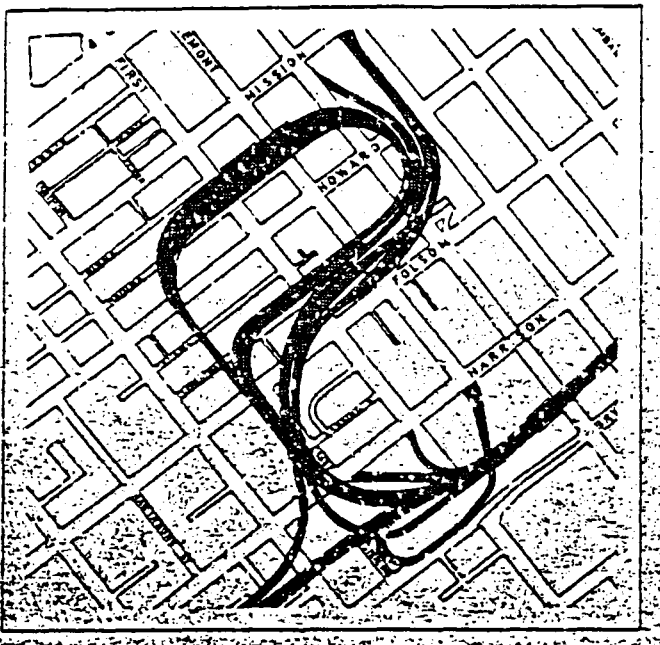


# TERMINAL SEPARATOR STRUCTURE/ TRANSBAY TERMINAL

## Report to the Mayor
## July 26, 1993

Prepared by the:
Department of City Planning

In Cooperation with:
Office of the Mayor
Chief Administrative Officer's Waterfront Transportation Project Office
Department of Parking and Traffic
Department of Public Works
Municipal Railway
Port of San Francisco
Redevelopment Agency

and with the
California Department of Transportation
Metropolitan Transportation Commission

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# EXECUTIVE SUMMARY

## PURPOSE OF REPORT

On March 22, 1993, the Board of Supervisors unanimously passed a resolution requesting that Caltrans work with the City to study alternatives to reconstruction of the earthquake damaged Terminal Separator Structure and rehabilitation of the Transbay Terminal facility. A deadline of September 1, 1993 was established for reporting back to the California Department of Transportation (Caltrans).

The purpose of this report is to document the process and findings resulting from the Terminal Separator Structure/Transbay Transit Terminal planning study undertaken by the Mayor's Task Force and to assist in the development of a City position on the following two concerns:

- Should the City request that Caltrans stop their plans to rebuild the Terminal Separator Structure in lieu of alternatives which better serve San Francisco?

- Should the City continue to work with Caltrans in identifying present and future transit needs as well as the potential for land use opportunities for the Transbay Transit Terminal?

## BACKGROUND

In 1992, Caltrans began the demolition of the Terminal Separator Structure between the I-80 freeway and Main Street (Bent 57). Demolition is expected to be completed by September 1993. Caltrans has completed construction drawings and was prepared to go out to bid for the Terminal Separator reconstruction contract in June 1993. At the request of Mayor Jordan and after the passage of the March Board of Supervisors resolution, Caltrans agreed to postpone the reconstruction bid process for the Terminal Separator until September 1, 1993 to provide an opportunity to look at alternatives to full replacement. Coincidentally, during late 1992, studies conducted by the State on the Transbay Terminal indicated that code upgrades to meet current seismic and fire/life/safety codes as well as American Disabilities Act (ADA) codes would cost about $30 to $60 million. This raised questions about whether the Transbay Terminal should be retrofitted or replaced. Caltrans requested that the City advise them prior to soliciting private development proposals for joint development ventures for a transit facility.

As part of their agreement with the City, Caltrans agreed to work with the City to consider alternatives to rehabilitating the Transbay Terminal. A six month "Transit Needs Study" was initiated by Caltrans and the Metropolitan Transportation Commission (MTC) and the City undertook a preliminary land use assessment of the area surrounding the Terminal Separator Structure and the Transbay Transit Terminal.

The Mayor's Task Force, under the lead of the Department of City Planning and the Mayor's Office, initiated a study in April 1993 to identify alternatives for the replacement of the Terminal Separator Structure, work with Caltrans and MTC to establish transit parameters for the potential replacement of the Transbay Terminal, and develop a preliminary land use approach for rezoning

properties that may become available as a result of the removal of the transportation facilities. Securing funding for the projects and delivering them on a timely schedule were guiding principles. In addition, the identification of a set of interim traffic improvements was identified as a critical element of the action plan.

The City and State agencies have been working with a 65 member ad hoc Citizen's Advisory Committee representing a broad base of the community. A series of four meetings were held with this group to solicit input on development and evaluation of alternatives.

## TRANSPORTATION CONDITIONS

### Travel Demand

Consideration of travel demand characteristics and changing traffic patterns are helpful in assessing the impacts resulting from the loss of the Terminal Separator Structure. Worker and visitors from the East Bay and the South Bay are the travellers most directly affected by the loss of the Terminal Separator Structure. Approximately 75% of East Bay workers working in the City have jobs in Northeast San Francisco. Of those workers approximately 62% use transit to commute to and from work while approximately 38% drive alone or rideshare. This represents a total of about 24,000 vehicles. Approximately 53% of the South Bay work force in the City work in Northeast San Francisco. Of these commuters, approximately 53% use transit and 47% drive alone or rideshare accounting for about 10,000 vehicles.

While transit is the primary mode of travel there are still significant numbers of vehicles entering and exiting the City daily. Auto access is also important for a small, but critical portion of home-based visitor trips to and from the East Bay and South Bay. Small retail establishments and restaurants rely most heavily on auto access for home-based trips. East Bay residents represent 13-14 percent and South Bay residents represent 11-12 percent of all visitor trips to small retail and restaurants in the Northeast quadrant, but only one-third to one-fourth of these visitor trips are home-based trips which rely on auto access.

### Traffic Patterns

Prior to the earthquake, the Terminal Separator Structure provided a well defined distribution and collection ramping system serving Northeast San Francisco via I-80 and US 101. Twenty-seven ramps provided motorists with a variety of options for accessing the Financial District, Chinatown, North Beach, and Fisherman's Wharf and adjacent neighborhoods. The ramps also served as an elevated queuing structure for vehicles trying to access the freeway system. Cars were delivered more quickly than they could be absorbed by the mainline freeway, but they generally stacked above ground, separated from the local San Francisco traffic.

As a result of the earthquake, 10 ramps serving Northeast San Francisco were lost. This included ramps for the Central Freeway, the Embarcadero Freeway, and the Terminal Separator Structure. The remaining ramps feed the mainline freeway at a rate it can more reasonably handle, however, the reduction in the number of ramps has concentrated access to and from the freeway system. This has resulted in higher trip attraction and sometimes greater congestion at the existing freeway access points. The queuing and collection and distribution functions that used to occur on elevated structure now occur on surface streets. While many of the surface

streets have the capacity to handle the increased traffic volumes, new congestion points have been created. Travel times in the downtown core have increased approximately 3 to 5 minutes. The loss of a portion of the I-280 freeway system in southern San Francisco, has compounded problems on I-80/US 101 to the south. This problem will be alleviated with the reopening of I-280 in 1995 or 1996.

The downtown core area has lost 8 out of 11 freeway ramps, including all those connecting directly to north of Market streets. This has resulted in increases in traffic on north/south streets including The Embarcadero, Main, Fremont/Sansome, Front, Davis, First/Battery, 3rd, and 4th. There has also been an overall drop in the number of vehicle trips into this core area. East/west streets registering large gains in traffic include Harrison and Broadway. The cause of this trip decline could be partially attributed to the loss of the freeway ramps, but is also a result of the use of alternative routes to the west, declines in the number of jobs in Northeast San Francisco, declines in the number of trips across the Bay Bridge, a significant increase in transit ridership (15,000 daily on BART transbay and 2,000 on ferries, plus 8,000 on BART within West Bay), and a general decline in the economy.

Problems in the vicinity of the Terminal Separator Structure may be summarized as follows:

AM Peak Period

- Traffic and transit conflicts on Fremont Street near Mission and the Transbay Terminal,
- Back-ups at the Howard/Fremont intersection due to conflicts with casual carpool drop-offs,
- Increased traffic on The Embarcadero conflicting with the increasing pedestrian volumes and transit usage,
- Increased congestion on Third Street as a concentration point for traffic exiting I-80/US 101.

PM Peak Period

- Increased traffic volumes on First/Battery conflict with transit operations on First Street near the Transbay Terminal,
- The Sterling Street High Occupancy Vehicle (HOV) ramp has remained underutilzed, as it was before the earthquake,
- Increased Fourth Street traffic conflicts with increasing pedestrian traffic on Fourth Street from Market to Howard,
- Bay Bridge traffic queuing on Harrison Street often extends onto The Embarcadero.

## INTERIM TRAFFIC IMPROVEMENTS

A program of interim traffic improvements have been identified to provide additional relief during the ongoing earthquake recovery period and to alleviate delays experienced during construction for the Waterfront Transportation Projects. The following projects have been identified: re-timing signals in the vicinity of Market Street; improving destination guide signs to Fisherman's Wharf, Chinatown, and North Beach; "Don't Block the Box" programs for intersection control during peak congestion periods; video camera congestion monitoring for quick dispatch of parking control

officers to problem areas, full signalization of Harrison Street east of First; and creation of a couplet on 5th and 6th Streets. Many of these programs can be implemented by the end of 1993.

## TERMINAL SEPARATOR STRUCTURE

Over 20 alternatives to the Terminal Separator Structure were considered during this planning process. Many were rejected due to critical flaws. Seven alternatives, including the Caltrans replacement alternative, were selected for further evaluation. These are described below:

CALTRANS REPLACEMENT ALTERNATIVE (see Figure 7): The Caltrans project proposes to rebuild the Terminal Separator Structure (TSS) along its former alignment. The on and off-ramps at Main/Beale and Mission Street are replaced, and provision for a connection to the proposed Mid-Embarcadero is provided at Bent 57. The project consists largely of elevated freeway structure, as before. The existing Bay Bridge ramps remain in their present configurations.

NO BUILD ALTERNATIVE: The existing Bay Bridge ramps and the City street travel patterns remain as they are at present. No replacement of any kind is proposed for the Terminal Separator Structure.

ALTERNATIVE 1 (see Figure 9): Alternative 1 is similar to the Caltrans proposal with two major exceptions: there is no direct connection to the Mid-Embarcadero and the ramps at Main and Beale Streets are relocated one block south to mid-block on Howard Street.

ALTERNATIVE 1A (see Figure 11): Alternative 1A differs from the Caltrans proposal in that no ramps serve Main and Beale Streets. Provision for a direct connection to the Mid-Embarcadero is made from Bent 57 to connect to The Embarcadero Roadway between Howard and Folsom. The existing Bay Bridge ramps are unchanged.

ALTERNATIVE 1B (see Figure 13): This alternative is nearly identical to Alternative 1, except that the flyover ramp to eastbound Bay Bridge is deleted.

ALTERNATIVE 2 (see Figure 15): Alternative 2 is the first of the proposals that sharply limit the amount of new freeway structure. This alternative builds new on and off-ramps to I-80 at Second Street; reconstructs the Sterling Street on-ramp to eastbound Bay Bridge to provide full service, merging the traffic where the former flyover ramp merged; closes the left Main/Embarcadero exit to Fremont Street and converts it to an off-ramp north of Bryant Street; and re-constructs the right Fremont off-ramp to serve both Fremont and Folsom Streets. The Essex Street access becomes an HOV lane during peak periods.

ALTERNATIVE 2A (see Figure 17): This proposal is a downscaled version of Alternative 2. It retains the new on/off-ramps at Second Street and the rebuilt Sterling Street on-ramp, but does not include a new off-ramp to Bryant, reconstructs the Fremont Street off-ramp to serve both fremont and Folsom Streets, and keeps the Fremont/Harrison off-ramp used to access Main and The Embarcadero as they are at present.

ALTERNATIVE 3 (see Figure 19): Alternative 3 focuses on surface street improvements to modestly correct the traffic circulation problem. It substantially retains the existing conditions, with the exception of rebuilding the Sterling Street on-ramp with the connection to the Bay Bridge at

the previous location of the flyover (as in Alternatives 2 and 2A) and reconstructs the right Fremont off-ramp to serve both Fremont and Folsom Streets. Harrison Street becomes one-way westbound between First and Third Streets to ease access to the existing Fourth/Harrison Street on-ramp.

These seven alternatives were evaluated against criteria relating to traffic operations, pedestrian and transit conflicts, construction-related objectives and land use opportunities. Table 1 provides a comparison between the alternatives of some of the key criteria.

In summary, the Caltrans Alternative can re-establish the elevated distribution and queuing function provided by the previous system at the earliest date (1996 for a downtown connection and 1998 for reconnecting to The Embarcadero) but for the highest cost. No new land use opportunities are created. Alternatives 1, 1A, and 1B create some modest land use opportunities and have a reduced construction cost, but with the possibility of a two year delay. They could provide from 83% to 107% of pre-earthquake ramp capacity. All require minor right-of-way acquisition.

