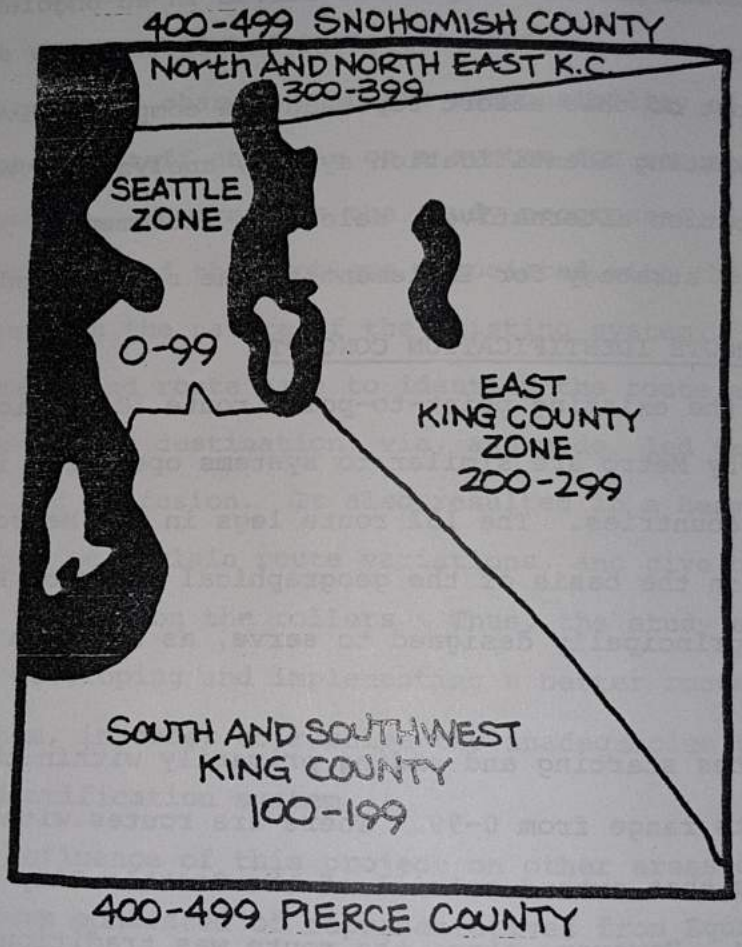
## PRESENT ROUTE IDENTIFICATION CONCEPT

Parts of the existing point-to-point route identification concept utilized by Metro are similar to systems operating in most European countries. The 132 route legs in the Metro system are numbered on the basis of the geographical areas of King County they are principally designed to serve, as shown on Figure II-2.

Thus, routes starting and ending primarily within the Seattle City limits range from 0-99. There are routes within this series of numbers that extend outside of the Seattle City limits, e.g., #5-Phinney. However, since the route was traditionally established to serve West Seattle residents, it retains its original number designation. Either a 100, 200 and 300 number series is assigned to all other routes serving other areas of King County.

Figure II-2

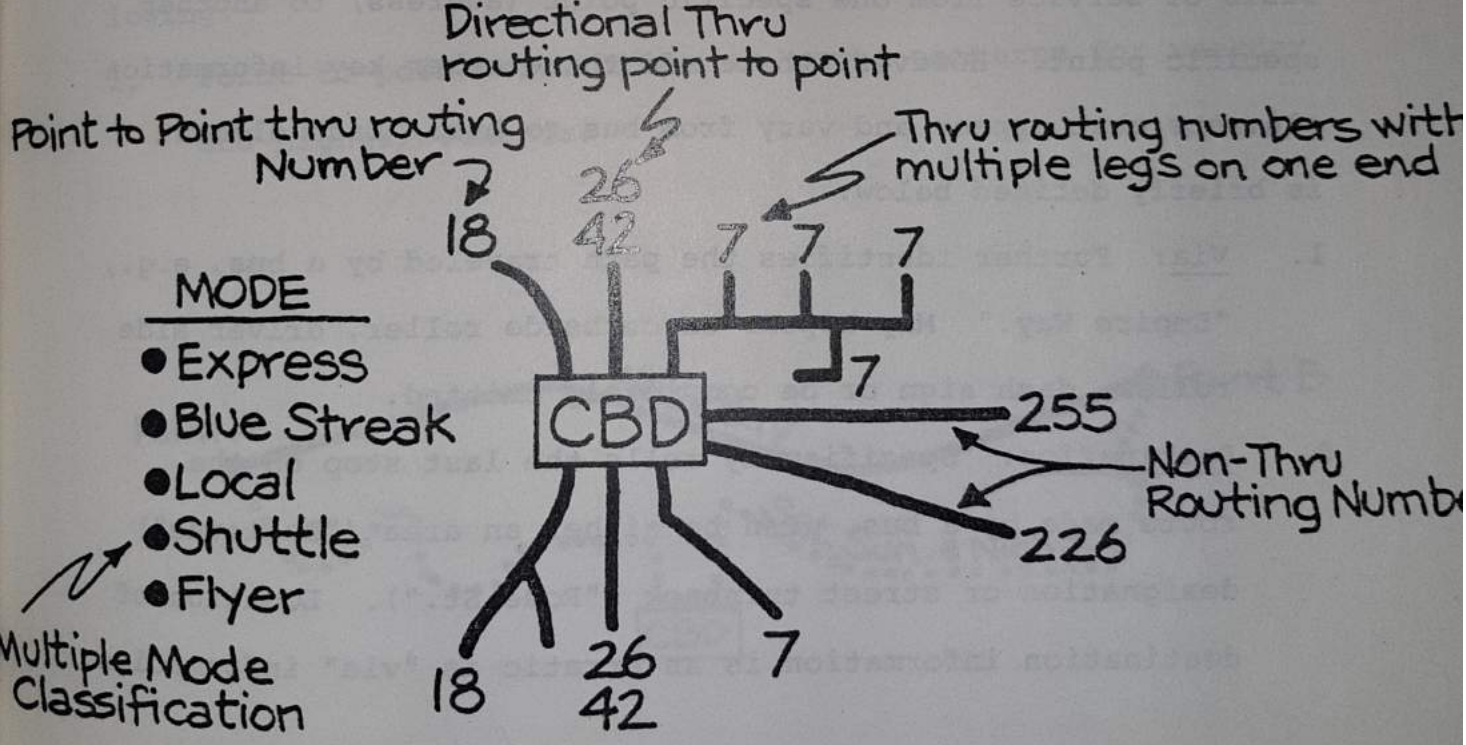
# KING COUNTY SERVICE AREA NUMBER DESINATIONS



The 400 number series is reserved for buses making trips between Seattle and Everett or Seattle and Tacoma.

In assigning numbers to routes, one of three conventions might be used: (1) through-routing point-to-point; (2) directional through routing point-to-point; and (3) non-through routing. However, there are no procedures for telling when one or another convention should be used (Figure II-3).

Examples of Current Numbering Conventions



Of the 132 route legs, 55 (42%) are tied together and use one of the through routing conventions. The remaining 87 route legs are non-through routed trips and terminate at the activity center served by those routes.

Roller signs on the front, side, and rear of the bus have evolved in a similar fashion. Destination, via, and mode signing procedures are very inconsistent as to where these items of information will appear from bus to bus.

ROLLER SIGN INFORMATION

Under today's system, the route code may be assigned on the basis of service from one specific point (address) to another specific point. However, there are three other key information elements that appear and vary from bus to bus. Each element is briefly defined below:

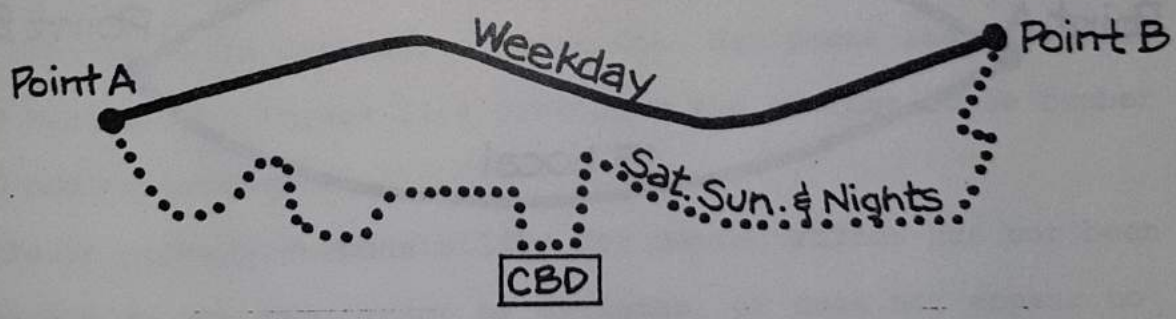
1. Via: Further identifies the path traveled by a bus, e.g., "Empire Way." May appear on curbside roller, driver side roller, dash sign or be completely omitted.
2. Destination: Specifically tells the last stop on the route made by a bus. Can be either an area ("Bellevue") designation or street turnback ("Rose St."). Location of destination information is as erratic as "via" information.

3. Mode: This element tells the type of service offered by a bus. There are basically two types of service available. However, five names are used - local, shuttle, Express, Flyer, and Blue Streak. The difference between local/shuttle or Flyer/Blue Streak/Express are not clearly defined nor consistently applied. The location of "mode" information is generally found on the dash sign or the driver side roller.

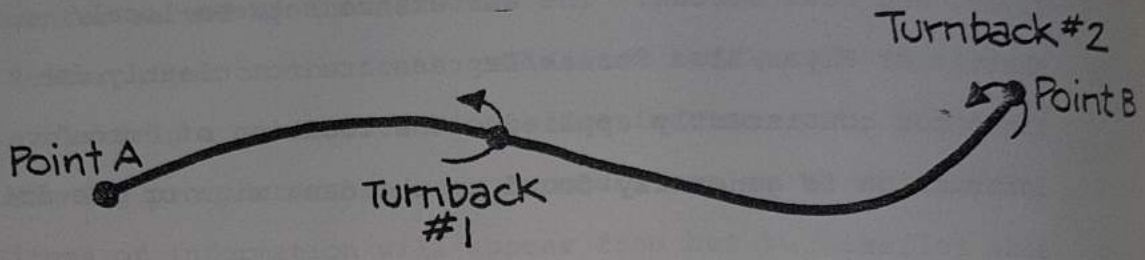
ROUTE VARIATIONS

Route variations that exist in the Metro system include the following:

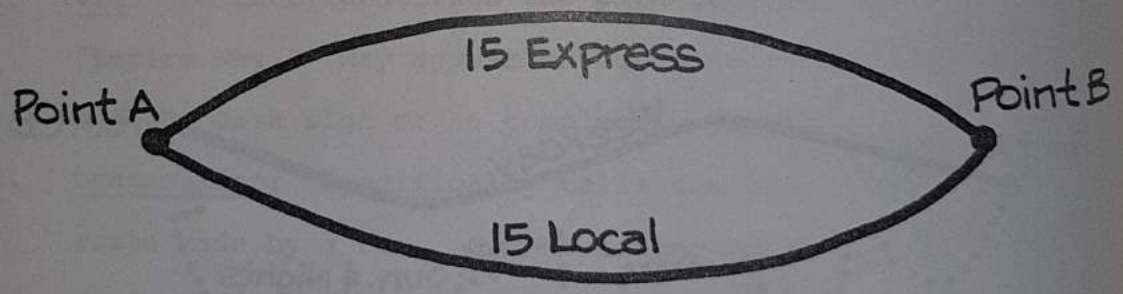
1. Point-to-point with different route patterns for weekday and nights/weekends.



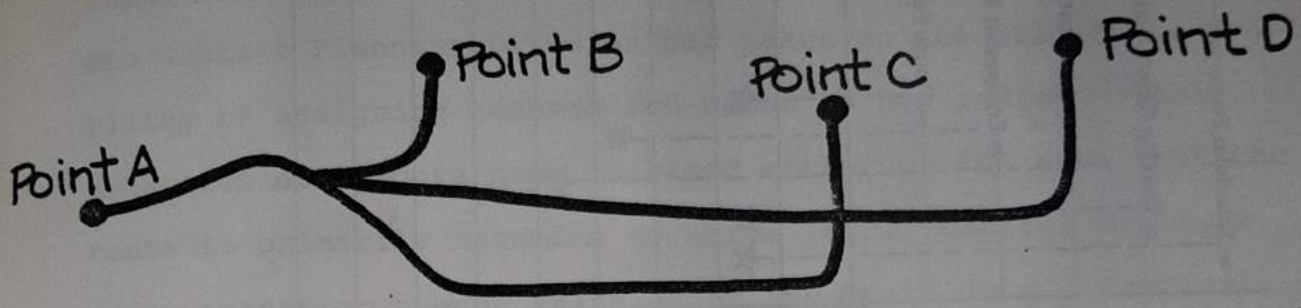
2. Point-to-point with different terminals (turnbacks).




3. Point-to-point with multiple paths but a single terminal.



4. Point-to-point with multiple paths and multiple terminals.




These route variations are not adequately identified by the current bus numbering and naming procedures.

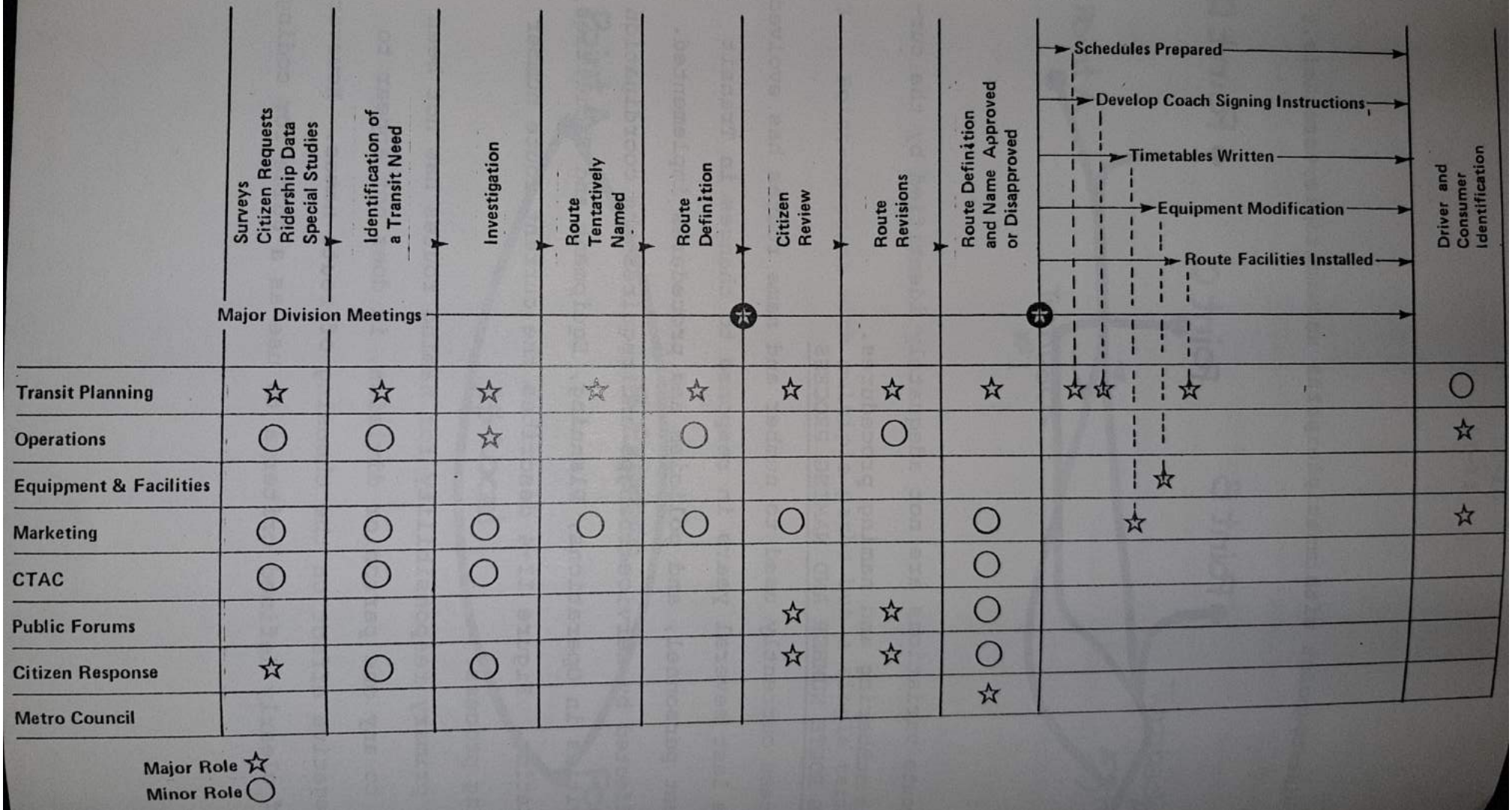
EXISTING ROUTE NUMBER AND NAMING PROCESS

The process currently used to number and name routes has evolved over the last several years in response to changes in Transit Department personnel, and policies and procedures implemented. It is affected by service changes and requires the coordination of activities in Operations, Planning, Equipment and Facilities, and Marketing. Figure II-4 describes the current route number and naming process.

Although primary responsibility for naming routes has not been assigned to any one person or division, it does not appear to have a negative effect on the choosing of route names. However, a lack of clearly defined criteria to use as a guide for coding

Figure II-4

## EXISTING ROUTE NUMBERING AND NAMING PROCESS



routes has perpetuated the inconsistencies and complexities found in the present route identification system.

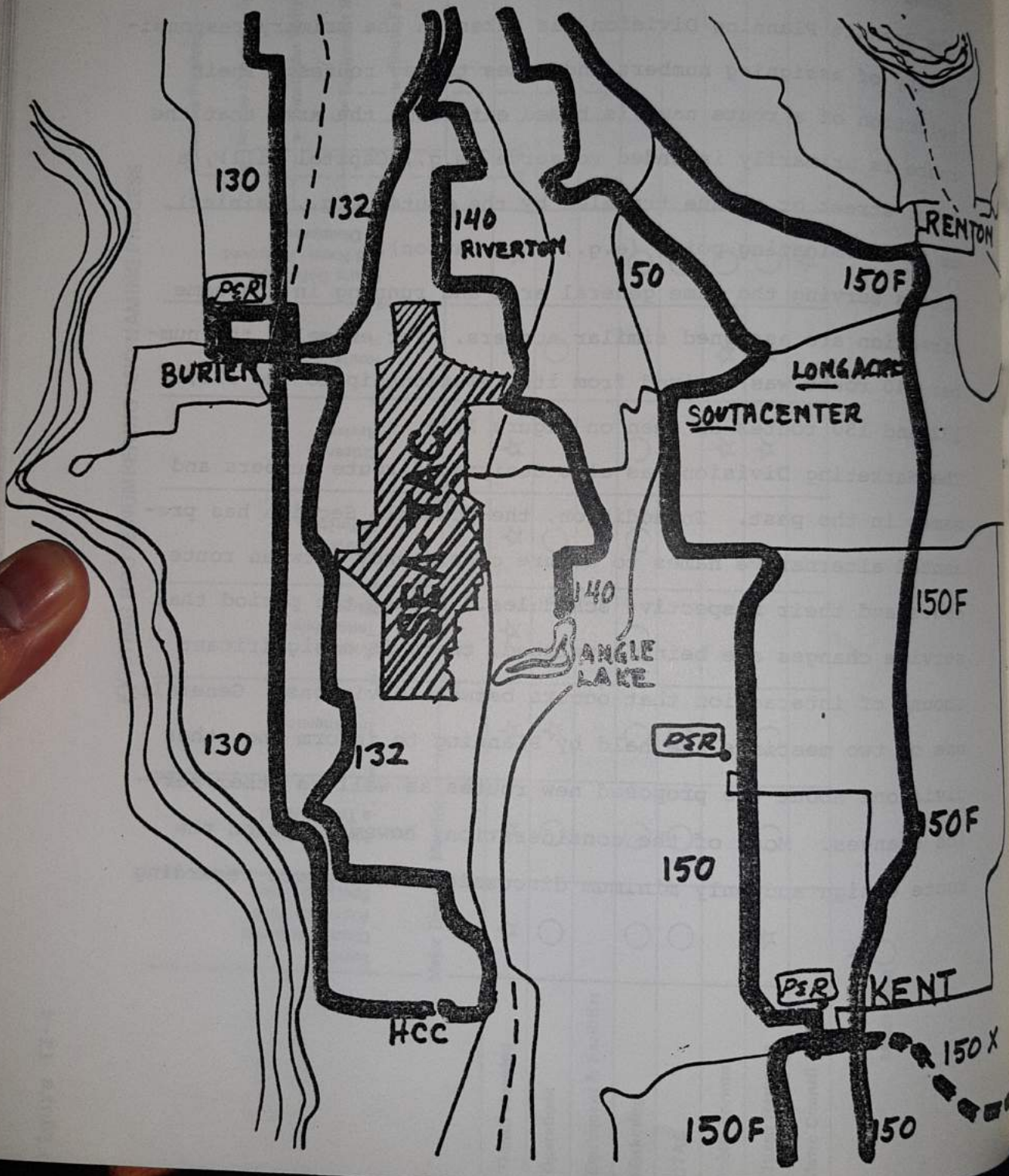
The Transit Planning Division has taken on the primary responsibility of assigning numbers and names to new routes. Their selection of a route name is based either on the area that the route is primarily intended to serve (e.g., Capitol Hill), a major street or avenue traveled by the route (e.g., Rainier), or its terminating point (e.g., Fort Lawton).

Routes serving the same general area and running in the same direction are assigned similar numbers. For example, the number 140 route was derived from its relationship to the 130, 132 and 150 routes as seen on Figure II-5.