Alternatives 2, 2A, and 3 all place a greater emphasis on use of the surface street system for distribution and queuing of traffic. Alternatives 2 and 2A could provide from 85-107% of pre-earthquake ramp capacity and Alternative 3 provides 67-80% of pre-earthquake ramp capacity. The reduced amount of structure provided in these alternatives would allow project delivery by 1998 or 1999 at a significantly reduced cost. These alternatives also provide the greatest land use opportunities. Alternative 2 is the only alternative which requires major right-of-way acquisition.

## TRANSBAY TERMINAL

The existing Transbay Terminal is not up to current building codes. Caltrans estimates that an upgrade costing approximately $34 million is required to bring the Transbay Terminal up to seismic, fire/life/safety and ADA code requirements. The City has requested that Caltrans consider construction options for a new terminal, rather than reinvest money in an outdated facility. Due to liability concerns, Caltrans must make a timely decision on whether to retrofit the existing terminal or invest in a new facility.

The two critical questions facing the City with respect to the Transbay Terminal are whether Caltrans should be encouraged to explore joint development opportunities in conjunction with the provision of a new transit facility and identification of the transit parameters if such a venture is pursued. The existing and future demand and needs for bus operations have been preliminarily documented in this report and will be presented in a Transit Needs Study to be produced by Caltrans and MTC in September, 1993.

## LAND USE

The area in the vicinity of the Terminal Separator Structure and the Transbay Terminal is a mix of high-rise and low-rise office buildings and residential uses with ground floor retail, older industrial uses, some stand alone retail, and institutional uses. There are significant amounts of surface parking lots and ground floor retail interspersed throughout the area.

**TABLE 1**
**TERMINAL SEPARATOR STRUCTURE ALTERNATIVE**
**Summary Evaluation Matrix**

| ALTERNATIVE | GRADE | STREET CLOSURE REQUIRED | NEW ACCESS TO/FROM SOUTH BAY | NEW ACCESS TO/FROM EAST BAY | ROW REQUIRED | COST (MILS.) | SCHEDULED COMPLETION | DEVELOPABLE LAND | COMPARABLE CAPACITY(i) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | On-Ramp (j) | Off Ramp |
| Caltrans | < 8% | No | Yes | Yes | Minor | $ 86 | 1996 to Bent 57 (h) | 0.0 acres | 100% | 100% |
| No Build | NA | No | No | No | No | $ 5 (f) | NA | 10.8 acres | 80% | 51% |
| Alternative 1 | > 9% (a) | Yes (c) | Yes | Yes | Minor | $ 81 | 2000 | 3.8 acres | 83-93% | 82% |
| Alternative 1 A | < 8% | No | Yes | Yes | Minor | $ 81 | 2000 | 1.4 acres | 89-100% | 80% |
| Alternative 1 B | > 9% (a) | Yes (c) | Yes | No | Minor | $ 62 | 1999/2000 | 3.8 acres | 96-107% | 82% |
| Alternative 2 | > 8% (b) | Yes (d) | Yes | Yes | Yes (e) | $ 36 (g) | 1999 (g) | 9.5 acres | 85-107% | 81% |
| Alternative 2 A | < 8% | No | Yes | No | No | $ 25 | 1998/1999 | 8.9 acres | 89-107% | 81% |
| Alternative 3 | < 8% | No | No | No | No | $ 14 | 1998/1999 | 10.8 acres | 70-80% | 67% |

**Notes**

(a) New Howard Street ramps appear to exceed 9% slope. More detailed analysis is required.
(b) The new off-ramp to Bryant/Main has a grade exceeding 8%. More detailed analysis would be required.
(c) Closure or depression of Beale Street could be required to compensate for grade problems.
(d) Could require the partial closure of Beale Street to compensate for grade problems on the Bryant Street off-ramp.
(e) A privately-owned parcel of undeveloped land may have to be acquired along Bryant Street
(f) Caltrans' estimated costs for "clean-up contract". This is built in to other the other Alternatives' costs.
(g) The estimate for Alternative 2 does not include schedule considerations or cost estimates for right-of-way acquisition.
(h) Link to The Embarcadero roadway would not be re-established until 1998 at the earliest with the completion of the Mid-Embarcadero project.
(i) Percentage of freeway ramp capacity compared to pre-earthquake conditions.
(j) The range in on-ramp capacity relates to two variations: (1) An auxiliary lane ad between the TSS on-ramp to I-80/US 101 and the 4th Street on-ramp could potentially increase capacity by 500 vehicles. This variation is subject to further analysis. (2) Retention of the current Sterling Street ramp configuration could potentially increase ramp capacity by 500 vehicles.

The existing zoning is predominantly C-3-O (Downtown Commercial, Office) or C-3-O(SD) (Downtown Commercial, Office (Special Development)) Districts north of Folsom Street, with a small amount of C-3-S. The area between Folsom, Essex, Bryant and the Bay is in the Rincon Hill Special Use Districts permitting high density housing with a mix of retail and personal services or some office and parking uses buffering the residential uses from high traffic generators. The area to the west of Essex Street is zoned SSO (Service/Secondary Office) which accommodates small scale, light industrial and professional offices and larger scale back office and live-work uses.

Two alternative approaches were considered for potential rezoning: expansion of the C-3-O(SD) district or expansion of the Rincon Hill Special Use District. It was determined that the office alternative could generate greater tax revenues to the City, but that the residential alternative could go further toward meeting critical housing needs and objectives for the city.

**Scheduling and Funding Issues**

Scheduling and funding issues surrounding the Terminal Separator Structure are integrally related to the Mid-Embarcadero replacement project. The current scheduled delivery date for a completed Mid-Embarcadero project is 1998 for a surface alternative and 2000 for an underground alternative. The Caltrans alternative could be completed by 1996, but would not provide a link to The Embarcadero until the Mid-Embarcadero project is completed.

Choosing to examine alternatives to the replacement of the Terminal Separator Structure are likely to require a full environmental review process of 2.5 to 3 years. Linking the Mid-Embarcadero and the Terminal Separator project could reduce the amount of time required for environmental review by approximately 9 months. Maximum delays for the project will result if a decision is made to consider Alternatives 1, 1A, or 1B, should they require a full environmental review process. Under these alternatives the additional time up front for the environmental review process is not compensated for by a reduced design or construction process. Delivery of projects would not occur until 2000. In contrast, Alternatives 2, 2A, and 3, while they require a timely environmental review process, have shortened design and construction periods compensating for the time lost up front. These projects could be delivered by 1998/99.

Adding alternatives that consider the reconstruction of the Transbay Terminal ramps or land use alternatives to the Terminal Separator project would result in additional delays.

The City has received preliminary indications from the federal government that it is willing to extend the September 30, 1993 deadline for encumbrance of funds for the Terminal Separator Structure and would also be willing to consider combining the Mid-Embarcadero project with the Terminal Separator and permitting a concurrent review of the projects between Caltrans and FHWA.

## PURPOSE OF REPORT

On March 22, 1993, the Board of Supervisors unanimously passed a resolution requesting that Caltrans work with the City to study alternatives to reconstruction of the earthquake damaged Terminal Separator Structure and rehabilitation of the Transbay Terminal facility (copy of Resolution included in Appendix A). A deadline of September 1, 1993 was established for reporting back to the California Department of Transportation (Caltrans).

The Department of City Planning and the Mayor's Office were given lead responsibility to coordinate the Mayor's Task Force, Caltrans, and a citizen participation effort in developing alternatives and a plan of action for each of these transportation facilities. The purpose of this report is to document the process and findings resulting from the planning study. It is intended to assist in the development of a City position on the future of the Terminal Separator Structure (TSS) and the Transbay Transit Terminal (TTT) on the following two critical questions:

- Should the City request that Caltrans stop their plans to rebuild the Terminal Separator Structure in lieu of alternatives which better serve San Francisco?

- Should the City continue to work with Caltrans in identifying present and future transit needs as well as the potential for land use opportunities for the Transbay Transit Terminal?

This report supplements the "Terminal Separator Structure/Transbay Terminal Preliminary Report to the Mayor" dated March 16, 1993.

## BACKGROUND

### Rationale for Study

The 1989 Loma Prieta earthquake rendered The Embarcadero Freeway and the Terminal Separator Structure inoperable. In 1990, the Board of Supervisors passed a resolution endorsing the demolition of The Embarcadero Freeway and calling for the evaluation of alternatives to an elevated structure. In 1991, The Embarcadero Freeway was demolished along the waterfront and west to approximately Beale Street. Replacement alternatives are currently under consideration as part of an environmental process for the Mid-Embarcadero. Selection of an alternative is anticipated in 1994, with completion of the environmental process projected for 1995.

In 1992, Caltrans began the demolition of the Terminal Separator Structure. This facility extended from the I-80 freeway to approximately Main Street (Bent 57) (See Figure 1). Demolition is expected to be completed by September 1993. Construction drawings for the single deck replacement facility have been completed by Caltrans and they were prepared to go out to bid for the reconstruction contract in June 1993. In December of 1992, Mayor Jordan requested that the Board of Supervisors endorse a resolution calling for the exploration of alternatives to the currently proposed Caltrans replacement facility for the Terminal Separator Structure and requesting Caltrans cooperation in such a study. A departmental Task Force was created by the Mayor to undertake this effort.

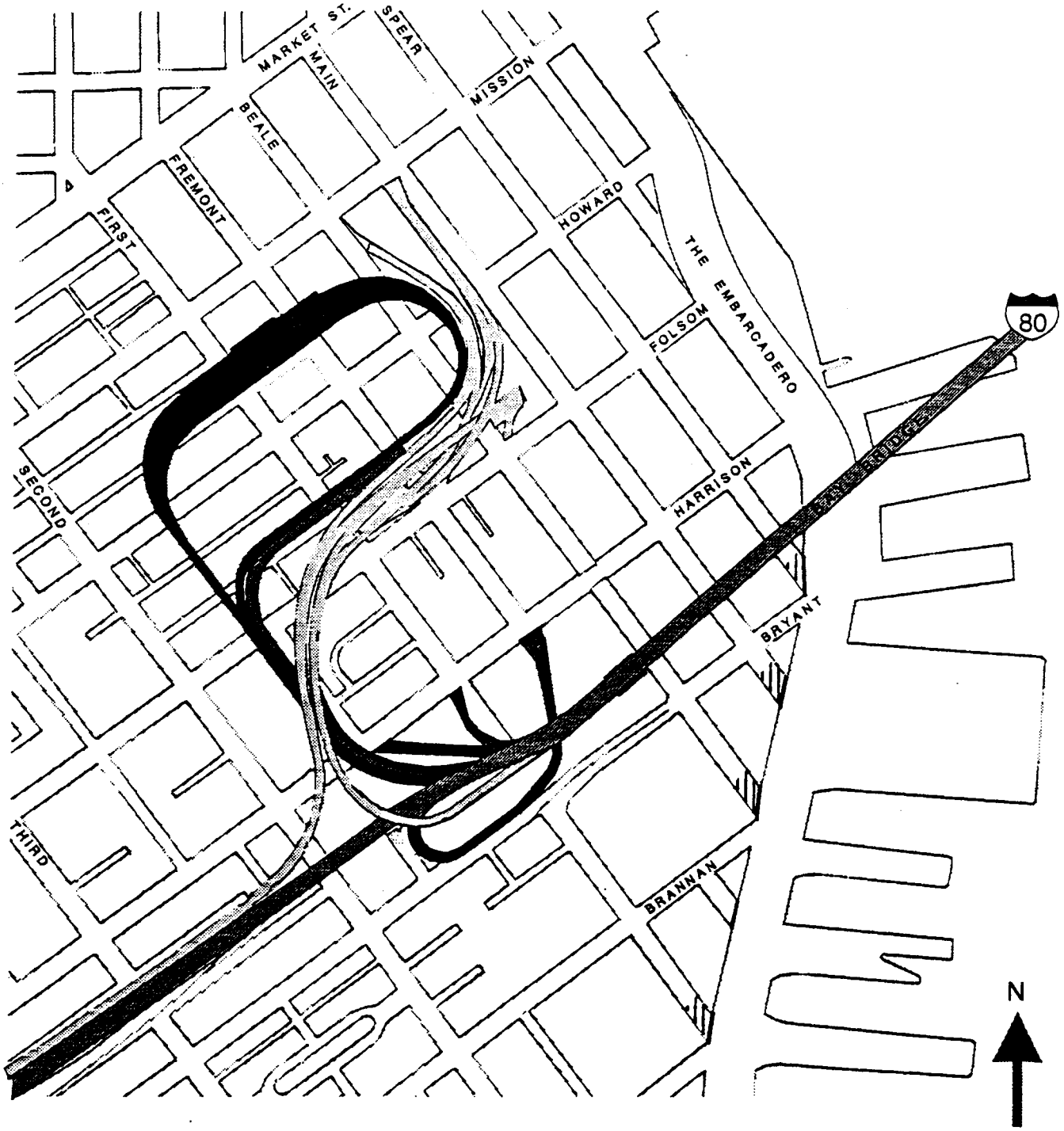


***Figure 1***
***TERMINAL SEPARATOR STRUCTURE/***
***TRANSBAY TERMINAL BOUNDARIES***

Coincidentally, during late 1992, seismic and code upgrade studies were being conducted by and for Caltrans on the Transbay Terminal. Early estimates for upgrades to the TTT to meet current seismic, safety, and American Disabilities Act (ADA) code requirements ranged from $30 to $60 million. The question of whether the current Transbay Terminal should be retrofitted or replaced was raised by State agencies as well as the City.