The Marketing Division has also designated route numbers and names in the past. In addition, the Schedule Section has presented alternative names to assure consistency between route codes and their respective schedules. During the period that service changes are being developed, there is a significant amount of interaction that occurs between divisions. Generally, one or two meetings are held by Planning to inform the other divisions about the proposed new routes as well as other service changes. Most of the consideration, however, is on the route design and only minimum discussion takes place regarding

Figure II-5

# Coding Routes Serving Similar Areas



route identification. If the Metro Council approves the route, schedules are written, timetables are printed, equipment is modified, and route facilities are installed. The last phase of this process involves informing drivers and consumers.

INVENTORY OF METRO COACHES

As of January 1977, Metro's fleet consisted of 671 coaches. One of these, the Center Park handicap coach, has a roller sign, with displays specific to its limited service. Thus, its particular information display needs are currently being satisfied. The remaining 670 coaches can be divided into four major categories, as shown on Figure II-6.

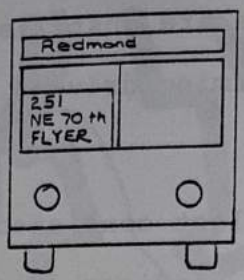
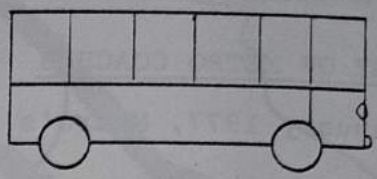
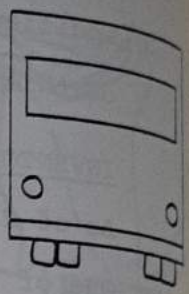
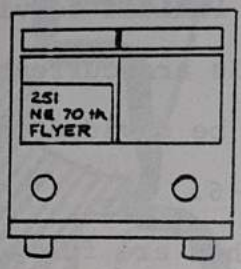
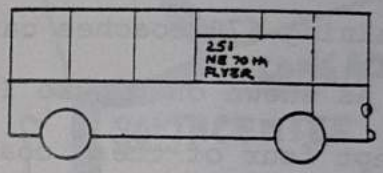
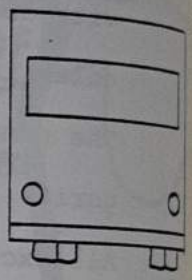
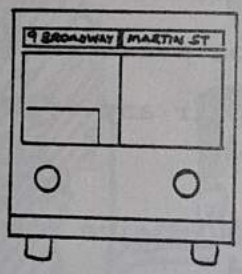
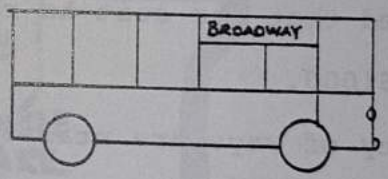
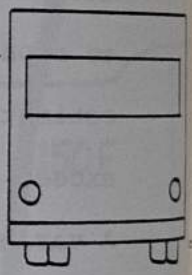
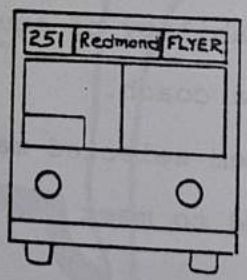
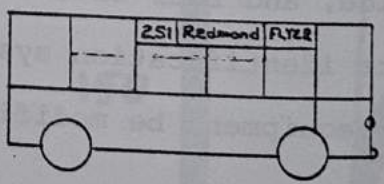
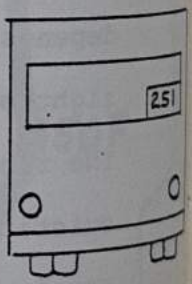
All except four of these coaches are fully operational. At the time this report was written accurate information on the cost to repair these coaches was not available. However, it was estimated that the cost to repair any of the coaches would not exceed $1,000.

A variety of ways are utilized to give transit patrons route, via, and destination information. The specific display pattern depends on the type and availability of equipment on the front, right side, and rear side of a coach.

The route identification system selected may require that the existing equipment be modified to meet the system information requirements.

FIG. II-6

# Current Distribution of Metro Coaches by Type of Roller Display

| Number of Coaches | Description | Front View | Right Side View | Rear View |
|---|---|---|---|---|
| 111 | Single front roller, dash sign and no side sign window sign<br>300 / 400 / 800 Series |  |  |  |
| 276 | Double front roller, dash sign, single side sign, and side window sign<br>200 / 500 / 700 Series |  |  |  |
| 68 | Double front roller, dash sign, and single side sign, and no side window sign<br>400 / 600 Series |  |  |  |
| 215 | Triple front roller, dash sign, triple side sign and no window sign<br>AM General Series |  |  |  |

In addition to the route system design constraints inherent in the existing coaches, it is also necessary to assess the impact of future acquisitions and deletions planned to occur through 1981.

By the end of 1978 between 303 and 365 additional transit coaches will be acquired by Metro. The exact number of trolley coaches to be acquired has not yet been finalized. However, it will have a direct influence on the number of additional motor coaches and advance design buses purchased.

The route information display systems on both the articulated coaches and the trolley coaches will be compatible with the 215 AM General coaches recently put into service. On the additional motor coaches and the advance design buses, the specifications on the route information display system are optional, pending the results of this study. A schedule of acquisitions is presented in Table II-1.

Table II-1

Planned Metro Coach Acquisitions

| Year | Type of Coach | Number | Route Information Display System |
|---|---|---|---|
| 1978 | Articulated | 150 | Same as AM General |
| 1978 | Trolley Coaches | 63-125 | Similar to AM General |
| 1978 | Additional Motor Coaches | 90 | Optional |
| ? | Advance Design Coaches | 25 - 87 | Optional |

Currently, there is a considerable amount of uncertainty regarding the disposal of Metro coaches. A suggested order for coach disposal[1] has been prepared, but proposed disposal dates have not been assigned. The uncertainty is based on the trolley rehabilitation program, planned to occur in 1978. There are no future plans at this time to delete any Metro coaches. Thus, in terms of design constraints, it should be assumed that the only changes in the size of the fleet through 1978 will be due to acquisitions.

SUMMARY OF THE MAJOR PROBLEMS IN THE CURRENT ROUTE IDENTIFICATION SYSTEM AS PERCEIVED BY THE PUBLIC

The major problems with the existing route identification system were identified through public input, in the form of group interviews and the Citizens Transit Advisory Committee. They are summarized as follows:

1. The present combination of route number and route name in the route information display limits and restricts present and future expansion and restructuring of Metro's transit service system. Also, the identification of a route by name and number is redundant, since the use of either element provides sufficient information to tell passengers where a bus is going.

---

[1] Memo from Ralph Hargin, Supervisor of Vehicle Maintenance, to Jess Dawson, Manager of Equipment and Facilities, 1/13/76.

2. The use of a route number and route name without clearly distinguishing "via" from "destination" information tends to be confusing and inconsistent.
3. It is difficult for passengers to easily identify their coach since route information is located at several places on a coach.
4. Several terms are used to describe similar service modes, e.g., Express, Flyer and Blue Streak.
5. Some coaches have the same route number, even though they travel significantly different routes.
6. The various makes, models and styles of coaches carry different roller sign curtains and different formats. Thus, information is presented in an inconsistent manner.
7. Coaches operating route turnbacks, and night, weekend and holiday service are not signed in a manner that enhances rider confidence in using the transit system.
8. The complexities and inconsistencies of the existing route identification system makes it difficult for drivers to give clear instructions to transit patrons.
9. The present route identification system has been a major obstacle to the smooth coordination of the elements in the consumer information system.

There have been past attempts at resolving the problems associated with the present route identification system. Although these efforts have made significant progress, their narrow focus limited their application to the entire Metro Transit system.

PROGRAM GOALS AND OBJECTIVES

Based on the defined problems with the existing number and naming system, the following goals and objectives were developed to guide the route renumbering and renaming effort.

Goal

To provide a flexible and consistent identification system for routes, creating improved accessibility for present and future riders with the maximum cost/benefit, within budgetary guidelines to aid the achievement of the 1980 ridership goal of 57 million passengers.

Objectives

- To provide only one route number per route.
- To clearly indicate variations in the length of the basic route and the basic route path.
- To clearly indicate multiple legs in a basic route.
- To provide consistency within "via","destination" and "turnback" designations.
- To provide consistent and clear service mode identification.

- To provide bus identification on the front, side, and rear of a coach.
- To provide a minimum of on-route sign changes.
- To provide signing flexibility for service expansion.
- To provide consistency within night/weekend service signing.
- To avoid the use of dash signs to give pertinent information.
- To consolidate pertinent information within the roller sign curtain.
- To reduce confusion caused by the present location of the equipment and run numbers.
- To provide minimum disruption during implementation.
- To consider interface with other route information sources.
- To consider interface of the various coach styles, existing and new.
- To provide adequate opportunities for citizen, staff, and CTAC input.

# CHAPTER III

## Alternative Route Identification Systems

## INTRODUCTION

Over the course of this route renumbering and renaming project a significant number of options was developed as a result of focus group interviews, input from the Citizens Transit Advisory Committee and Metro staff research and analysis.

This chapter is concerned with identifying these options and determining if they can satisfy the objectives of the route identification study.

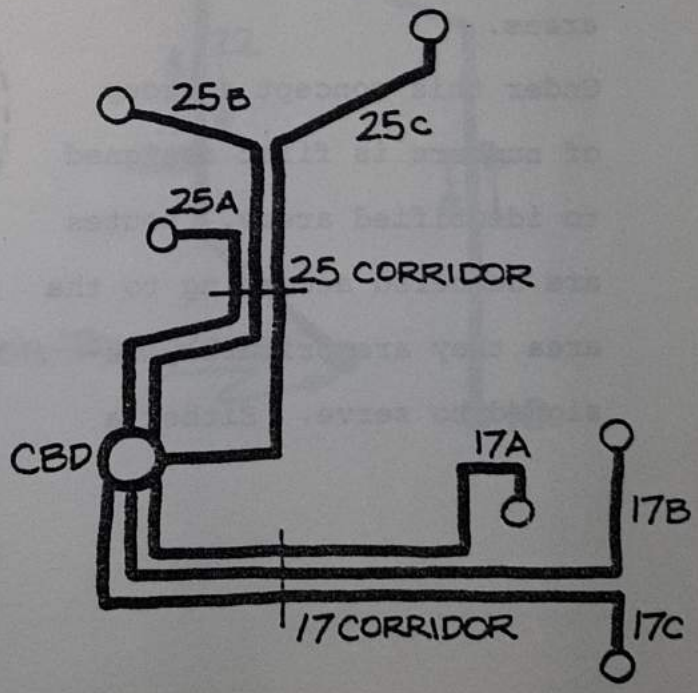
## ALTERNATIVE ROUTE IDENTIFICATION CONCEPTS

Three alternative route identification concepts were considered as alternatives to the existing system. The alternatives differ primarily in the manner in which associations are developed among routes for purposes of assigning a route number. Also, the emphasis each concept places on particular route information elements, e.g., destination, via, etc., varies.

### Corridor Concept

This concept develops an association between routes providing transit service within the same corridor.

Route numbers are assigned to corridors radiating

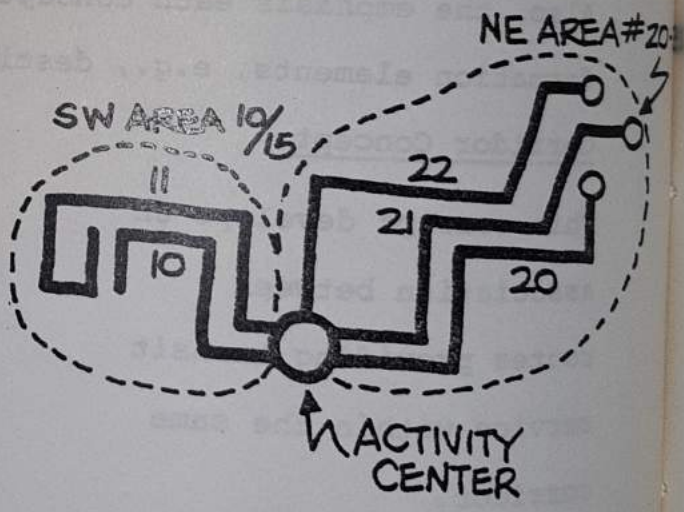


from the Seattle Central Business District in a clockwise manner, beginning in Northwest Seattle and ending in Southwest Seattle. Other major corridors, such as Rainier Avenue or Evergreen Bridge, are numbered according to their respective distances (in miles) from downtown. Local feeder routes are also numbered on the basis of the primary area served. Letters are assigned to routes to indicate deviations from the corridor or feeder route. The routes are named according to the primary area served. Additional names may be used to further describe a route.

Route identification emphasizes the path (via) a bus travels.

Area-to-Area Concept

This concept develops an association between routes providing transit service to general geographic areas.

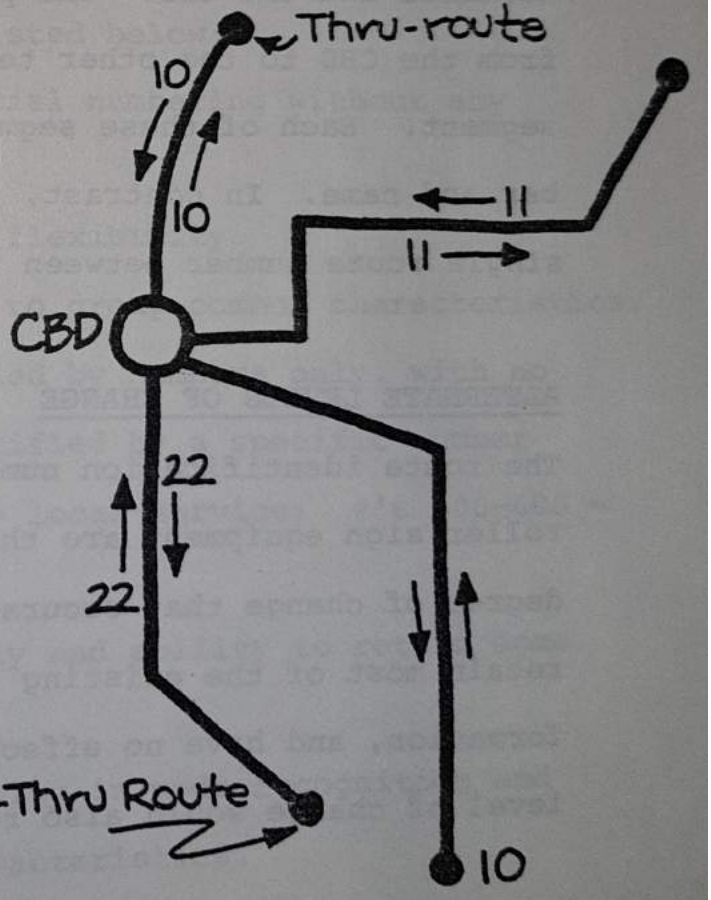



Under this concept a group of numbers is first assigned to identified areas. Routes are numbered according to the area they are primarily designed to serve. Either a

single code number can be used to indicate commonality of paths, terminals or activity centers, or a dual code number can be utilized to indicate route variations. Names are assigned on the basis of the primary area served. Emphasis is on identifying the area served (destination).

Point-to-Point (European) Routing Concept

This system is similar to the existing Metro point-to-point system in the assignment of route numbers or names. The path traveled (via) between the first point (origin terminal) and the second point (bus stop) is assigned a number. This same number is assigned to the paths lying between each of the next consecutive points until the last point (destination terminal) is reached. Thus, the association developed between the points on this path distinguishes the route



identification number from any other route identification number. Any deviations from this basic path may be indicated through another number, or by providing destination, via, or mode information. Routes may be coded in a through route or non-through route manner. The major difference between the two approaches is in regard to coding routes terminating and passing through the Seattle Central Business District. In non-through routing, the route is divided into two segments. The first segment is the portion of the route between the terminal and the CBD. The part of the route that extends from the CBD to the other terminal is considered as the second segment. Each of these segments is assigned a different number and name. In contrast, through routing incorporates a single route number between terminals.

## ALTERNATE LEVELS OF CHANGE

The route identification number, route information, and the roller sign equipment are the elements that determine the degree of change that occurs. A minimum level of change would retain most of the existing identification system, route information, and have no effect on roller signs. A moderate level of change would also retain the existing identification

system and route information. However, information on the roller signs would be cut and reassembled to fit the selected format. In contrast to the two previous levels of change, a maximum level of change in the system would result in a new route identification system, alter the use of route information, and result in the installation of new roller sign equipment.

## ROUTE INFORMATION ELEMENTS

### Route Numbering

This element could include the use of a number and/or a letter to identify a route. Significant advantages and disadvantages of several options are briefly listed below:

1. All routes will have sequential numbering without any distinction as to mode.
   - Advantages: Unlimited flexibility.
   - Disadvantages: Unable to group common characteristics.
2. All routes would be identified by numbers only, with no letters. Mode will be identified by a specific number group, such as: #'s 1-229 = local service; #'s 300-600 = express service.
   - Advantages: Flexibility and ability to retain some existing numbers.
   - Disadvantages: Difficulty in mode recognition and grouping of common characteristics.

3. All local routes would have a one- to two-digit number and/or a suffix letter. All express routes (service) would have a one to two digit number with a special suffix letter code such as "X," "F" or "Y".
   - Advantages: Easy to identify mode; can retain some of the existing system.
   - Disadvantages: Limited flexibility for expansion.
4. All routes would have a one to two digit number preceded (prefixed) by a letter, with express mode to be identified by a special letter code ("X," "F," "Y" etc.).
   - Advantages: Similar to "3".
   - Disadvantages: Similar to "3" the letter would become the common characteristic, rather than the number, thus limiting commonalities to 20 rather than 99.
5. All local routes would have a one to two digit number with or without a suffix letter. All express routes (service) would have a one to two digit number with a prefix letter.
   - Advantages: Clearly separates modes.
   - Disadvantages: Confusion concerning X22 and 22X as to whether they would be the same route.
6. All local routes would have a one to two digit number with or without a suffix letter. All express routes indicated

7.

8.

by a three digit number. Prefix letters would be reserved for special or limited service designations in relation to specific local routes. Express could begin with a 500 series number or higher for easier identification and leave 100 to 200 series available for future local service expansion.

- Advantages: Clear mode identification, coordination with special services, flexibility and future expansion, retention of greatest number of existing numbers.
- Disadvantages: None readily apparent.

7. All local routes would have a three digit number, and all express would have a one to two digit number, with or without a suffix letter code.
   - Advantages: Easy to identify mode and other information.
   - Disadvantages: Could not retain very much of the existing system. Would be difficult to group common characteristics.
8. All local routes would have a three digit number. All express routes (service) would have a one to two digit number with a prefix letter.

- Advantages: Easy to identify mode.
- Disadvantages: Could not retain most of the existing system, limited flexibility for expansion.

Mode Identification

The mode defines the type of service offered. It may be expressed as either local, Express, Flyer, Blue Streak or shuttle service. Flexibility in the use of the terms is limited by definition; however, it is difficult for a large segment of the public to distinguish between certain terms (particularly Express, Flyer and Blue Streak). It may simplify matters if coaches were identified either as a "local" or "express."

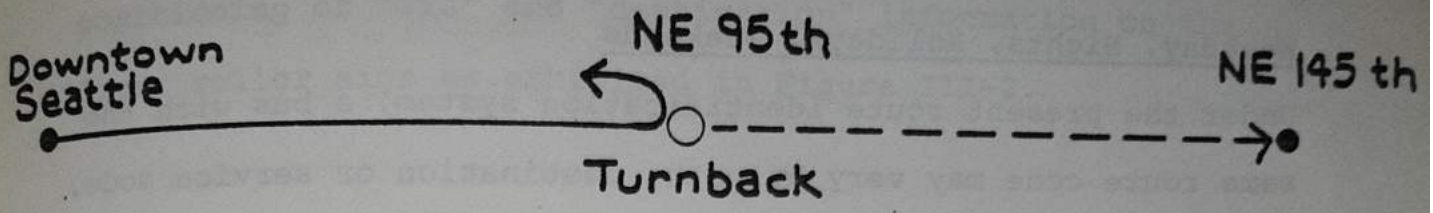
The use of color on the roller sign may enhance the rapid identification of service modes, since color can be recognized at a greater distance than letters and numbers. For example, white lettering on a green background could identify express service, whereas white lettering on a black background could indicate local service within a "via" curtain.