In March 1993, Caltrans agreed to delay advertisement of the contract for the reconstruction of the Terminal Separator Structure until mid-September 1993, allowing the City an opportunity for the preliminary evaluation of alternatives to a full replacement facility. Caltrans also expressed interest in working with the City over a six month period to consider joint development opportunities as an alternative to rehabilitating the existing Transbay Terminal. The Director of Caltrans called for a Transit Needs Study to be conducted by Caltrans and Metropolitan Transportation Commission (MTC) while the City prepared land use recommendations.

On March 22, 1993, the Board of Supervisors unanimously passed Resolution Number 229-93 calling for a preliminary study of alternatives for both the Terminal Separator Structure and the Transbay Terminal and agreeing to report back to Caltrans by September 1, 1993. The resolution stipulated that the study of alternative replacement designs for the Terminal Separator Structure not substantially delay the restoration of traffic access to the Embarcadero Roadway nor should it jeopardize the funding available for the reconstruction project.

**Study Approach**

In April 1993, the City Task Force, with the Department of City Planning serving in the lead role, initiated a Terminal Separator Structure/Transbay Terminal study. The Task Force consisted of members from the Mayor's Office, the Department of City Planning, Chief Administrative Officer's (CAO) Waterfront Transportation Project Office, the Department of Public Works, the Department of Parking and Traffic, the Municipal Railway, the Port, and the Redevelopment Agency. Staff from Caltrans and the MTC also provided assistance throughout the process.

The following study objectives were identified:

1) Refine alternatives for replacement of the Terminal Separator Structure transportation functions. Outline an action plan for proceeding with Caltrans proposed replacement or for concluding planning, design, and construction of an alternative project with minimum delays.

2) Work with Caltrans, MTC, and the transit operators to establish transit parameters for consideration of replacing the Transbay Terminal facility and agree on a plan of action.

3) Establish the land use parameters and development potential for Public or "P" zoned properties currently occupied by the Terminal Separator Structure and the Transbay Terminal and identify properties which might potentially be available for alternative uses.

4) Secure funding for the transportation projects intended to replace all or some of the functions provided by the Terminal Separator Structure.

5) Identify and adopt a set of interim traffic improvements to ease traffic congestion in areas affected by the waterfront construction projects and loss of freeway access.

In order to meet the September 1 deadline, it was determined that a staff report would be published in late July, commission briefings would occur in late July and early August, and Board of Supervisors hearings conducted in August.

During the months of May through July, four public meetings were held with an ad hoc Citizen's Advisory Committee that organized in late 1992 to address the Terminal Separator and Transbay Terminal issues. The citizen's committee was hosted and chaired by a representative from the American Institute of Architects. There were approximately 65 invited participants with representation from the business community, environmental interests, professional organizations, and key resident and merchants associations in the North Beach, Fisherman's Wharf, Telegraph Hill, Chinatown, Downtown, South of Market, and South Beach neighborhoods. A list of the invited participants is listed at the end of this report. The citizen's committee played a key role in assessing the transportation factors and the development and evaluation of alternatives.

**Report Organization**

This report is organized into six sections. The first section describes the transportation conditions affecting travel demand and traffic patterns in the northeast quadrant of the City and the area immediately affected by the Terminal Separator Structure and the Transbay Terminal. This discussion is followed by an enumeration of interim traffic improvements slated for implementation in the near future to alleviate congestion problems associated with earthquake damage and Embarcadero construction projects. There are two sections which deal with issues directly related to the Terminal Separator Structure and the Transbay Terminal projects. A description of land use conditions and alternatives. Scheduling and funding issues are discussed in the final section.

## TRANSPORTATION CONDITIONS

This section of the report summarizes available data on influences affecting travel demand of employees and visitors in the northeast quadrant of San Francisco. The travel demand data provides an overview of which markets the Terminal Separator Structure and the Transbay Terminal serve. A discussion of the traffic patterns, pre and post-earthquake, characterizes how travel and traffic patterns have been influenced by the earthquake and economic factors. A summary of traffic patterns and critical problems in the area immediately surrounding the two transportation facilities is presented based on assessment of preliminary data collected for the Mid-Embarcadero Replacement project analysis.

### Travel Demand Behavior

This section presents a summary of data collected in the 1992 Citywide Travel Behavior Survey (CTBS) conducted by the Department of City Planning to better understand worker and visitor travel. The focus of the discussion is on worker travel for the northeast quadrant (the area generally north of Bryant Street and east of Van Ness Avenue), the section of the City most reliant on the freeway system, with an emphasis on the downtown core. A brief overview of visitor travel patterns is also presented.

#### Worker Travel

The 1992 Citywide Travel Behavior Survey (CTBS) included travel throughout the City. Data have been disaggregated to provide a detailed picture of worker travel in the northeast quadrant and, in particular, the downtown core. Attention is focused on critical districts, North Beach and Fisherman's Wharf, the downtown core north and south of Market Street, and China Basin. The two areas comprising the downtown core are (See Figure 2):

- south of Market east of 3rd, and north of Folsom (zip code 94105); and
- north of Market and east of Kearny, including the Sansome/Battery corridor north of Broadway (zip codes 94104 and 94111).

East Bay and South Bay travel to and from downtown San Francisco and districts to the north have been most directly affected by changes to the freeway network. San Francisco resident workers and those who commute from the North Bay have also been affected but were less dependent on the damaged freeway segments and ramps before the 1989 Loma Prieta earthquake. The emphasis is therefore on patterns among workers who live in the East Bay and South Bay.

East Bay Travel - Over three-quarters of all East Bay residents who work in San Francisco work in the northeast quadrant. This share is much higher than among workers who live in San Francisco, the North Bay, and the South Bay, for which the percentage of workers who work in the northeast quadrant ranges from 53-58 percent. Over 60 percent of all East Bay workers work

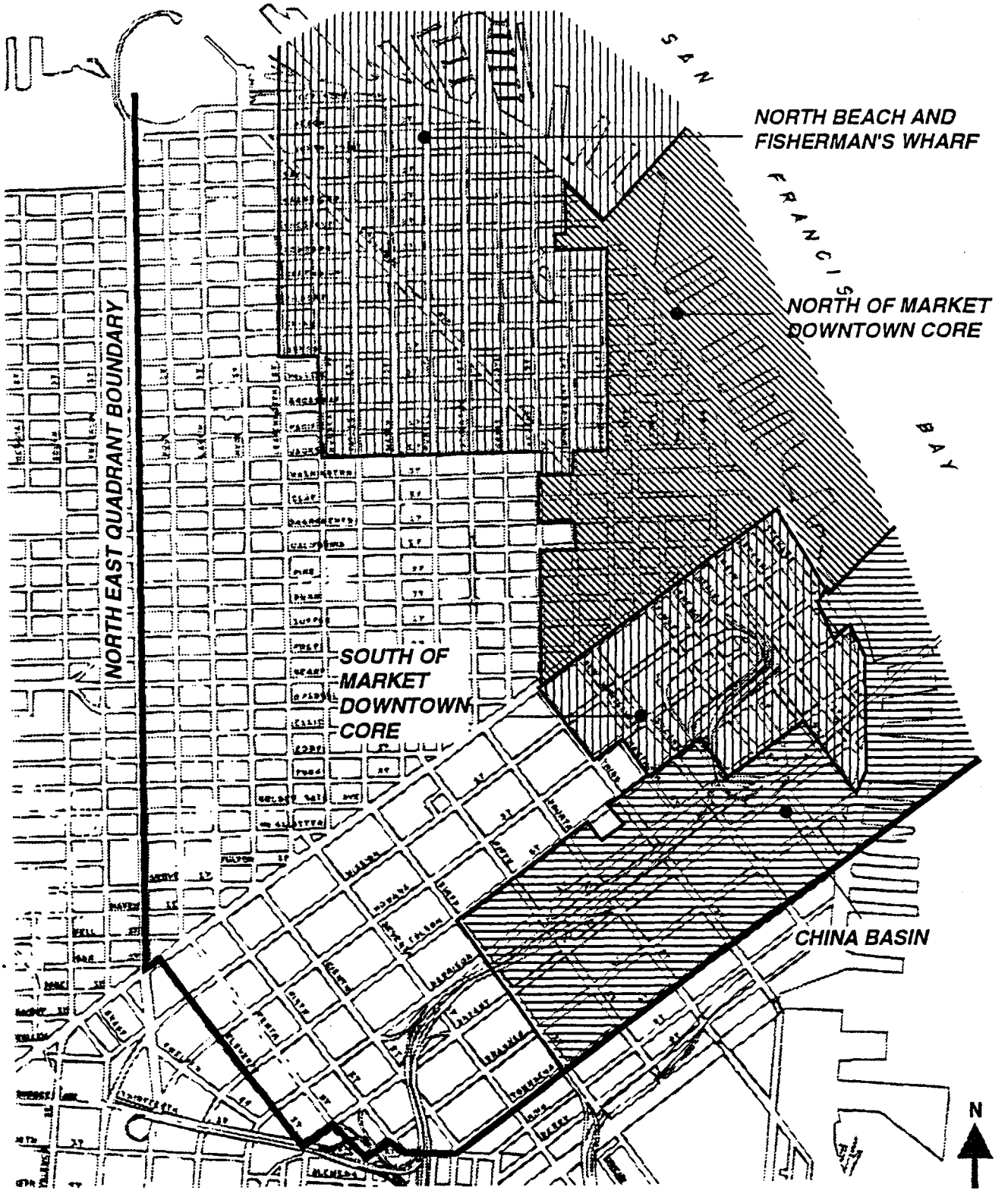


***Figure 2***
***TRAVEL DEMAND STUDY AREA***

in the downtown core. Approximately 127,000 East Bay residents work in the northeast quadrant and 101,000 East Bay residents have jobs in the downtown core. The China Basin district (the portion of zip code 94107 located south of Folsom, east of 6th, and north of Townsend) employs another 7,300 East Bay workers, and 1,800 East Bay residents work in North Beach and Fisherman's Wharf (zip code 94133).

For the entire northeast quadrant, only 16 percent of commuters from the East Bay drive alone, 22 percent rideshare, and 62 percent use transit. For the south of Market downtown core, 11 percent drive alone, 22 percent rideshare, and 67 percent use transit. Transit access is thus far more critical for the vast majority of East Bay commuters than is auto access.

For the combined north and south of Market downtown core most affected by the Terminal Separator Structure, East Bay workers account for about 20,000 vehicles (drive alone plus rideshare) which need access to and from the Bay Bridge. East Bay workers who work in the China Basin district represent an additional 3,000 vehicles, and those who work in North Beach and Fisherman's Wharf total less than 1,000 vehicles. This represents a total of approximately 24,000 vehicles.

South Bay Travel - Fifty-three percent of workers who live in the South Bay (i.e., San Mateo and Santa Clara Counties) and work in San Francisco work in the northeast quadrant. One-third of South Bay workers work in the downtown core. Over 53,000 South Bay residents work in the northeast quadrant and 31,000 work in the downtown core. About 1,800 South Bay residents work in North Beach and Fisherman's Wharf and 4,000 work in the China Basin district. This latter group probably is affected more by the impaired operation of I-280 than by the Terminal Separator Structure.

For the entire northeast quadrant, 36 percent of South Bay workers drive alone, 11 percent rideshare, and 53 percent use transit. For the south of Market downtown core, 14 percent drive alone, eight percent rideshare, and 79 percent use transit. The extent of auto use is much lower and extent of transit use is much higher for the South of Market downtown core than for the north of Market downtown core among South Bay workers. For the combined north and south of Market downtown core most affected by the Terminal Separator Structure, South Bay workers account for about 8,000 vehicles (drive alone plus rideshare). South Bay workers who work in North Beach and Fisherman's Wharf represent an additional 2,000 vehicles, for a total of about 10,000 vehicles.

## Visitor Travel

The 1992 CTBS survey also collected data regarding visitor travel throughout San Francisco. Visitor travel has been defined as all non-work travel whether these trips are made by San Francisco residents, Bay Area residents, or visitors from outside the region. This section presents a brief overview of visitor travel patterns for the northeast quadrant of the City. Visitor travel for retail and restaurant land uses are highlighted, with secondary attention to visitor travel for cultural and institutional sites. These data cannot reliably be disaggregated to cover specific districts within the northeast quadrant and are therefore much less precise than the data presented for worker travel. Because of the overall size of this quadrant, it is probable that a substantial portion

of the visitor travel patterns described are not directly affected by the Terminal Separator Structure. The intent is to present the best overview available regarding visitor travel to supplement the analysis presented for worker travel. Emphasis is placed on visitor travel among East Bay and South Bay residents who are most dependent on the freeway network.