Route Deviations

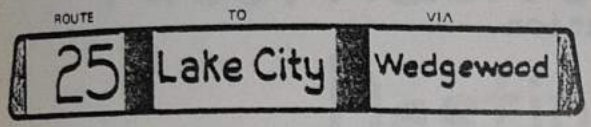
A route deviation may be a turnback/destination or a variation in path. Turnbacks and destination points may be identified by a separate number, a suffix letter or with destination sign information. Path variations may be shown by a separate number, a suffix letter, or by via information. Figure III-1 illustrates

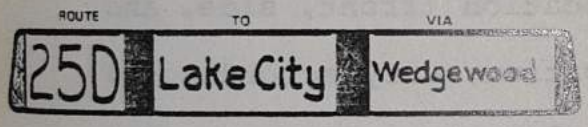
FIG III-1

# Displaying Route Deviations

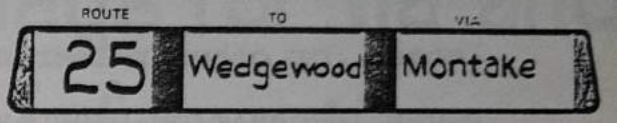



## Standard Route Identification Code

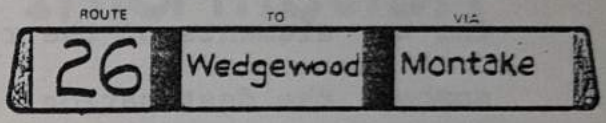


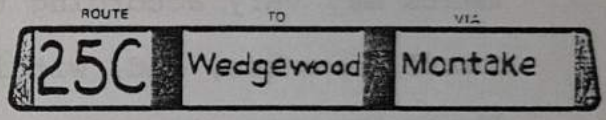



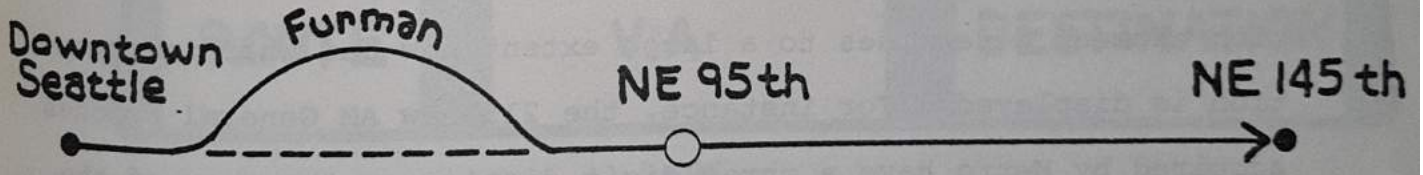

## Route Variation Code



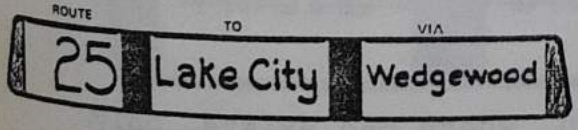

OR

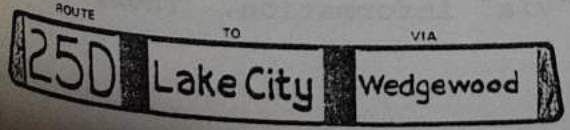


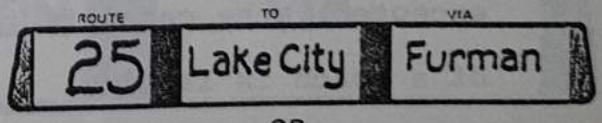




## Standard Route Identification Code

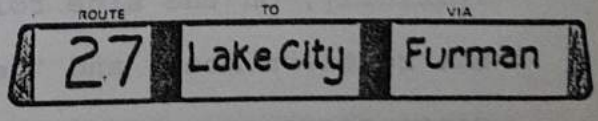


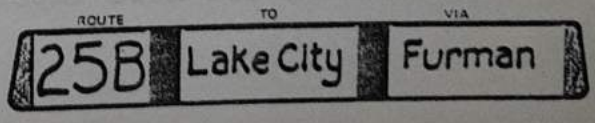




## Route Variation Code




OR



the alternate ways of displaying route deviations.

Weekday, Nights, Holidays, Weekends

Under the present route identification system, a bus with the same route code may very by path, destination or service mode. Similar to the approaches discussed above, any variations in service may be noted through a separate route number, a suffix letter, or other roller sign information.

ROUTE INFORMATION DISPLAY

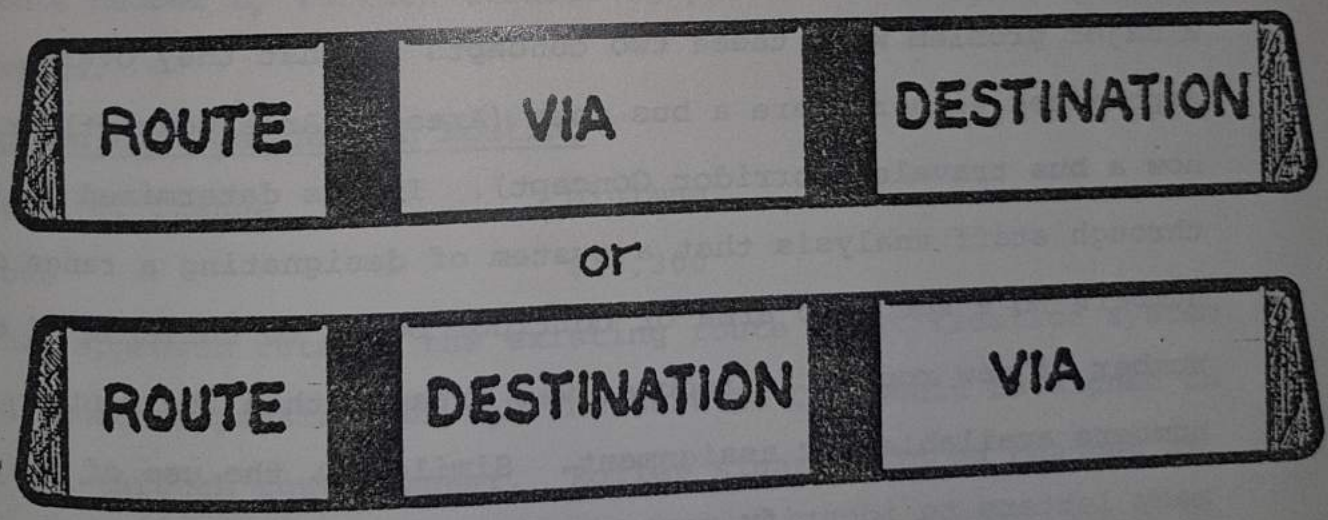
The key elements of the route information display are the route number, the destination, and the via information. These elements may vary according to their location (front, side, and rear) on a bus, and, within each location, vary according to their position in relation to other elements. The type of equipment available and the relative importance of the information element determines to a large extent how and what information is displayed. For instance, the 215 new AM General coaches acquired by Metro have a three digit display on the rear of the coach to identify a route number. On the older coaches (trolley excepted), the capacity to display a route number on the rear of a coach is lacking.

Similarly, on the side roller curtain, where one exists, only the route "number" and "destination" information will be shown since these are more important than "via" information. Thus,

the opportunity for options exists only in regard to the positioning of "via" and "destination" information on the front roller sign as exhibited in Figure III-2.

Figure III-2

# Alternative Displays for Via and Destination Information



As indicated above in both alternative "via" and "destination" displays, the route number maintains the same position. This is due to public familiarity with the current positioning of the route number and recognition that this is the most important element in the route code.

RECOMMENDED IDENTIFICATION CONCEPT: POINT-TO-POINT

The Corridor Concept and the Area-to-Area Concept were eliminated because neither one could respond to the needs of Metro's transit service system. In general, each would require a complete revision of how the system is presently marketed. Also, both would tend to be disruptive during the changeover and would temporarily promote confusion and might result in a loss of patrons.

A major problem with these two concepts is that they overemphasized either where a bus goes (Area-to-Area Concept) or how a bus travels (Corridor Concept). It was determined through staff analysis that a system of designating a range of numbers to a specific area or corridor began to collapse if the number of new routes introduced was greater than the route numbers available for assignment. Similarly, the use of too many letters to identify route variations promoted confusion for passengers and created scheduling difficulties. The Point-to-Point Concept was selected for further staff analysis.

To accomplish this task, six options were explored. The first three options essentially retained the existing route identification system. Although they resolve many of the problems found in the existing system, the problems relating to flexibility, clarity and consistency still remain. The continued use of route number and name promotes association with either the Corridor Concept or the Area-to-Area Concept, depending on whether the route name is "via" (path) or "destination" (area) information.

Options D, E, and F represent new route identification systems. Each uses only a number to identify and distinguish routes. Destination, via, and mode information provides support to the route number by further indicating particular route characteristics.

Option A. Non-Through Routing

Level of Change - Minimum

Cost - $10,300

This approach retains the existing route identification system. All coaches passing through the Seattle CBD would be signed in a non-through route manner. Roller signs would be changed at the Magic Carpet Boundary. Since no new roller signs would be installed, dash signs would be used extensively to explain route deviations and turnbacks.

Option B. Through Routing

Level of Change - Minimum

Cost - $54,200

Similar to Option A, this option would result in some changes to the existing route identification system. Coaches scheduled to pass through the Seattle CBD would retain the same number/name combination from terminal to terminal. The existing roller signs would not be modified or replaced.

Option C. Revised Roller Signs

Level of Change - Moderate.

Cost - $202,800.

Similar to Option A and B, ninety percent of the existing route identification system would be retained. Thorugh routed coaches would keep the same number for the entire length of a route, but the route name would be changed at the Magic Carpet Boundary. New route codes would be assigned to indicate major route deviations. Minor deviations would be indicated through the "via" and/or "destination" portions of the roller sign. Roller signs would be cut and mended in accordance with the system coding requirements.

Option D. Standardize Roller Signs

Level of Change - Moderate.

Cost - $492,750.

This option represents a major revision in the route identification system. However, 75 percent of the existing numbers would be retained. Coaches would be signed in a through-route and non-through route manner. Changes would occur to route codes that are confusing and inconsistent. Route deviations would be indicated by assigning a new code (for a major deviation) or by changing the via and destination signing. New roller signs would be produced.

Option E. Mode Classification I

Level of Change - Maximum.

Cost - $492,750.

Similar to Option D, this option represents a new route identification system. About 33 percent of the existing numbers would be retained. Only the terms "local" and "express" would be used to identify route modes. Local coaches would be numbered from 1-99, with or without a suffix letter. Express coaches would be identified by a suffix letter. The use of route names would be discontinued. Separate roller curtains would be used to display via and destination information. Major route deviations and turnbacks would be indicated by a suffix letter.

Option F. Mode Classification II

Level of Change - Maximum.

Cost - $492,750.

This option has many of the same features contained in Option E. The major difference occurs in the signing of express coaches, which would be coded with a three digit number from the 500 to 600 number series. The express route code number would be related to the local code number, if one exists. For example, a local route coded 25 would be coded 525 (or 625) to identify the express runs.

OBJECTIVE ACHIEVEMENT ANALYSIS

A matrix was developed to test the ability of each option under the point-to-point concept to meet the objectives defined earlier in the study. Subjective weights ranging from one to three were assigned by Metro staff based on how well an alternative satisfied a specific objective. A rating of "3" was scored if an alternative completely met the requirements of an objective. Ratings of "2" and "1" indicated satisfactory achievement and minimum change from what presently exists. Ratings of "0" were assigned if no change would occur by implementing the alternative.

As clearly indicated by the matrix, the option that produced the greatest amount of change systemwide, and cost the largest amount of money, scored highest in terms of accomplishing the study's objectives. (Table III-1.)

Table III-1

## OBJECTIVE ACHIEVEMENT MATRIX

| | OPTIONS | A $10,300 | B $54,200 | C $202,800 | D $492,750 | E $492,750 | F $492,750 |
|---|---|---|---|---|---|---|---|
| 1. | To provide only one number per route. | 1 | 1 | 2 | 3 | 3 | 3 |
| 2. | To clearly indicate variations and individual trips on a basic route. | 0 | 0 | 1 | 2 | 2 | 2 |
| 3. | To provide consistency within "via" and "destination" designation information. | 0 | 0 | 0 | 3 | 3 | 3 |
| 4. | To provide consistent and clear service mode identification. | 0 | 0 | 0 | 3 | 2 | 3 |
| 5. | To provide only essential information to the passengers. | 0 | 0 | 0 | 3 | 2 | 2 |
| 6. | To retain as much of the existing numbering system as possible. | 3 | 3 | 2 | 2 | 1 | 1 |
| 7. | To provide a minimum of on-route changes. | 0 | 1 | 1 | 2 | 2 | 2 |
| 8. | To provide flexibility for service expansion. | 0 | 0 | 0 | 3 | 2 | 2 |
| 9. | To provide consistency and clarity in evening/night weekend service designation. | 0 | 0 | 0 | 3 | 2 | 3 |
| 10. | To consolidate all information into roller sign curtains. | 0 | 0 | 0 | 2 | 2 | 2 |
| | Totals | 4 | 5 | 6 | 26 | 23 | 22 |

## SELECTION OF THE RECOMMENDED PLAN

The selection of a recommended plan was the result of: (1) Considering how well each alternative accomplished the study goal and objectives; (2) the cost of implementing the alternative; (3) how well the identification system could fit the existing transit system; and (4) capacity for future growth and expansion.

Basically, the recommended plan consists of maintaining the existing European point-to-point concept, with provision for through-routing and non-through-route coding (Option D).

The most significant change is the elimination of route name and the resulting separation of the route number from destination, via and mode information. Route deviations are assigned a separate number if they are significant or may be indicated through the destination and via/mode information display rollers.

# CHAPTER IV

## Detailed Description of the Preferred Route Identification Plan

## INTRODUCTION

In this route identification effort primary consideration has been given to coordination and integration of a consumer information system that is easy to explain, and responds to the needs of existing and potential transit riders (demand-oriented). As a result it would promote consistency among the various system components, e.g., bus signage, timetables, rider maps, roller signage, etc.

This chapter consists of a detailed discussion of the recommended Terminal Point to Terminal Point Plan in terms of how it satisfies these three major objectives.

## SIMPLIFICATION

The recommended plan includes many of the features that are characteristic of through-routing and non-through-routing. (More is to be said about these elements in the next section of this chapter). It is flexible because the route number identifies the route; and destination, via and mode information provides support by further describing a route's behavior. This separation makes it easier to adapt to growth and changes as it occurs in the transit system. A brief discussion of each of the recommended plan elements follows:

### *Level of Change*

Generally, the recommended plan represents a moderate level of change, since it retains much of the existing system. Many of

the routes will require only moderate modifications to the existing route information in order to conform with the objectives of simplicity and consistency. For example, the existing number 7 route was viewed as four different routes. A different route number will be assigned to each route, as shown in Figure IV-1.

*Route Identification*

As indicated in Figure IV-2, the use of route names has been discontinued as a part of the route identification system. Approximately seventy-five percent of the existing numbers have been retained. New route numbers will continue to be based on the primary geographic area served by a route (see Figure II-2) and will be assigned in a random pattern. However, the use of 400 numbers will be discontinued. Replacing 400 numbers will be numbers from the 100 and 300 number series.

*Service Modes*

Service mode classifications will be primarily limited to "local" and "express" coaches. In some cases shuttle service may be identified. Colors may be used in the route code display to enhance passenger identification.

Figure IV-1

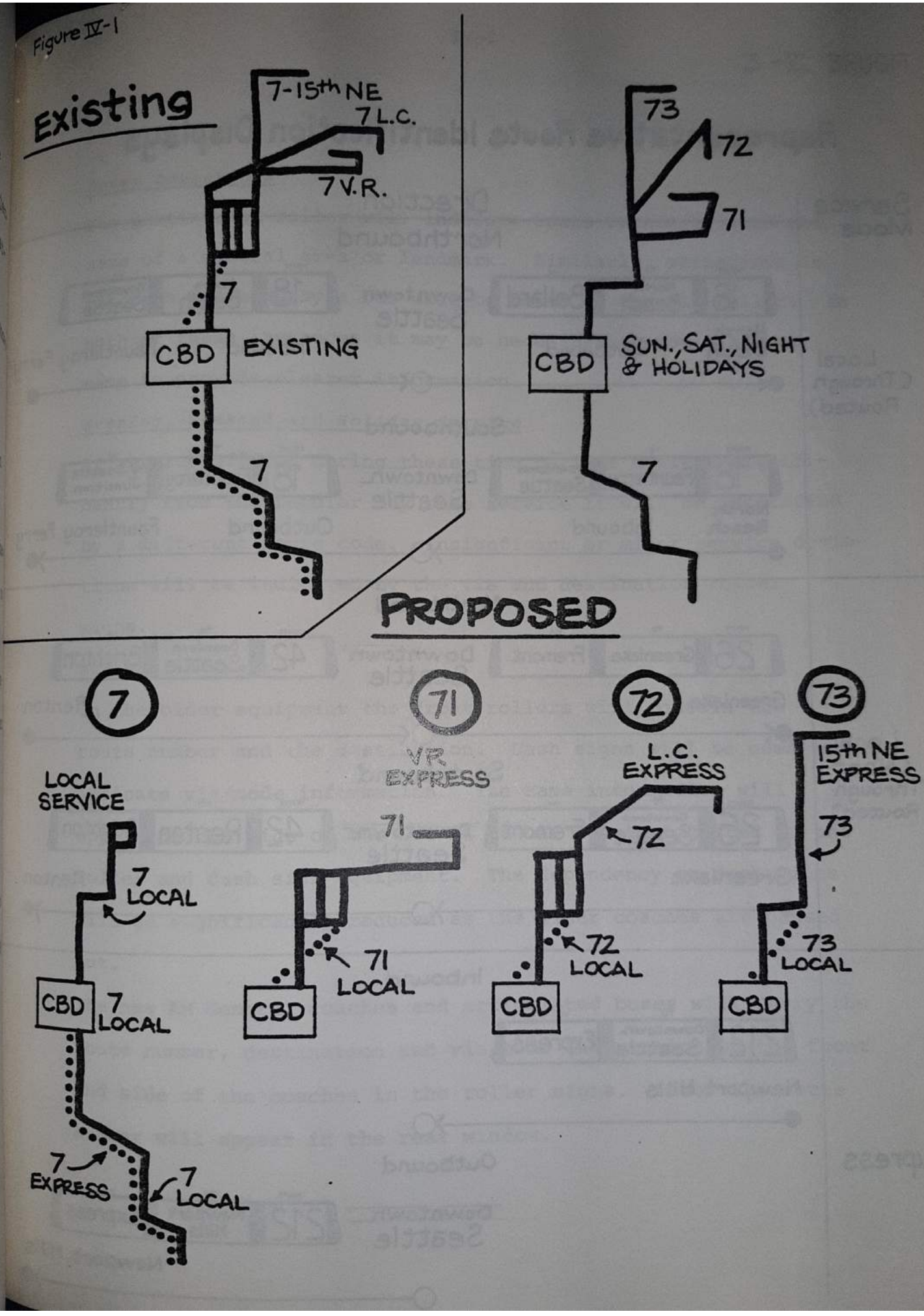
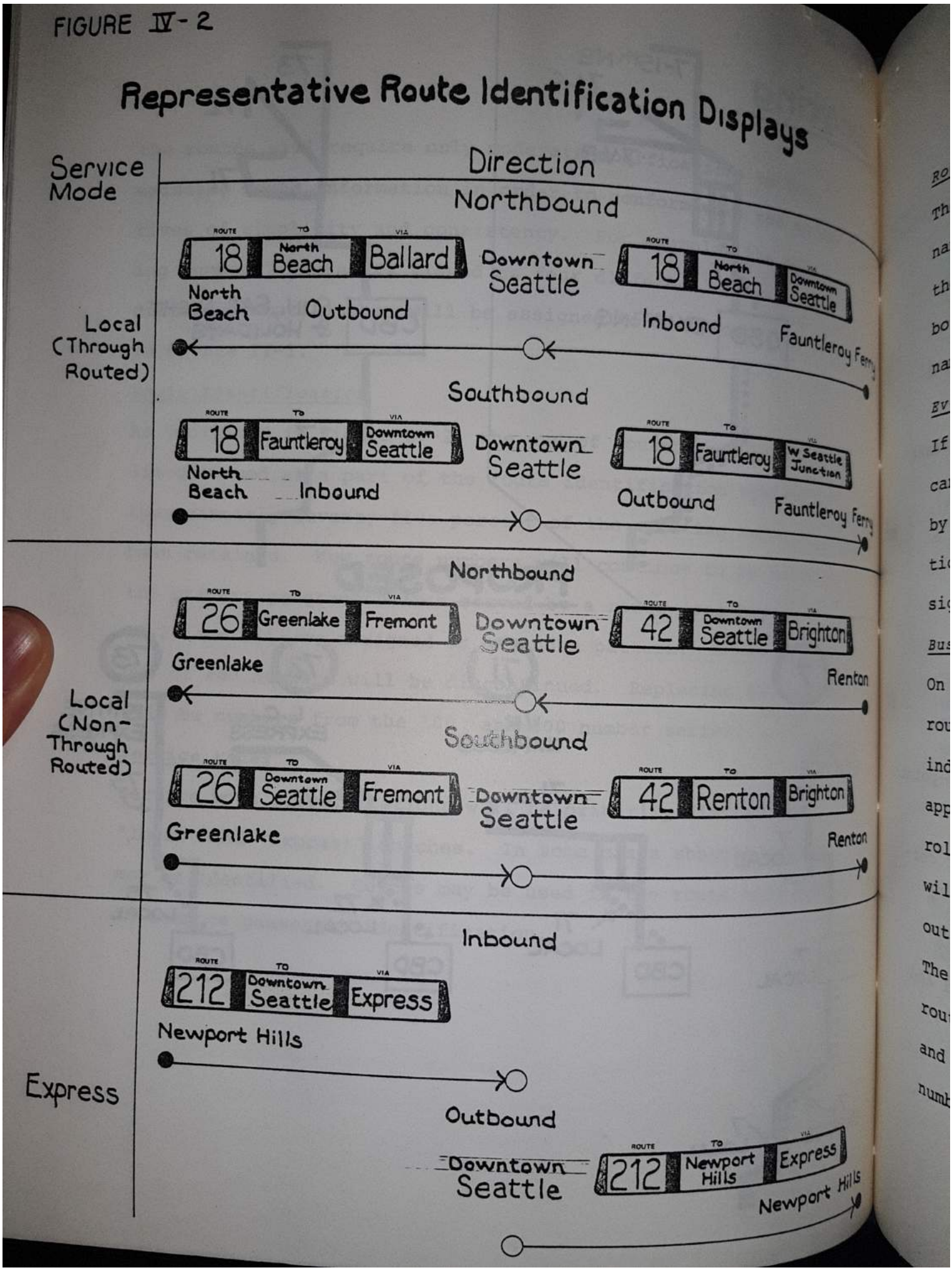

Existing
7-15th NE
7 L.C.
7 V.R.
7
CBD
EXISTING
7
73
72
71
CBD
SUN., SAT., NIGHT & HOLIDAYS
7
PROPOSED
7
LOCAL SERVICE
7 LOCAL
CBD
7 LOCAL
7 EXPRESS
7 LOCAL
71
VR EXPRESS
71
71 LOCAL
CBD
72
L.C. EXPRESS
72
72 LOCAL
CBD
73
15th NE EXPRESS
73
73 LOCAL
CBD

FIGURE IV-2

# Representative Route Identification Displays



*Route Deviations*

The destination roller will indicate route turnbacks with the name of a general area or landmark. Similarly, variations in the path traveled by a bus will be noted in the via roller. In both of these instances it may be necessary to use a street name to provide clearer information.