In the northeast quadrant of San Francisco, East Bay residents represent 13 percent of visitor trips for small retail, 17 percent for large retail, 14 percent for restaurants and cultural sites, and 11 percent for institutions. South Bay residents represent 11 percent for small retail, three percent for large retail, 12 percent for restaurants, and seven percent for cultural and institutions. These percentages, particularly for visitors from the East Bay, are considerably higher than for visitor travel to the outlying districts of San Francisco.

Only one-third to one-quarter of all visitor travel to the northeast quadrant for retail and restaurants and less than half to cultural and institutions originate directly from where visitors live. Most visitor trips are not home-based but instead are linked to other trips such as work, recreation, school, and, among out-of-region visitors, hotels. The percentages of visitor trips which are home-based are even lower during peak use seasons such as the summer tourist season and the holiday shopping season.

Autos are used by over half of home-based visitor travel for most land uses, and by almost three-quarters of home-based visitors for restaurants. Auto use is lowest for home-based visitor travel to large retail sites at 36 percent. The share of transit use is greatest at 59 percent to large retail and lowest for restaurants at 20 percent.

An additional one-third to one-quarter of all visitor travel originates at work sites. Work-linked visitor trips are made by people who work in the City and travel directly from their work sites for shopping, eating, and other purposes before, during, and/or after the workday. Work-linked trips represent 14 percent of visitor travel at cultural sites and 22 percent at institutions. Among East Bay and South Bay residents, visitor trips made by those who work within the northeast quadrant reflect limited auto use. Walking accounts for the vast majority (ranging from 63 to 83 percent for these land uses) of work-based visitor trips within the northeast quadrant. Transit use for work-based visitor travel is generally about 18 percent, although the share is much greater for large retail and less for restaurants. Autos account for 8-17 percent of work-based visitor travel.

Linkages to other trip purposes including hotel, school, recreation, and others represent about 40 percent of all visitor travel for retail, restaurants, and cultural and 28 percent for institutions. The modes used for these visitor trips is primarily determined by whether the linked trip purpose is situated within the northeast quadrant. Walking and transit account for most of these linked trips if they are within the northeast quadrant, while autos are used if the linked trips originate outside the northeast quadrant.

## Summary

East Bay and South Bay workers rely more on the damaged freeway network for travel to the northeast quadrant than do others who live and work in San Francisco or those who commute from the North Bay. The analysis indicates that South Bay workers are much more dependent on autos for commuting to and from the northeast quadrant than are East Bay workers. There are,

however, three times as many workers in the downtown core from the East Bay than from the South Bay. Even though two-thirds of East Bay workers use transit, there are 24,000 vehicles associated with East Bay commuters. This is over twice the number of vehicles associated with South Bay commuters who work in the downtown core.

East Bay residents represent 13-17 percent of retail and restaurant visitor travel, and South Bay residents represent 11-12 percent of small retail and restaurant visitor travel and only 3 percent for large retail in the City's northeast quadrant. Auto use on the freeway system is most important for home-based visitor travel, particularly for small retail and restaurants but much less so for large retail. Home-based visitor travel accounts, however, for only one-third to one-quarter of all visitor travel at these land uses. Work-based visitor travel represents about the same share of all visitor travel at these land uses, and most of these trips are made by walking and transit. About 40 percent of visitor travel is linked to other activities such as recreation and hotels, with walking and transit the dominant modes when these linked trips are also situated within the northeast quadrant. Auto access is thus vital for visitors who travel to small retail and restaurants in the northeast quadrant directly from home, but these home-based trips represent a minority of all visitor travel.

## Traffic Patterns

The October 1989 Loma Prieta earthquake closed many freeway and freeway ramp facilities which affect accessibility to and from San Francisco, particularly the northeast quadrant of the City. The reduction in the number of freeway ramps has changed traffic patterns entering and leaving this part of the City. An overview is presented which compares pre-earthquake to post-earthquake conditions. This is followed by a more focused summary of traffic changes in the Primary and Secondary Study Areas as identified in the Mid-Embarcadero replacement project analysis and identification of where the critical traffic problems exist today.

### Pre-Earthquake Conditions

In the decades preceding the October 1989 Loma Prieta earthquake, the northeast quadrant of San Francisco was served by a fairly extensive network of freeway ramps. Freeway ramps at Broadway, Oak and Fell, Gough and Franklin, and from I-280 at 4th Street were actually truncated termini of a more extensive freeway network designed by Caltrans to move vehicles through San Francisco and link the Golden Gate Bridge with the Bay Bridge. The pre-earthquake freeway ramp system provided multiple access points to and from the freeways from different parts of the greater downtown and adjacent districts (see Figure 3).

Location of Freeway Ramps - Several sets of freeway ramps provided access to and from the downtown core. The Broadway ramps at Sansome and Battery and the ramps to Washington and from Clay provided access north of Market Street via the Embarcadero Freeway and the Terminal Separator Structure to I-80 for travel to the East Bay and to the south and west. South of the financial district, the Main and Beale ramps at Mission also provided access via the Terminal Separator Structure for all directions of travel on I-80. A set of ramps for the Terminal

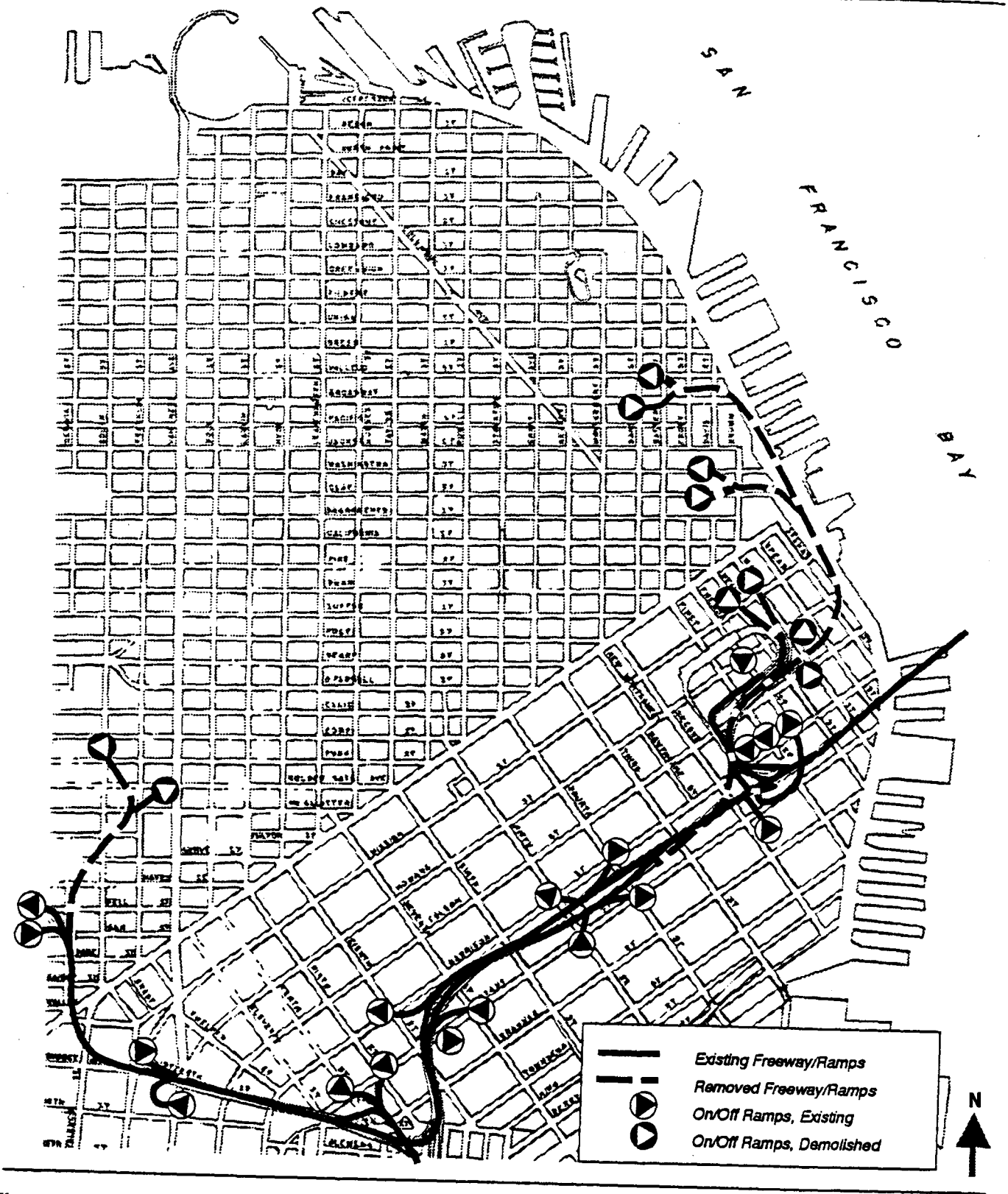


***Figure 3***
***COMPARISON OF EXISTING AND PRE-EARTHQUAKE FREEWAY AND RAMPS***

Separator Structure at Folsom/Beale provided elevated access between the southern financial district and the northern waterfront via the Embarcadero Freeway. The only set of pre-earthquake ramps directly adjacent to the financial district which have remained operational are off-ramps from the Bay Bridge to Fremont at Folsom and at Harrison and on-ramps to the Bay Bridge on 1st and Essex south of Harrison. An on-ramp at Bryant/Sterling near Second Street is also operational and is used for High Occupancy Vehicles (HOV) or carpools during peak periods. Access to I-280 has also remained available with an off-ramp at 4th/Berry as well as on-and off-ramps at 6th/Brannan.

Chinatown, North Beach, Fisherman's Wharf, and other areas north of the downtown core primarily relied on the Broadway ramps and the ramps to Washington and from Clay for access to the freeway system (see Figure 4). The Union Square retail and central South of Market districts utilized ramps along Harrison and Bryant Streets at 4th and 5th, 7th and 8th, and 9th and 10th Streets as well as the 6th/Brannan ramps for I-280. While there was considerable overlapping use of the Broadway, Washington, Clay, and I-280 ramps with financial district traffic, the I-80 freeway ramps west of 4th Street generally served Union Square and South of Market traffic and not traffic from the downtown core and districts further north.

The most direct freeway access for the Civic Center was at Franklin/Golden Gate and Gough/Turk which provided direct access to and from US 101. Secondary access to the Civic Center was provided to and from I-80 via ramps along Harrison and Bryant at 7th and 8th (south) and at 9th and 10th (east). Secondary access to and from US 101 was provided along Division at South Van Ness and Mission. Western Addition traffic accessed US 101 at Oak and Fell as well as at the Franklin and Gough ramps.

Traffic Implications - Each of these freeway ramps provided well-defined paths on city arterials to go to and from the freeway system. During peak use periods, which in many instances existed for large portions of both weekdays and weekends, each ramp also represented a focus for congestion at the points of contact between the freeway ramps and the City street system. In essence, the juxtaposition of well-defined arterial paths with mismatches between the capacities of city streets relative to the capacities of freeways combined to make freeway ramps congestion magnets. This was particularly acute at freeway on-ramps whose capacities were constrained by saturated flows on the mainline freeways which prevented efficient merges from the ramps onto the freeways (see Figure 5). The on-ramps for the Embarcadero Freeway, Terminal Separator Structure, and Central Freeway north of the I-80/US 101 merge regularly functioned as elevated parking lots because the multiple freeway ramps delivered traffic at rates greater than could be absorbed by the mainline freeway system. This situation also existed at the 1st and Essex on-ramps to the Bay Bridge and the Mission/Beale ramp to the Terminal Separator Structure and resulted in substantial on-street queueing during peak periods.

The extensive set of freeway ramps within the northeast quadrant of San Francisco thus presented both advantages and disadvantages. The principal advantages were:

- the extensive network of ramps provided closer access to the freeway system, particularly from the financial district, Chinatown, North Beach, Fisherman's Wharf, and the waterfront;
- multiple ramps generally allowed different districts within the northeast quadrant to use different approach routes and reduced overlapping use of each ramp;

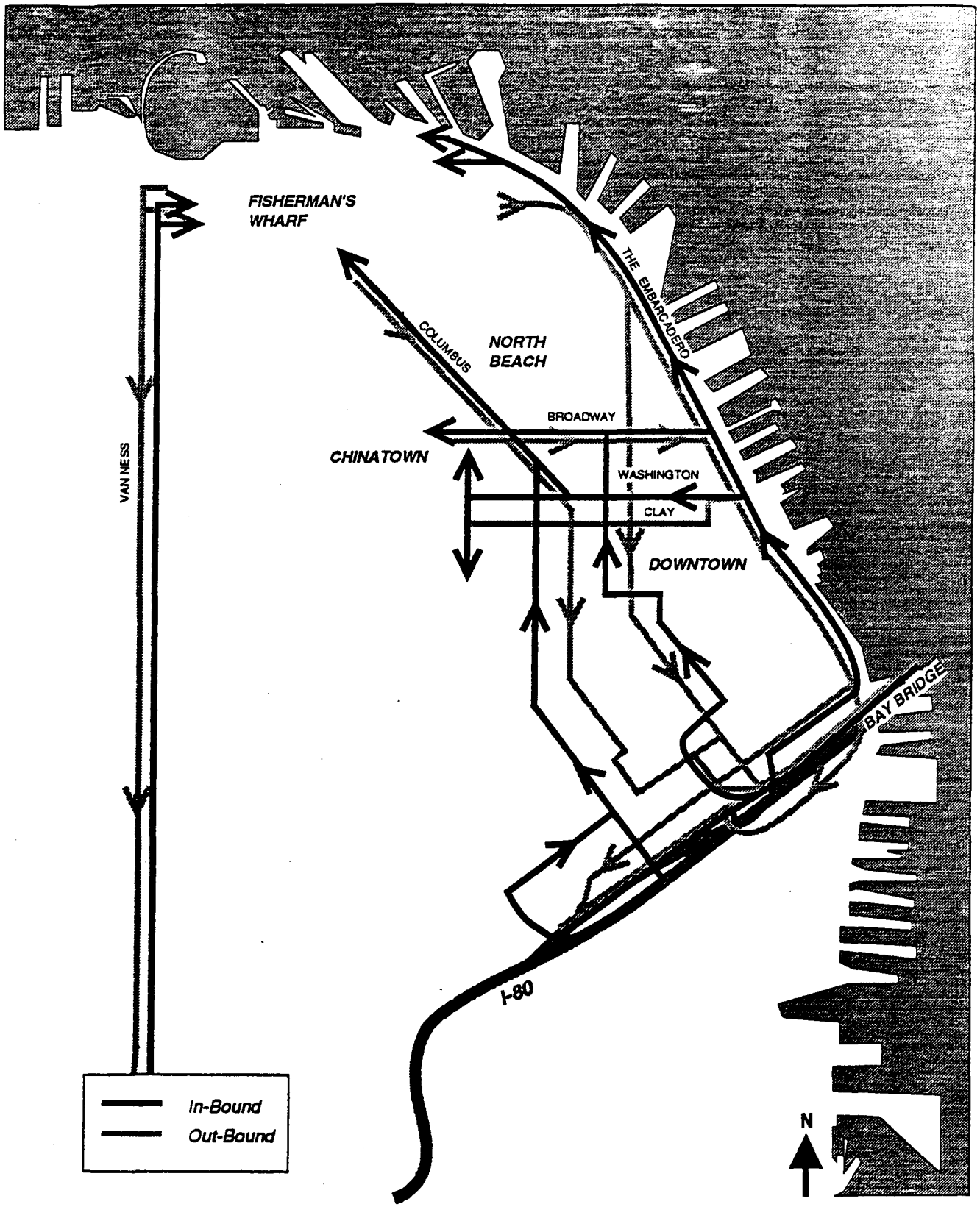


***Figure 4***
***FISHERMAN'S WHARF AND NORTH BEACH/CHINATOWN ACCESS ROUTES***

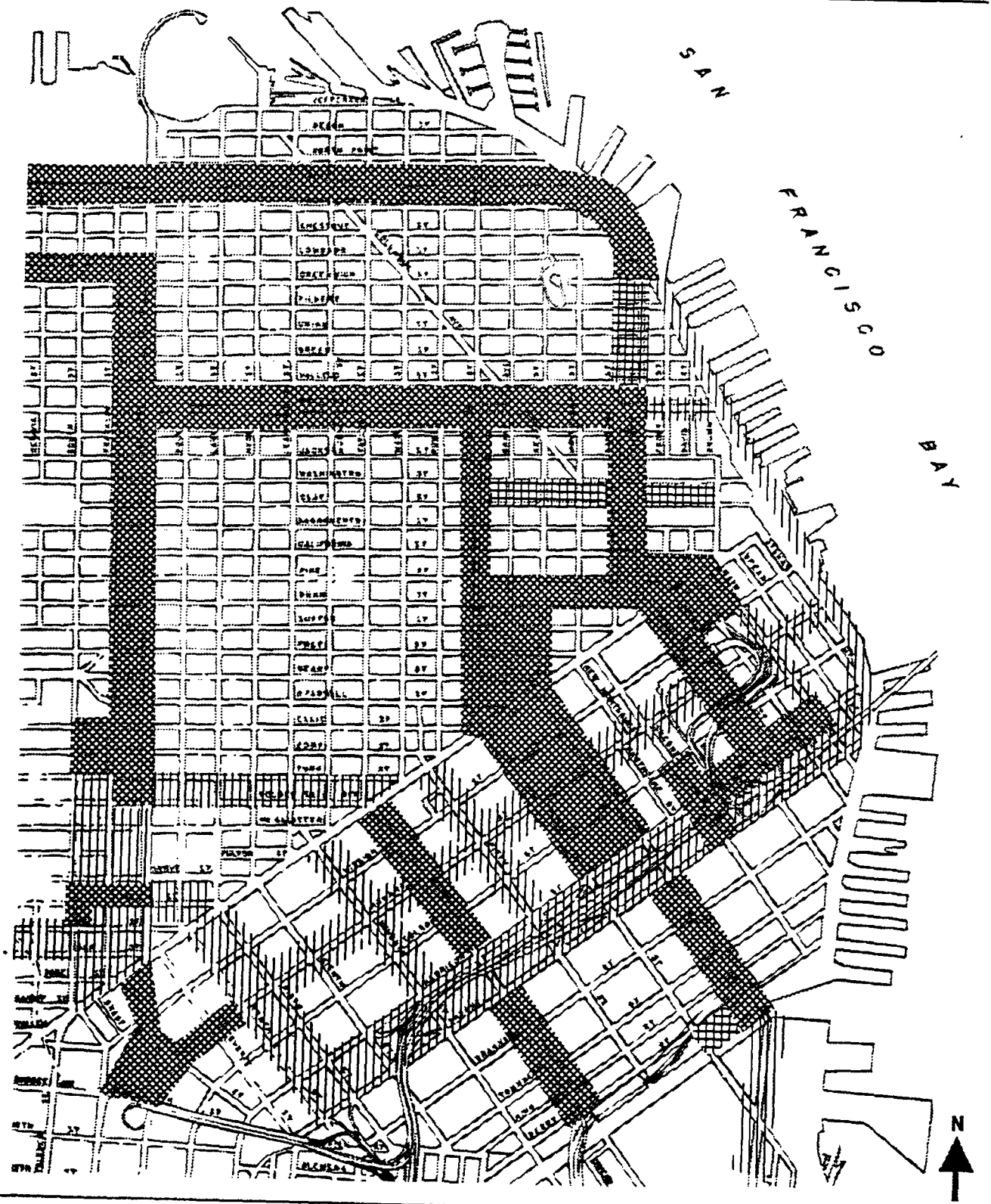


***Figure 5***
***Congested Freeway Access Routes Before and After Loma Prieta Earthquake Comparisons***

Congestion both before and since earthquake
Pre-Earthquake Congestion
Post-Earthquake Congestion

- well-defined access paths via city arterials limited the dispersion of traffic onto alternate routes through sensitive neighborhoods;
- surplus traffic demand unable to merge efficiently into the mainline freeways generally queued on the elevated Embarcadero Freeway, Terminal Separator Structure, and Central Freeway instead of on city streets.

The principal disadvantages associated with pre-earthquake conditions were:

- many freeway ramps acted as congestion magnets by focusing traffic at the ramps and along the approach routes;
- multiple on-ramps delivered peak period traffic at rates greater than the limited capacities of the mainline freeways could absorb, compounding I-80 congestion both to the Bay Bridge and to the south;
- the extensive elevated ramp structure consumed land and blighted adjacent properties.

Post Earthquake Conditions

The 1989 Loma Prieta earthquake severely damaged numerous freeway facilities affecting San Francisco accessibility. Freeway accessibility was changed as follows:

- access into San Francisco was curtailed from the East Bay by loss of the I-880 Cypress approach to the Bay Bridge;
- access to and from the south has been impaired by the damaged segment of I-280 between the US101/I-280 interchange and 25th Street;
- the size of the downtown freeway ramping system was reduced with closure of the Embarcadero Freeway, Terminal Separator Structure, and Central Freeway north of Fell Street;
- the number of access ramps to and from the freeway was significantly reduced, which has increased travel times and confusion about routings to and from the freeway network.

External Changes To Freeways - The partial closures of I-880 and I-280 are located well outside the northeast quadrant of San Francisco but have significantly affected accessibility.

Prior to the earthquake, the East Bay approach to the Bay Bridge could be accessed from three facilities: from the south via I-880; from the east via I-580; and from the east via I-80. Closure of the Cypress segment of I-880 forced all traffic from the south to use I-580, worsening the bottleneck at this approach to the Bay Bridge. The reduction from three to two approach routes to the Bay Bridge and increased congestion at the remaining approaches has seriously impaired accessibility from the East Bay into San Francisco.

In the southern half of San Francisco, I-280 was closed between the US101/I-280 interchange and 25th Street. One through lane on I-280 was opened in this segment in April 1993 but restoration of full operations is not expected until at least 1995. The effects of this closure have been similar to those generated by the I-880 closure. Before the earthquake, the US101/I-280 interchange allowed downtown traffic to use either US101 or I-280 regardless of which freeway was used to approach the interchange. Aside from access recently provided by opening one

through lane, northbound I-280 traffic has been forced onto US101 and US101 traffic has been unable to transfer to I-280 at the interchange. Until the recent limited reopening of the I-280 link, virtually all southbound freeway traffic from downtown has had to use US101, instead of being divided between US101 and I-280. The results have been drastic reductions in I-280 volumes north of the US101/I-280 interchange and serious bottlenecks on US101. This has limited freeway accessibility from the south and has affected downtown traffic patterns. I-280 traffic volumes have grown in the period since one through lane was opened, particularly in the northbound direction, but US101 volumes has remained the same. This indicates that most new users of I-280 have been diverted from city streets rather than from US101.

Changes to Downtown Freeways and Ramps - Closure of the Embarcadero Freeway, Terminal Separator Structure, and the Central Freeway north of Fell Street has reduced the size of the freeway system and the number of freeway ramps in the greater downtown. The truncated freeway system had functioned as elongated ramp connections to I-80 and US101 serving the northeast quadrant of the City. These closures have eliminated all four pre-earthquake freeway ramps located in the north of Market downtown core, four of nine ramps south of the financial district, and two of six ramps to US101 north of the US101/I-80 interchange.

While the I-880 and I-280 segments which were closed have affected overall accessibility into San Francisco, the closures in the northeast quadrant have had more direct impacts on local traffic patterns. These impacts are characterized by greater dispersion of traffic onto city streets. The absence of freeway ramps close to the financial district, Chinatown, North Beach, and Fisherman's Wharf has moved this traffic onto City streets and intensified use of remaining South of Market freeway ramps. The Fremont off-ramps and 1st and Essex on-ramps at Harrison have shown sharp increases in traffic volumes for East Bay travel.

The closest ramps for travel to the south are now the 4th Street ramps at Harrison and Bryant. Peak period bottlenecks have developed on I-80 at the 4th Street off-ramp, which, in turn, has caused some drivers to exit the freeway further west and use City streets to a greater extent. Congestion has also grown at the 4th/Harrison on-ramp, which has prompted drivers to use City streets to reach other on-ramps in the South of Market and to traverse the Mission District to by-pass freeway bottlenecks.

Closure of the Central Freeway segment and its ramps has affected travel for the Civic Center, for the northwest quadrant of the City, and, in combination with closure of the Embarcadero Freeway and its ramps, for the North Bay. No direct access to the Central Freeway from the Civic Center and the Western Addition north of Fell is now available. Civic Center traffic has looped through Hayes Valley to reach the Oak and Fell ramps and has also increased use of South of Market ramps. Northwest quadrant traffic and North Bay traffic have increased the use of the southern end of Van Ness and have also dispersed onto Tenderloin streets and residential streets throughout the Western Addition.

In comparison to pre-earthquake conditions, several important changes are apparent in traffic patterns over the four years since the earthquake:

- congestion has been reduced in the vicinity of closed freeway ramps;
- congestion has increased at most of the remaining freeway ramps in the South of Market and Hayes Valley districts;

- the limited utility of I-280 has increased bottlenecks on I-80/US 101;
- traffic has been able to merge more easily onto I-80 eastbound on the Bay Bridge approach due to restriping which provides two lanes instead of one lane for the First and Essex on-ramps;
- the extent of on-street queueing at I-80 ramps is variable, with significant queues occurring about as often as there are minor queues;
- overloading of the available, well-defined routes to freeways has created many ad-hoc routes, which has increased confusion about access to San Francisco destinations, especially among visitors;
- in response to freeway bottlenecks and unpredictable daily queuing conditions at freeway ramps, many more drivers are using City streets;
- the impacts of increased use of city streets are widespread throughout the South of Market, Mission, Tenderloin, Hayes Valley, and Western Addition districts;
- travel times have increased from three to five minutes within the downtown area.

Primary and Secondary Study Areas

The preceding sections have presented an overview regarding the travel demand characteristics of those most directly affected by the damaged freeway network and changes in overall traffic patterns for the City's northeast quadrant. The following sections focus on an analysis of the specific impacts of the closure of the Main and Beale Street ramps and the Terminal Separator Structure. Findings from the data collected for the Mid-Embarcadero Replacement project are summarized.

The report defined two study areas (see Figure 6). The Primary Study Area is bounded by Harrison, First, Sansome, Broadway Streets and The Embarcadero. The Secondary Study Area covers Channel, Sixth, Kearny, Broadway and The Embarcadero. More thorough analysis was completed in the Primary Study Area, while the Secondary Study Area was analyzed in less depth.