*Evening, Weekend and Holiday Service*

If service offered during these time periods differs significantly from the regular day base service it will be identified by a different route code. Insignficant or minor service deviations will be indicated by the via and destination roller signs.

*Bus Roller Signs*

On the older equipment the front rollers will contain the route number and the destination. Dash signs will be used to indicate via/mode information. The same information will appear on the side of the bus if it can be accommodated in the roller and dash sign equipment. The dependency on dash signs will be significantly reduced as the older coaches are phased out.

The new AM General coaches and articulated buses will carry the route number, destination and via/mode information on the front and side of the coaches in the roller signs. Also, the route number will appear in the rear window.

Figure IV-3 exemplifies how the route number, destination and relevant via/mode information will be exhibited on various coaches.

DEMAND-ORIENTED TRANSIT SERVICE

This concept is a key feature of the recommended plan. It is expressed as the percent of passengers on a route that utilize transit service to reach a general geographic area or activity center. The implications of this concept are important for signing coaches and marketing Metro's transit service.

To apply this concept the 132 route legs were assigned to one of these groups:

(1) Routes that do not enter the Seattle CBD.

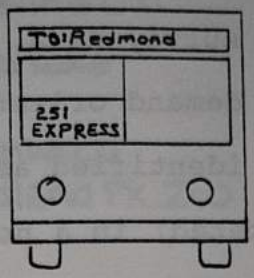
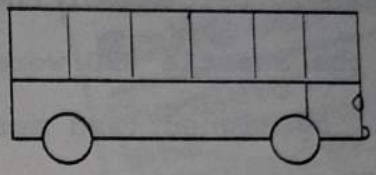
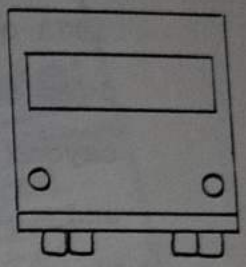
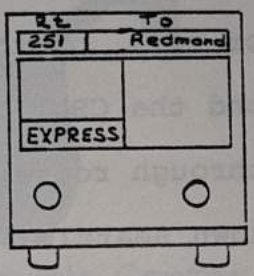
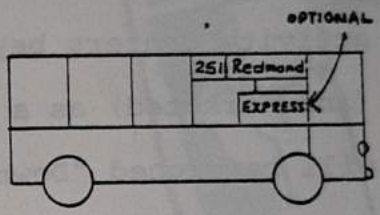
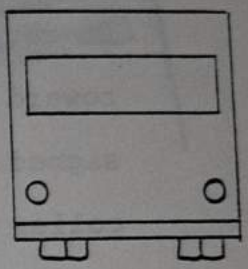
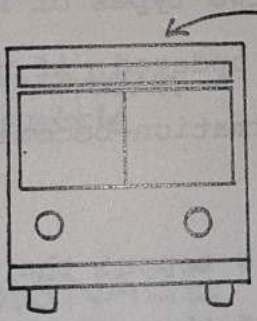
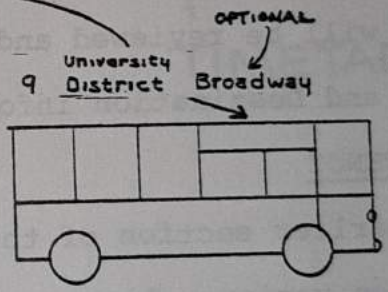
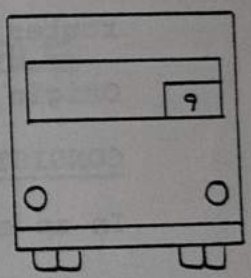
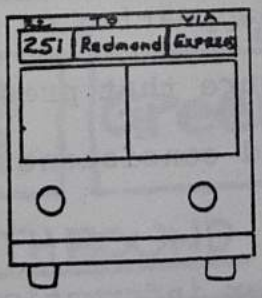
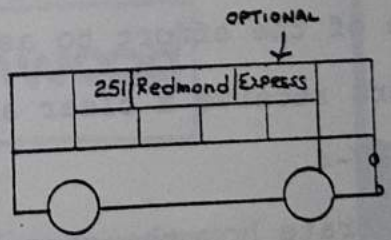
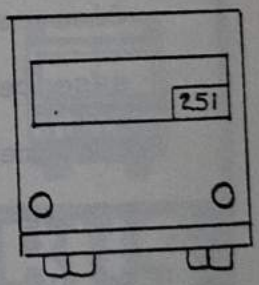
(2) Routes that terminate in the Seattle CBD.

(3) Routes that pass through the Seattle CBD in route to their respective terminals.

The first groups will be signed in accordance with point-to-point criteria as it applies to particular routes. However, the second group will be reviewed in the future to determine if certain routes can be tied together. Information collected from the 1977 Origin and Destination study will be used to define whether those routes that are tied together should be signed and marketed as through routes or non-through routes.

FIG IV-3

# Proposed Adaption Of Existing Metro Coaches To The Route Identification System

| Number of Coaches | Description | Front View | Right Side View | Rear View |
|---|---|---|---|---|
| 111 | Single front roller, dash sign and no side sign window sign<br>300 / 400 / 800 Series<br>Information in dash sign is Temporary until Equipment is phasedout. |  |  |  |
| 276 | Double Frontroller, dash sign, single side sign, and side window sign<br>200 / 500 / 700 Series |  |  |  |
| 125 | Single Frontroller, dash sign, and single side sign, and no side window sign<br>New Trolley |  |  |  |
| 215 | Triple Frontroller, dash sign, triple side sign and no window sign<br>AM General Series |  |  |  |

The immediate efforts were focused on dividing the third group into through routed and non-through routed coaches, based on 1973 Origin and Destination survey data. Routes that have less than 10 percent of the demand oriented toward a destination beyond the Seattle CBD were identified as non-through routes and will be signed (and marketed) in a non-through route manner, i.e., the destination roller will be signed "Downtown Seattle."

On routes where 10 percent or more of the riders are oriented toward activity centers beyond the CBD, the coach will be signed (and marketed) as a through route coach, i.e., the via roller will be signed "Downtown Seattle." Figure IV-2 shows the difference between the two types of signing. Each of these routes will be reviewed and updated, if necessary, when the 1977 Origin and Destination information becomes available.

CONSISTENCY

In an earlier section of this report the need for consistency among the various elements of the consumer information system was discussed. The information appearing on these elements is the essence of the effort to assure that present and future consumers receive a clear and consistent message, as shown on Figure IV-4.

To illustrate how the consumer information system can respond to rider information needs, Table IV-1* contains a list of

* The format of Table IV-1 was designed by Thomas Martin of CTAC.

Fig. IV-4

# Consistency Among Selected User-Information



TIMETABLE

BUS SIGNAGE

NORTHBOUND

| | To | Via |
|---|---|---|
| 5 | Shoreline Comm. Coll. | Greenwood |

SOUTHBOUND

| | | |
|---|---|---|
| 5 | Downtown Seattle | Greenwood |


BUS STOP SIGN

frequently asked rider questions. The information element that can provide an answer to each question is indicated.

Table IV-1

## SOURCES OF INFORMATION FOR BUS RIDERS

### CONSUMER INFORMATION ELEMENTS

| FREQUENTLY ASKED QUESTIONS | Vehicle Signage: Route No. Roller | Vehicle Signage: Route Destination Roller | Vehicle Signage: Route Via Roller | Vehicle Signage: Dash Sign | Bus Zone Signage: Bus Stop Sign | Bus Zone Signage: Info. Sign | Bus Zone Signage: Schedule Holder | Time Table | Rider Map | CAO[1] | Bus Driver | Rider Report | Media Advertising | Rider Handbook | Fun Book |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| . What bus do I take to where I am going? | | | | | | X | | X | X | X | X | | | | |
| . What time does the bus come? | | | | | | X | X | X | | X | X | | | | |
| . How do I recognize my bus? | X | X | X | X | | | | | | X | X | | | X | X |
| . On what side of the street do I stand on? | | | | | X | X | X | X | X | X | X | | | | |
| . What time does it get to where I am going? | | | | | | X | X | X | | X | | | | | |
| . How much will my ride cost? | | | | | | X | X | X | | X | X | X | X | X | X |
| . Is it a local or an express? | | | X | X | | X | X | X | X | X | X | | | | |
| . Does it turn back before my destination? | | X | X | | X | | X | X | | X | X | | | | |
| . Do I have to transfer? | | | | | | | | X | X | X | X | | | | |
| (a). To what line, and where? | | | | | | X | X | X | X | X | X | | | | |
| (b). How long must I wait? | | | | | | X | X | X | | X | | | | | |
| . Is there a better way to get to where I am going? | | | | | | | | X | X | X | X | | | | |

[1] Customer Assistance Office

Source: These questions are paraphased from information received from focus group interviews, the Citizens Transit Advisory Committee and Customer Assistance Office.

# CHAPTER V

## Strategy for Implementation

## INTRODUCTION

This Chapter describes the method to be used for implementing the recommended plan in a timely manner. Emphasis is on identifying impacts, coordinating activities, assigning responsibilities, estimating cost, and identification of possible sources of funds.

## AREAS AFFECTED BY THE ROUTE IDENTIFICATION SYSTEM

The route identification system is an integral part of the Metro consumer information system. Table V-1 contains a summary of the divisions that will be affected by the results of this present effort.