Primary Study Area Findings - Traffic Corridors - Two main travel corridors have been established since the earthquake. These provide the most direct north/south access between the south of Market area and the Financial District, the Waterfront, Fisherman's Wharf, Chinatown, and residential areas north of Market Street.

1. The Embarcadero provides north and southbound access for freeway traffic, carrying mostly traffic to/from the northeastern quadrant of the City.
2. The Fremont/Sansome and First/Battery Street corridors serve traffic to and from the Bay Bridge.

A secondary northbound travel corridor through this study area is Main Street. Traffic from eastbound I-80/northbound US 101 exits at Fourth Street, takes Bryant to Main Street, then travels north to disperse on the east/west street system south of Market or continue into the north of Market area via Drumm Street.

Three important east/west corridors through the Primary Study Area have also been identified:

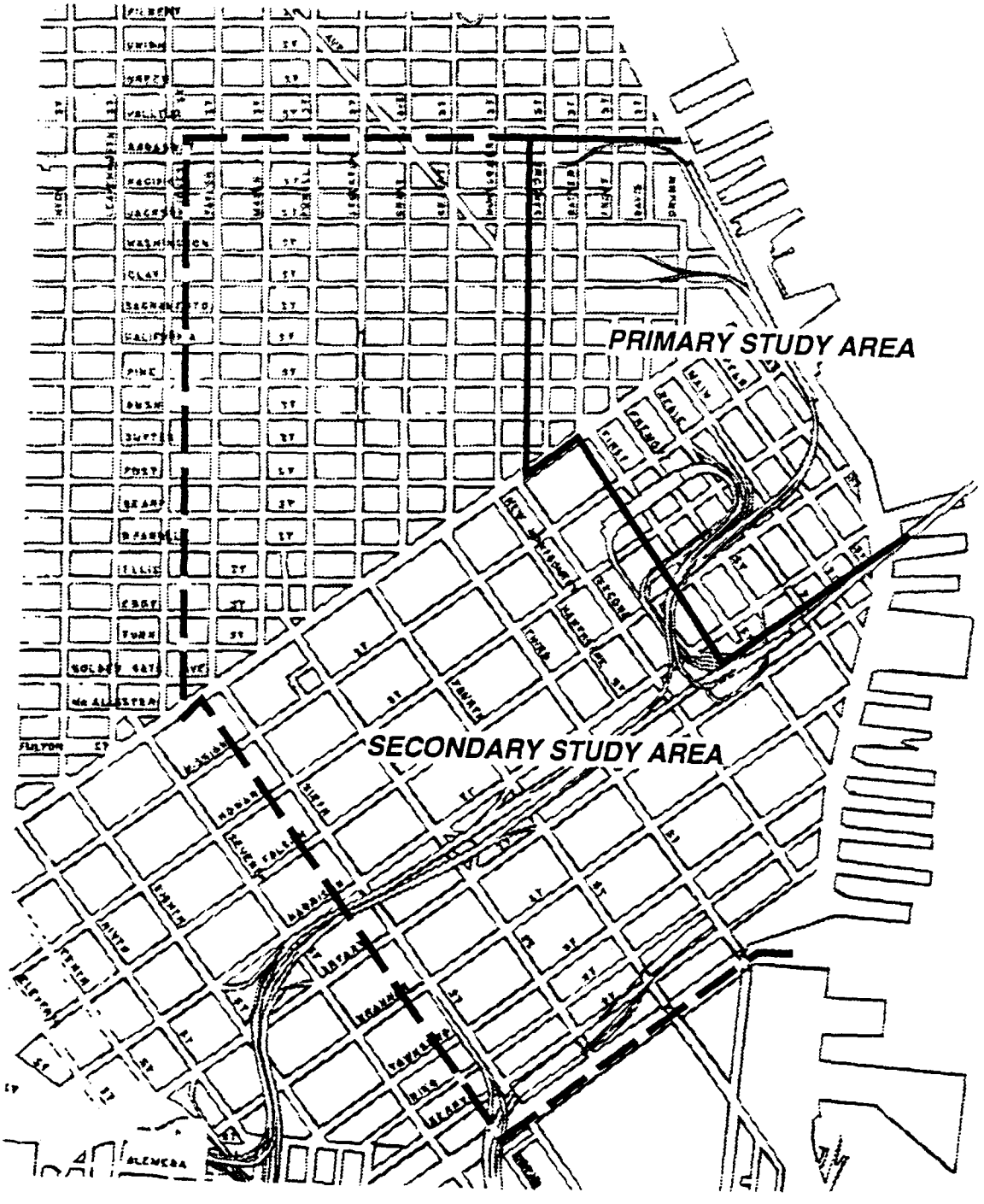


*Figure 6*
*MID-EMBARCADERO PROJECT STUDY AREAS*

1. Harrison Street connects to the Embarcadero, carrying traffic to the Bay Bridge via on-ramps at First and Essex Streets. An off-ramp from the Bridge, the Main/Embarcadero off-ramp, carries traffic on Fremont Street to Harrison, where it then travels east to The Embarcadero.
2. Broadway is another east/west route used to connect to The Embarcadero. It provides access to Chinatown and North Beach as well as to residential neighborhoods.
3. Folsom and Howard Streets serve as important east/west distribution routes which feed into the freeway ramps via north/south streets.

Traffic Volume Changes - Since the earthquake, significant traffic volume changes have been observed on important city streets and at major intersections. These were studied during both the AM and PM peak periods. These changes are summarized in Tables 2 and 3.

The heaviest increases in traffic volumes during the AM peak period have been observed on those north/south streets which have functioned, in essence, as replacement routes for options lost by the closure and removal of the Embarcadero Freeway and the Terminal Separator Structure. Thus, northbound traffic has increased significantly on portions of The Embarcadero, Main Street, Fremont Street, Sansome Street and Front Street. Similarly, notable southbound increases in the reverse peak direction of travel have occurred on portions of The Embarcadero, First Street, and Battery Street.

There have been similar effects on east/west traffic during the AM peak period. Harrison Street traffic registered major gains in both directions, as did Broadway between The Embarcadero and Battery Street. This has been reflected in increases in turning movements to and from The Embarcadero at these streets.

Conversely, intersections near the demolished on/off-ramps have experienced substantial decreases in traffic. Traffic on Broadway, Washington and Clay Streets to the west of the former ramps decreased substantially.

During the PM peak period, as might be expected, the same north/south and east/west corridors are being used as during the AM period. Southbound routes to the Bay Bridge showing significant traffic increases are First, Battery, Davis Streets and The Embarcadero. Major traffic increases have been observed for reverse peak direction travel on portions of northbound Embarcadero, Main, Fremont, and Front Streets. East/west routes registering large gains include both directions of Harrison Street, from the Embarcadero to Main and First Streets; and Broadway, both directions, between Battery and The Embarcadero.

Turning movements at The Embarcadero have greatly increased at Harrison and Broadway Streets. Significant decreases in traffic have occurred at those intersections where the demolished ramps previously touched down, particularly at Washington, Clay, and Broadway near Sansome Street.

Ramp Volume Changes - Following the 1989 earthquake, eight on and off-ramps in the Primary Study Area were closed and demolished. Tables 4 and 5 summarize the ramp volume changes

TABLE 2
AM PEAK HOUR TRAFFIC VOLUME VARIATIONS
PRE-EARTHQUAKE AND 1992

| Street | Between | Percentage Change |
|---|---|---|
| Embarcadero N.B. | Folsom to Broadway | 39% |
| Embarcadero S.B. | Broadway to Howard | 3% |
| Embarcadero S.B. | Howard to Harrison | 32% |
| | | |
| Harrison E.B. | Fremont to Embarcadero | 151% |
| Harrison W.B. | Embarcadero to First | 76% |
| | | |
| Main N.B. | Harrison & Mission | 103% |
| Main N.B. | Mission & Market | -22% |
| | | |
| Fremont N.B. | Harrison & Market | 92% |
| First S.B. | Market & Harrison | 110% |
| | | |
| Sansome N.B. | California & Washington | 22% |
| Sansome N.B. | Jackson & Broadway | -4% |
| | | |
| Battery S.B. | Broadway to Market | 57% |
| | | |
| Front N.B. | Clay & Market | 34% |
| | | |
| Washington W.B. | Battery & Sansome | -460% |
| Clay E.B. | Sansome & Front | -34% |
| | | |
| Broadway W.B. | At Sansome | -69% |
| Broadway E.B. | At Sansome | -39% |
| Broadway W.B. | Embarcadero & Battery | 68% |
| Broadway E.B. | Battery & Embarcadero | 109% |
| | | |
| Embarcadero R.T. | To Harrison | 100% |
| Harrison L.T. | To Embarcadero | 1,080% |
| Broadway R.T. | To Embarcadero | 120% |

TABLE 3
PM PEAK HOUR TRAFFIC VOLUME VARIATIONS
PRE-EARTHQUAKE AND 1992

| Street | Between | Percentage Change |
|---|---|---|
| Embarcadero N.B. | Folsom & Broadway | 60% |
| Embarcadero S.B. | Washington & Harrison | -5% |
| Embarcadero S.B. | At Broadway | 18% |
| | | |
| Harrison E.B. | Main & Embarcadero | 166% |
| Harrison W.B. | Embarcadero & First | 109% |
| | | |
| Main N.B. | Harrison & Mission | 56% |
| Main N.B. | At Market | 20% |
| | | |
| Fremont N.B. | Harrison & Market | 78% |
| First S.B. | Market & Harrison | 28% |
| | | |
| Sansome N.B. | California to Broadway | -17% |
| | | |
| Battery S.B. | Broadway to Market | 32% |
| | | |
| Front N.B. | Pine & California | 71% |
| | | |
| Davis S.B. | Clay & Market | 46% |
| | | |
| Washington W.B. | Battery & Sansome | -47% |
| Clay E.B. | Sansome & Front | -47% |
| | | |
| Broadway W.B. | Embarcadero & Battery | 84% |
| Broadway E.B. | Battery & Embarcadero | 56% |
| Broadway E.B. | At Sansome | -52% |
| Broadway W.B. | At Sansome | -39% |
| | | |
| Embarcadero R.T. | To Harrison | 161% |
| Harrison L.T. | To Embarcadero | 1,583% |
| Broadway R.T. | To Embarcadero | 63% |

**TABLE 4**
**COMPARISON OF DOWNTOWN RAMP TRAFFIC VOLUMES**
**AM PEAK HOUR, PRE-EARTHQUAKE AND 1992**

| Ramp | Direction | Change | Percent Change |
|---|---|---|---|
| Washington/Davis | Off | - 1,771 | -100% |
| Washington/Clay | On | - 1,142 | -100% |
| | | | |
| Broadway/Battery | Off | - 1,783 | -100% |
| Broadway/Battery | On | - 1,885 | -100% |
| | | | |
| Folsom/Fremont | On | -320 | -100% |
| Folsom/Beale | Off | -235 | -100% |
| | | | |
| Main/Mission | Off | - 1,895 | -100% |
| Beale/Mission | On | -823 | -100% |
| | | | |
| Fremont Mid-block | Off | 859 | 61% |
| Fremont/Harrison | Off | 861 | 98% |
| | | | |
| First/Harrison | On | 831 | 240% |
| Sterling/Bryant | On | -167 | -28% |
| Essex/Harrison | On | 217 | 125% |
| | | | |
| 4th/Harrison | On | 1,063 | 134% |
| 4th/Bryant | Off | 1,047 | 93% |
| | | | |
| 5th/Harrison | Off | -114 | -9% |
| 5th/Bryant | On | -793 | -71% |

TABLE 5
COMPARISON OF DOWNTOWN RAMP TRAFFIC VOLUMES
PM PEAK HOUR, PRE-EARTHQUAKE AND 1992

| Ramp | Direction | Change | Percentage |
|---|---|---|---|
| Washington/Davis | Off | -817 | -100% |
| Washington/Clay | On | - 1,159 | -100% |
| | | | |
| Broadway/Battery | Off | - 1680 | -100% |
| Broadway/Battery | On | - 1,381 | -100% |
| | | | |
| Folsom/Fremont | On | -396 | -100% |
| Folsom/Beale | Off | -681 | -100% |
| | | | |
| Main/Mission | Off | -631 | -100% |
| Beale/Mission | On | - 1,492 | -100% |
| | | | |
| Fremont Mid-block | Off | 1,761 | 237% |
| Fremont Harrison | Off | 468 | 170% |
| | | | |
| First/Harrison | On | 856 | 84% |
| Sterling/Bryant | On | -155 | -22% |
| Essex/Harrison | On | 407 | 37% |
| | | | |
| 4th/Harrison | On | -268 | -9% |
| 4tb/Bryant | Off | 1,094 | 424% |
| | | | |
| 5th/Harrison | Off | 9 | 0% |
| 5th/Bryant | On | -535 | -30% |

for both the AM and PM peak periods. All closed and demolished ramps have lost 100 percent of the traffic they once carried. More important to the existing condition are the ramps near the Bay Bridge that remain in service.

For the AM peak period, the two Fremont off-ramps from the East Bay have experienced traffic gains between 61-98 percent. The Fourth/Bryant off-ramp, now the last San Francisco exit from eastbound I-80, has jumped 93 percent. For the reverse peak direction, traffic volumes on the First/Harrison on-ramp have grown by 240 percent; the Essex/Harrison on-ramp 125 percent; and traffic on the Fourth/Harrison on-ramp has increased 134 percent.

The only existing ramp to experience a major decrease during the AM peak period is the Fifth/Bryant on-ramp, losing 71 percent of its traffic. Since Fifth/Bryant is a left entrance to the freeway and the left exit to Main/Mission could be used without weaving across freeway lanes,the closure of the Terminal Separator Structure may have eliminated a south of Market Street shortcut for many motorists.

During the PM peak period, similar changes in traffic patterns have occurred. Without the Terminal Separator and the Embarcadero Freeway feeding eastbound Bay Bridge, the on-ramps at First/Harrison and Essex/Harrison have increased 84 percent and 37 percent, respectively. In the reverse peak direction, traffic on the two Fremont off-ramps has increased substantially. Without the Main/Mission exit, traffic on the Fourth/Bryant off-ramp has soared by 424 percent. Once again, the remaining ramp with the most significant decrease in traffic is the Fifth/Bryant on-ramp, losing 30 percent of its traffic.

Reduction of Vehicle Trips - During the morning peak period, some 10,000 fewer vehicles enter and exit the Primary Study Area. This decrease is split 50/50, 5,000 fewer entering and 5,000 fewer exiting since the 1989 earthquake. In the afternoon peak period, about 7,000 fewer vehicles enter and exit the same area. This is split 3,000 entering and 4,000 exiting.

There are a number of factors which are likely contributing to these changes:

1. Some of the vehicle trips once made through the study area originated or terminated externally, using the study area to access the former freeway ramps. These vehicles have found alternative routes on city streets outside of the study area.

2. Employment in the City has decreased slightly in recent years, by approximately 8,000 jobs between 1989 and 1992 based on Employment Development Department's Annual Planning Information. The loss to the Financial District is about 2,900 with an additional 700 in Chinatown and North Beach.

3. Regionally, the number of trips using the Bay Bridge has decreased in recent years. In the westbound direction of the Bridge, a drop of some 4,500 vehicles, some of them bound for San Francisco, has been observed during the 5-10 AM peak period.

4. Transit ridership into San Francisco has increased since the earthquake. There has been a daily increase of 15,000 BART riders from the East Bay, 2,000 new transbay ferry riders, and 8,000 BART riders within the West Bay.

5. The prolonged economic downturn has also taken a toll on the number of recreational, shopping and tourist trips into San Francisco. Some of these probably affect peak traffic periods.

Secondary Study Area Findings - The Secondary Study Area was not studied in detail. The following are general findings based on the data available.

1. The Third Street/Kearny corridor carries traffic northbound from south of Market Street to north of Market into Chinatown/North Beach. Traffic volumes during the AM peak period have increased at the Third/Market Street intersection by 17 percent. In the PM peak, traffic at the same intersection has increased 48 percent. This may be attributable to the heavy use of the Fourth/Bryant off-ramp, the last eastbound I-80 San Francisco exit since the Terminal Separator Structure was closed.

2. The Stockton/Fourth Street corridor provides a direct connection to westbound I-80 and southbound US 101 from the north of Market Street area. Since the earthquake, this corridor is more heavily used in both the morning and afternoon peak periods. Traffic at the critical Fourth/Mission Street Intersection has increased 64 percent for both AM and PM peak periods. The comparison of the Fourth/Harrison Streets on-ramp shows a large increase in the AM peak hour for this ramp. In the PM peak, this ramp shows a decrease since the earthquake. Volumes for the 4th/Harrison on-ramp are constrained because merging into the freeway is limited by saturated mainline freeway flows, which appears to result in more traffic using city streets to access other downstream freeway ramps.

Conclusions - Since the earthquake, there are fewer vehicle trips in the Primary Study Area because the travel patterns once used by motorists to and from the freeway system have been spread more widely throughout the City's street network. In addition, there have been slight job losses and a reduction in non-work trips because of the recession. Transit ridership has also increased.

Capacity on US 101 and I-80 has not changed since the earthquake, but more trips are using US 101 since I-280 was closed. Prior to the earthquake, the freeways were functioning at capacity during both the morning and afternoon peak periods. The same is still true. A major change is that previously most queues of automobiles were waiting on elevated freeway structure. Even with more traffic now on city streets, most intersections in the financial district are still operating at acceptable levels.

The demolition of the on-ramps to the freeway has created a more free flow condition for the remaining East Bay-bound ramps. Traffic is able to merge onto I-80 towards the Bay Bridge somewhat faster compared to the pre-earthquake condition. Bottlenecks have worsened near the I-80/US 101 interchange to the south due to discontinuities in I-280 which have increased traffic volumes on I-80/US 101 to and from the south.

Summary Of Critical Problems

The loss of the Terminal Separator Structure and other freeway ramps has resulted in traffic problems on some city streets in the downtown and South of Market areas. Traffic congestion becomes an issue when traffic reaches severe levels and/or begins to conflict with the movements of pedestrians and transit operations.

Although the loss of the Terminal Separator Structure and the subsequent dispersal of its traffic to city streets may not in itself have created congested areas, it likely exacerbated some problem locations causing them to become critically congested. It is essential that proposed replacements for the Terminal Separator Structure help alleviate problems at such congested locations.

Following is a summary, by peak period, of problem traffic locations.

Problem Areas: AM Peak Period

1. Traffic and transit conflicts on Fremont Street at Mission Street adjacent to the Transbay Transit Terminal.

2. Casual carpooling drop-offs at Fremont and Howard Street conflict with increased traffic and back up traffic onto the Fremont off-ramp.

3. Increased traffic on The Embarcadero conflicts with greater pedestrian use and projected transit usage.

4. Third Street has become more congested. Traffic exits from northbound US 101/eastbound I-80 at the Fourth Street off-ramp, now the last San Francisco exit, travels one block east on Bryant Street and then north on Third Street to access Chinatown, North Beach, Fisherman's Wharf, the Financial District, Union Square and the South of Market area.

Problem Areas: PM Peak Period

1. The Battery Street/First Street corridor is heavily used by traffic leaving the Financial District and North Beach areas heading for the Bay Bridge. This traffic conflicts with transit operations on First Street near the Transbay Transit Terminal(Market and Mission Street area). Traffic backs up from the Terminal, creating transit, pedestrian and traffic conflicts at Market Street. This occurs about 25 percent of the time. This problem also existed prior to the earthquake and conflicts may actually have been worse then.

2. The Sterling Street HOV on-ramp to eastbound Bay Bridge has remained underutilized.

3. Westbound I-80/southbound US 101 traffic uses Fourth Street, creating traffic and pedestrian conflicts from Market to Howard Streets.

4. Traffic bound for the First Street on-ramp to eastbound Bay Bridge queues on Harrison Street, sometimes back to The Embarcadero.

5. Typical travel times have increased from three to five minutes within the downtown area compared to pre-earthquake conditions.

In the consideration of alternatives for the Terminal Separator Structure, the objective is to focus on problem areas and solve the functional traffic problems. Alternatives have attempted to address the following concerns:

1. relieve traffic/transit conflicts on Fremont and First Streets in the area of the Transbay Transit Terminal;

2. provide an alternative to the Fremont Street off-ramp that serves the downtown and nearby employment areas;

3. relieve traffic on The Embarcadero, particularly in the area of the Ferry Building;

4. reduce traffic on Third and Fourth Streets;

5. provide a means of moving traffic to/from the Bay Bridge and southbound US 101 which does not use the crowded city streets south of Market Street and east of Second Street;

6. provide a more convenient HOV access to the Bay Bridge; and

7. offer an alternative to Harrison Street as a westbound approach to eastbound Bay Bridge.

Most of these restored traffic movements are addressed in one form or another by the Terminal Separator Structure alternatives studied for this report. Obviously, an improvement in even some of these problem locations will have many positive traffic impacts. The goal in replacing the Terminal Separator Structure is to find an alternative that meets the most objectives and can be done as quickly and inexpensively as feasible.

## INTERIM TRAFFIC IMPROVEMENTS

The implementation of Interim Traffic Improvements is critical to providing relief on city streets during the period for earthquake recovery and to alleviate delays experienced during construction for the Waterfront Transportation Projects. The Department of Parking and Traffic has implemented many traffic operational improvement measures since the Loma Prieta Earthquake. Additional measures that will be pursued are outlined below. Schedule information and funding assumptions are also included.

1. Re-time Signals - Re-time all of the signals in the vicinity of Market Street to facilitate traffic crossing Market. This project should be completed by October 1993. No additional funds are required.

A large number of the old traffic controllers in the downtown area will also be replaced. As a result, the number of signal timing plans can be increased, to augment flexibility of the signal timing. Funding for this project will be provided by the Metropolitan Transportation Commission. Replacement controllers should be installed staring in 1994, with completion by 1995.

2. Improve Destination Guide Signs--Guide signs to Chinatown, North Beach and Fisherman's Wharf from the freeways were installed in 1990. The condition and adequacy of these signs will be evaluated and necessary adjustments made. One particular proposed improvement is the signing on the Bay Bridge. At present the signs direct traffic to the left side Fremont/Harrison Street exit, but the exit remains underutilized. Parking and Traffic will coordinate with Caltrans to investigate improvements to the signs on the bridge. This can be completed by December 1993.

Guide signing for visitors returning from Fisherman's Wharf and Chinatown to the freeways is very sparse. Parking and Traffic is developing a signing plan to help direct visitors back to the Bay Bridge and 101 South. Adequate funds exist in the regular sign budget to install 30-40 of these signs in priority locations by October 1993. Funding for a more comprehensive signing program will be investigated.

3. Gridlock prevention--"Don't Block the Box" and "Video Camera Congestion Monitoring--Parking Control Officers (PCOs) are presently dispatched to key intersections on 1st Street, Market Street, and Battery Street when backup on the Bay Bridge is severe during the PM peak hour period. The PCOs cite drivers for violating the "Do Not Block Intersection" regulations and for illegal parking in towaway zones. They also control traffic to keep Mission, Market and other streets that cross the Bay Bridge approaches flowing smoothly and to keep transit operational on Mission and Market.

Parking and Traffic is scheduled to receive funding from federal sources to implement a video camera system to monitor traffic at key intersections. The video images will be sent to the Hall of Justice to facilitate dispatching PCOs. This program should be implemented late in 1993.

4. Signalization--The South Embarcadero project will install new traffic signals at Harrison and The Embarcadero. New signals have also been installed at Harrison and Main and at Folsom and Main as part of the Terminal Separator Structure demolition project. A permanent signal will be placed at Folsom and The Embarcadero and a temporary signal at Howard and

Spear Streets as ~~part~~ part of the Muni Metro Turnback Project. A new signal at Harrison and Spear Streets will also be installed as part of the Muni Metro construction detour. Funding is expected to be approved by the San Francisco County Transportation Authority at the end of 1993, and construction will be completed by early 1995.

5. 5th & 6th Streets One-Way couplet--This proposal would make 5th and 6th Streets one-way between Bryant and Howard Streets with 5th going toward Market and 6th going toward I-280. Although this change could significantly improve the efficiency of the South of Market street system, there is some opposition from merchants and residents on 6th Street. Parking and Traffic is doing additional studies of traffic on these streets with I-280 partially re-opened to assess the traffic conditions. Enforcement of the PM towaway that is legislated for southbound 6th Street is also being resumed.

6. Additional measures--A number of proposals are currently under consideration. These include allowing a left turn directly from northbound Embarcadero to Washington (now under review by Parking and Traffic), adding more time to the northbound Embarcadero left turn to Broadway (scheduled for completion in August 1993), and opening the crosswalk at Beale and Mission (Caltrans is waiting for a City decision regarding the Terminal Separator Structure before authorizing action on this).

## TERMINAL SEPARATOR STRUCTURE

### Alternatives Description

Developing alternatives for the Terminal Separator Structure was the primary purpose of this study. Throughout the study period, various sources with varied interests in the project gave suggestions to the planning team. Citizens, business persons, members of the Technical Advisory Committee and members of the Citizens Advisory Committee all contributed ideas for possible replacement options. In all, more than twenty proposals were received and evaluated.

The proposals were given preliminary reviews by the City Planning Staff, the Task Force and the Citizens Advisory Committee. Each suggestion was assessed as to its ability to meet stated objectives and be free from major constraints that would make its construction extremely difficult, lengthy, unwise or impossible.

As the study progressed it became apparent that some proposals could not meet the objectives or had insurmountable constraints. By consensus, these alternatives were removed from further consideration. At the end of this process, seven alternatives plus the No Build Alternative remained for final consideration.

Following is a brief, and general, description of some of the rejected proposals and the reasons why they were rejected.

Proposed and Rejected Alternatives

1. Proposals with ramps crossing over the Transbay Transit Terminal ramps and touching down west of Main Street and south of Howard Street. The consensus was that the touchdown ramps could not meet grade and elevation standards.

2. Proposals with an eastbound off-ramp crossing over the upper deck of the Bay Bridge and touching down at Folsom or Harrison Streets. Again, grade and elevation standards could not be met.