Table V-1

Areas Impacted By The Route Identification Study

| AREA | ELEMENTS |
|---|---|
| Operations Division | . Driver Information<br>. Traffic Coordination Information<br>. Service Supervisor Information<br>. Base Dispatcher Information<br>. Instruction Section Information<br>. Operator's Sign-Up Information<br>. Roller Sign Changing Procedures |

| | |
|---|---|
| Equipment and Facilities Division | . Roller Sign-Existing/New Bus<br>. Roller Sign Production - Paint Shop<br>. Roller Sign Retro-Fitting<br>. Maintenance Section Information |
| Marketing Division | . Marketing of New System<br>. Timetables<br>. Riders Guides<br>. Fun Book<br>. CAO Information<br>. Consumer Research |
| Transit Planning Division | . Signage Program<br>- New Bus Zone<br>- Information<br>- Schedule Holders<br>- Trailblazers<br>- Computerization<br>- Graphics<br>. Service Scheduling<br>- Computerization<br>- Schedule Sheets<br>. Service Development<br>- Special Services<br>- Service Mode Development<br>- Comprehensive Plan |
| Community Relations Division | . Public Information<br>. Citizen Input<br>. System Graphics/Colors |

COORDINATION

To facilitate the completion of the various actions required for implementation, an Information Integration Task Force has been formed. The divisions and areas of responsibility are as follows:

| DIVISIONS | AREAS OF RESPONSIBILITY |
|---|---|
| Transit Planning | . Scheduling and Implementation Control |

| | |
|---|---|
| Marketing | . Roller Sign and Bus Stop Sign Criteria |
| | . Information Sign Designation Production |
| | . Schedule Revisions |
| | . Timetables and Rider Guide Criteria and Production |
| | . Roller Sign and Bus Stop Sign Designations |
| | . Research Support (route number demand criteria and roller sign color selection) |
| | . UMTA Grant Application |
| | . Marketing |
| Community Relations | . Graphic Design and Color Selection |
| | . Public Information |
| Transit Operations | . Driver Orientation |
| Transit Technology | . Specifications (roller sign) |
| Equipment & Facilities | . Roller Sign Installation |
| | . Sign Production (approx. 20%) |

Each area of responsibility has been assigned to a specific staff member. Overall coordination will be co-directed by representatives from the Marketing and Transit Planning Divisions.

## IMPLEMENTATION SCHEDULE

The major tasks required to implement the recommended plan are briefly described below.

### Route Identification System

The number selected to identify each route, and the destination, via and mode information used to describe the route variables, is to be reviewed and accepted by staff and CTAC. General concept approval will be sought from the Metro Council.

### Roller Sign Contract

The roller sign displays and their sequence will be defined concurrently with the bid document preparation. UMTA approval of the bid document is expected by mid April with notice to proceed subsequently for roller sign production. Approximately three months is needed to produce the new roller signs with an on dock date schedule for August 12, 1977. Installation, will take close to one month and should be completed by mid September 1977.

### Schedule Revisions

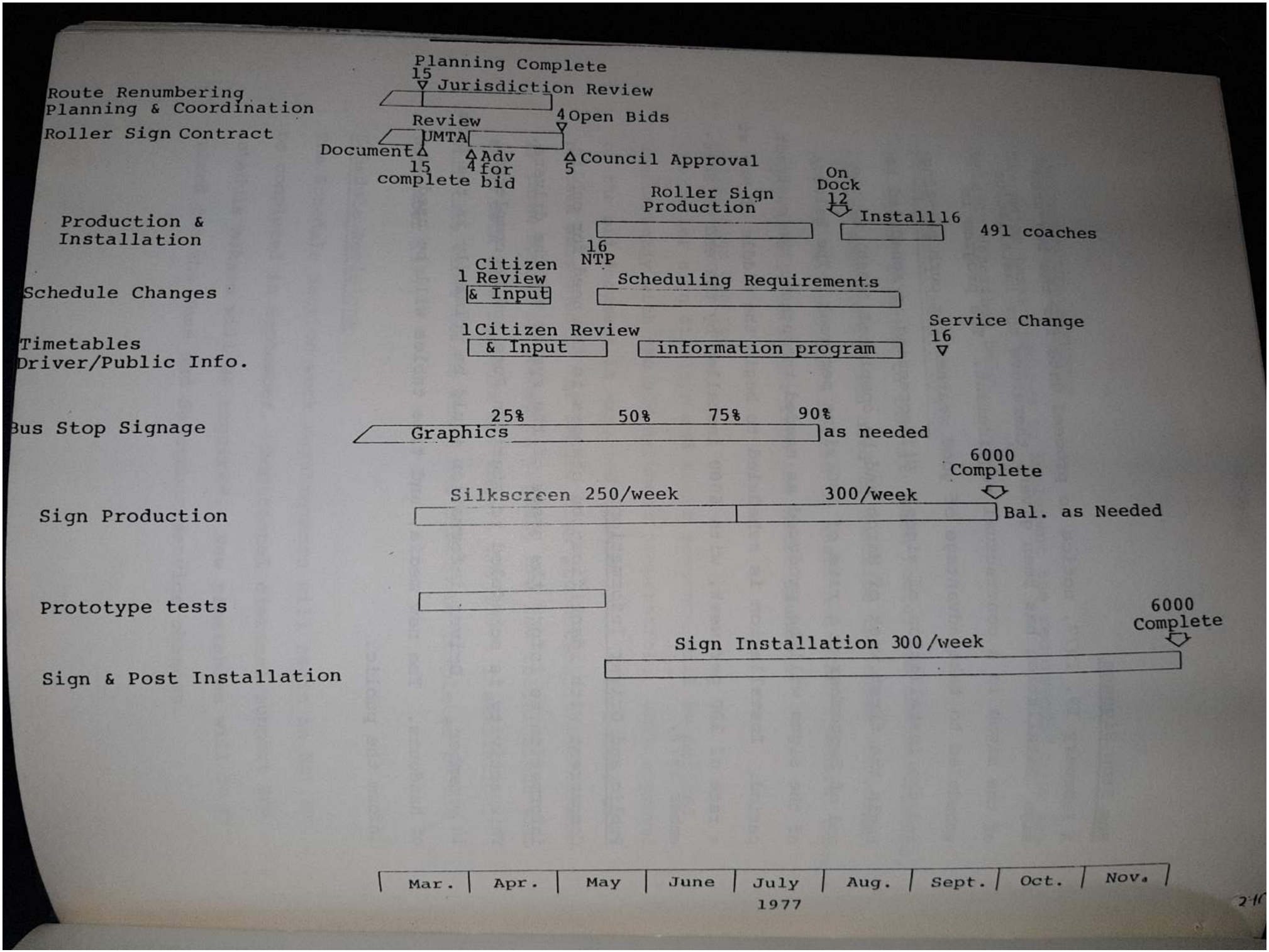
The Schedule Section work requirements will begin in May and be completed in September. Additional clerical support and schedule makers will be required. New timetables will be required for the June and September service changes.

## Bus Stop Signage

A February 19, 1977, notice to proceed date for the bus stop sign installation has been given, therefore the installation of the signs is a contractual requirement. The program is scheduled to take advantage of good weather for curb painting and the installation of signs. Silkscreening is scheduled to begin the first week of March and be completed (6000) by the end of September at a rate of 300 signs per week. The balance of the signs will be produced as needed throughout the contract period. Installation is scheduled to begin the middle of May at a rate of 300 per week, with 6000 installed by the end of September 1977.

## Public and Driver Information

Concurrent with identification changes is the need for public information to inform the users of the system and the drivers. This activity is scheduled to start in June and be completed in November. Driver information would be primarily in the form of handouts. The new media, and time tables will be used to inform the public.


Planning Complete
15
Route Renumbering
Planning & Coordination
Jurisdiction Review
Roller Sign Contract
Review
4 Open Bids
UMTA
Document
15
complete bid
4 Adv for
5 Council Approval
Roller Sign Production
On Dock 12
Install 16
Production & Installation
491 coaches
16 NTP
Citizen
1 Review & Input
Schedule Changes
Scheduling Requirements
1 Citizen Review & Input
Service Change 16
Timetables
Driver/Public Info.
information program
25%
50%
75%
90%
Bus Stop Signage
Graphics
as needed
6000 Complete
Silkscreen 250/week
300/week
Sign Production
Bal. as Needed
Prototype tests
6000 Complete
Sign Installation 300/week
Sign & Post Installation
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
1977

## COST IMPACT

In order to provide for flexibility in assigning coaches to routes, the existing roller display equipment on 276 coaches will have to be modified. Except for the trolleys, new roller curtain displays will be required on all coaches. At the end of the Trolley Rehabilitation Program, new trolley coaches will be acquired with the adopted specifications.

Table V-1 illustrates the four cost options initially considered prior to selecting the most feasible option. The difference in the cost of each option depends on whether or not new translator displays, new roller sign magazines and new side number curtains are installed. Option I would cost approximately $411,000 if none of these installations were made. The installation of a new side number curtain would increase the cost to about $493,000 (Option II). Under Option III, the addition of new roller sign magazines to widen the display area on the AM general coaches, would increase the cost by $32,000. Option IV, the most costly option, is basically the same as Option III, except it includes the cost for providing color within the translator displays. To implement this feature would result in a project cost of approximately $590,000.

Table V-1

## OPTIONAL DISPLAY COST ESTIMATES

| ITEMS | OPTION I | OPTION II | OPTION III | OPTION IV |
|---|---|---|---|---|
| New Roller Displays - (AM Generals) - 215 @$870 | $187,050 | $187,050 | $187,050 | $187,050 |
| New Translator Displays (AM Generals) - 215 @$300 | | | | 64,500 |
| New Roller Sign Magazine (AM Generals) - 215 @$150 | | | 32,250 | 32,250 |
| New Front Signage (Number & Dest. Rollers motorized & displays) (200, 500, 700's)-276 @$395 | 109,020 | 109,020 | 109,020 | 109,020 |
| New Side Destination Curtain (motorized & displays) (200, 500, 700's)-276 @$290 | 80,040 | 80,040 | 80,040 | 80,040 |
| New Side Number Curtain (motorized & displays) (200, 500, 700's)-276 @$295 | | 81,420 | 81,420 | 81,420 |
| New Dash Signs (via info.) (200, 500, 700's)-276 @$75 | 20,700 | 20,700 | 20,700 | 20,700 |
| New Roller Displays (single curtain front) (300, 400, 800's)-120 @$43.50 | 5,220 | 5,220 | 5,220 | 5,220 |
| New Dash Signs (rt. no. & via info.) (300, 400, 800's)-120 @$75 | 9,000 | 9,000 | 9,000 | 9,000 |
| New Dash Signs (Turnback Info) (for motor coaches serving trolley routes) - 20 @$15 | 300 | 300 | 300 | 300 |
| TOTALS: | $411,330 | $492,750 | $525,000 | $589,500 |

Option II was selected due to the need to separate the route number from the destination and via/mode portions of the roller display.

The following costs represent the additional funding required to complete the implementation phase of the project. Those items marked "Budgeted" have already been accounted for as part of this study and Metros' 1977 Budget (Table V-2).

Including the cost for installation and schedule changes, it is estimated that $535,000 will be needed to implement the recommended plan. Staff will apply for monies from UMTA to fund the roller sign program. Metro's share of the total project cost will be 20 percent or about $107,000.

Table V- 2

## Estimated Project Cost

| | | |
|---|---|---|
| **Capital** | | |
| Route Renumbering Planning | | Budgeted |
| Route Sign Definition & Contract Preparation | | Budgeted |
| Roller Sign Production | UMTA | $492,750 |
| Roller Sign Installation | UMTA | $20,000 |
| Schedule Changes | UMTA | $22,000 |
| Timetables | | Budgeted |
| Driver and Public Information | | Budgeted |
| | Total | $534,750 |
| **Funding Sources** | | |
| UMTA Roller Sign Monies | | $229,500 |
| Additional Request for UMTA Funds | | 306,250 |
| | | $534,750 |