3. Plans calling for the removal or relocation of the Transbay Transit Terminal and/or the removal or relocation of its ramps, or both. The introduction of changes to the TTT ramps would subject the TSS to substantial delays.

4. Plans advocating the undergrounding of a ramp or the significant lowering of a city street. These ideas were thought to be too costly, too disruptive or too environmentally difficult, if not all three.

Having considered and eliminated several alternatives with the above scenarios, seven viable alternatives emerged for final consideration. These plans, and their respective advantages and disadvantages, comprise the balance of the discussion on the Terminal Separator Structure.

## Major Constraints

The presence of a certain factor or factors in a proposed alternative for the Terminal Separator Structure might make it very difficult, unwise or impossible to build. In this study, such factors were considered to be major constraints.

The identification of major constraints in some early alternatives led to their dismissal from further consideration. Even in the final list of alternatives, some factors may yet prove to be major constraints.
Following is a list of the major constraints identified for the Terminal Separator Structure Study:

1. Problems with grades, elevations or vertical clearances. A 6 percent grade is standard for on and off-ramps. FHWA will permit up to an 8 percent grade, through an exception to normal standards. A minimum vertical clearance of 16 1/2 feet must be maintained between all highway structures. The minimum curve radius for a design speed of 35 mph must be 425 feet. If alternatives failed to meet these basic standards, approval by Caltrans, the Federal Highway Administration or any other body with funding authority would be unlikely.

2. Requires permanent street closures. In general, the need for a street closure is related to problems with grades, elevations or vertical clearances. The proposed replacement project should not require permanent street closures that would adversely affect traffic patterns.

3. Introduces severe conflicts between traffic, transit, and pedestrians.

4. Requires new right-of-way, if it involves the relocation of residents or businesses.

5. Fails "constructability" criteria. This is a broad category of constraints. Examples include the need to close a city street or freeway lane for long periods of time in order to permit construction; or anything unacceptable from a political, environmental or public relations standpoint.

6. Requires lengthy and major environmental studies.

7. Costs in excess of available funding.

## Description of Viable Alternatives

CALTRANS REPLACEMENT ALTERNATIVE (see Figures 7 and 8): The Caltrans project proposes to rebuild the Terminal Separator Structure (TSS) along its former alignment. The on and off-ramps at Main/Beale and Mission Street are replaced, and provision for a connection to the proposed Mid-Embarcadero is provided at Bent 57. The project consists largely of elevated freeway structure, as before. The existing Bay Bridge ramps remain in their present configurations.

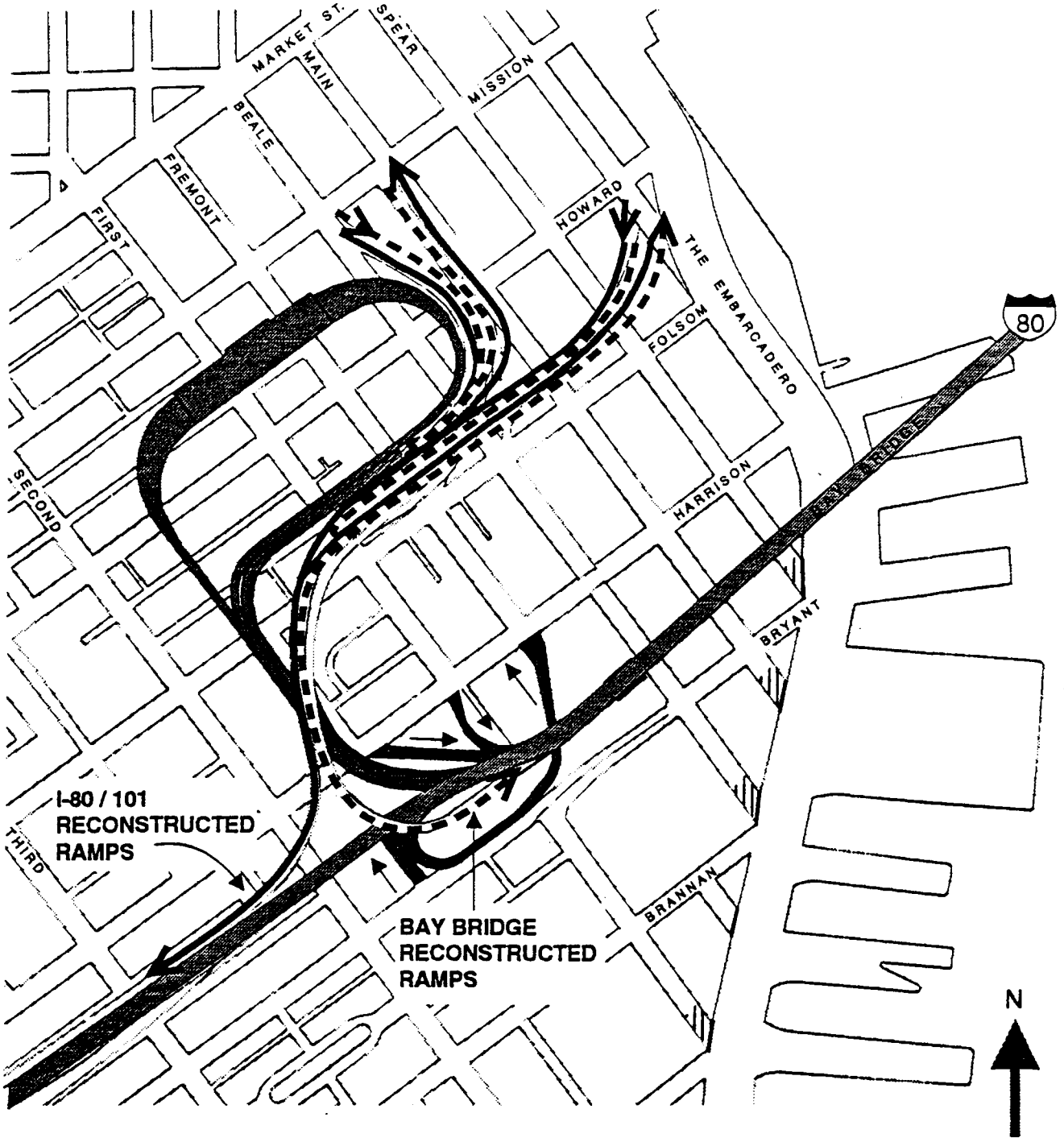


***Figure 7***
***TERMINAL SEPARATOR STRUCTURE***

*CALTRANS ALTERNATIVE*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*I-80/101 Reconstructed Ramps*

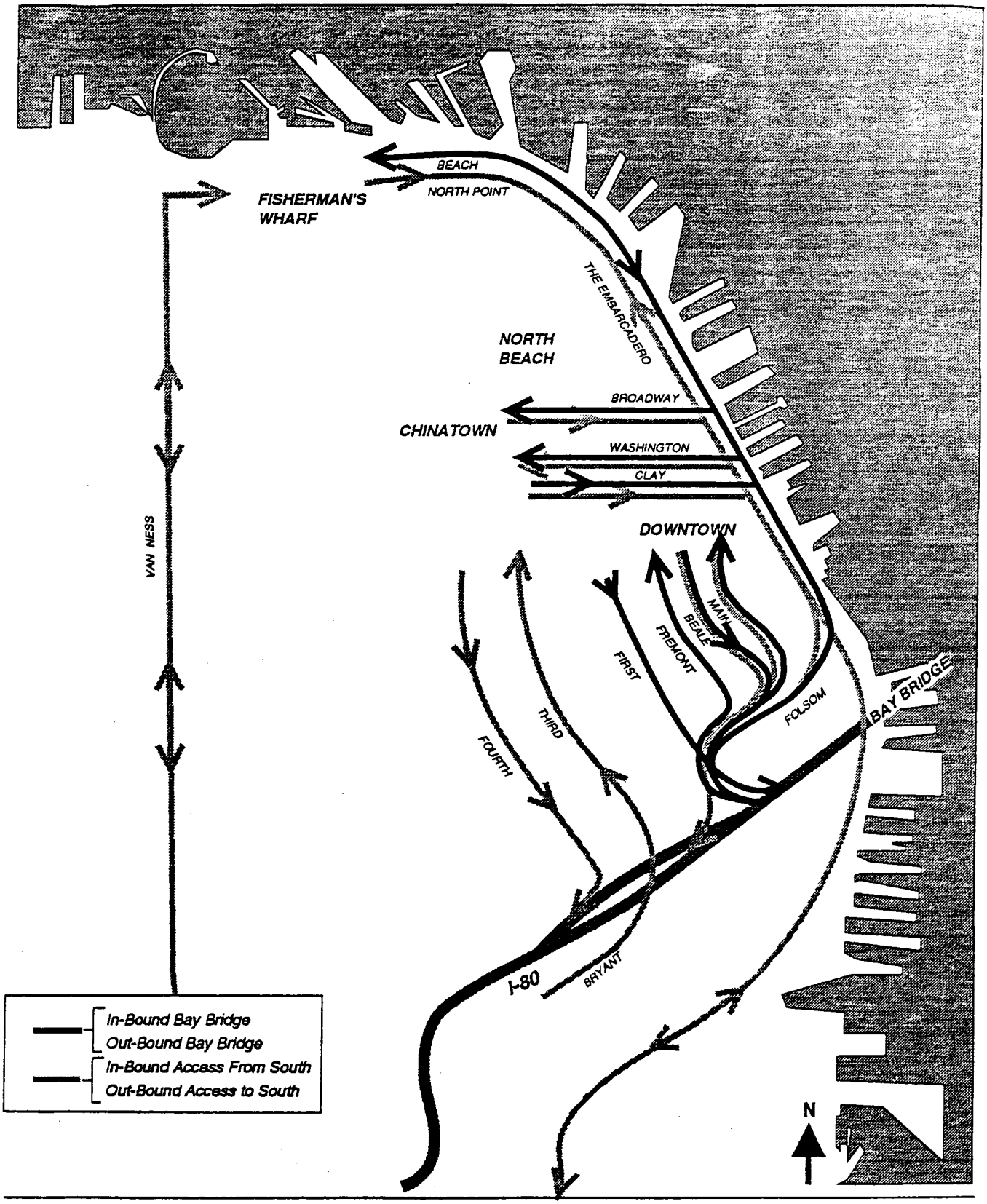


*Figure 8*
*CALTRAN'S ALTERNATIVE CIRCULATION PATTERN*

NO BUILD ALTERNATIVE (See Figure 4 for existing circulation pattern): The existing Bay Bridge ramps and the City street travel patterns remain as they are at present. No replacement of any kind is proposed for the Terminal Separator Structure.

ALTERNATIVE 1 (see Figures 9 and 10): Alternative 1 is similar to the Caltrans proposal with two major exceptions: there is no direct connection to the Mid-Embarcadero and the ramps at Main and Beale Streets are relocated one block south to mid-block on Howard Street.

ALTERNATIVE 1A (see Figures 11 and 12): Alternative 1A differs from the Caltrans proposal in that no ramps serve Main and Beale Streets. Provision for a direct connection to the Mid-Embarcadero is made from Bent 57 to connect to The Embarcadero Roadway between Howard and Folsom. The existing Bay Bridge ramps are unchanged.

ALTERNATIVE 1B (see Figures 13 and 14): This alternative is nearly identical to Alternative 1, except that the flyover ramp to eastbound Bay Bridge is deleted.

ALTERNATIVE 2 (see Figures 15 and 16): Alternative 2 is the first of the proposals that sharply limit the amount of new freeway structure. This alternative builds new on and off-ramps to I-80 at Second Street; reconstructs the Sterling Street on-ramp to eastbound Bay Bridge to provide full service, merging the traffic where the former flyover ramp merged; closes the left Main/Embarcadero exit to Fremont Street and converts it to an off-ramp north of Bryant Street; and re-constructs the right Fremont off-ramp to serve both Fremont and Folsom Streets. The Essex Street access becomes an HOV lane during peak periods.

ALTERNATIVE 2A (see Figures 17 and 18): This proposal is a downscaled version of Alternative 2. It retains the new on/off-ramps at Second Street and the rebuilt Sterling Street on-ramp, but does not include a new off-ramp to Bryant, reconstructs the right Fremont off-ramp to serve both Fremont and Folsom Streets, and keeps the Fremont/Harrison off-ramp used to access Main and The Embarcadero as they are at present.

ALTERNATIVE 3 (see Figure 19 and 20): Alternative 3 focuses on surface street improvements to modestly correct the traffic circulation problem. It substantially retains the existing conditions, with the exception of rebuilding the Sterling Street on-ramp with the connection to the Bay Bridge at the previous location of the flyover (as in Alternatives 2 and 2A) and reconstructing the right Fremont off-ramp to serve both Fremont and Folsom Streets. Harrison Street becomes one-way westbound between First and Third Streets to ease access to the existing Fourth/Harrison Street on-ramp.

**Objectives of the Replacement Project**

The final seven alternatives were given more thorough technical evaluations by the City and Caltrans based on established criteria. The intent of the objectives is to focus on providing functional solutions to identified traffic problems,as well as, address the City's Transit First Policy and land use and pedestrian objectives. The objectives are enumerated as follows:

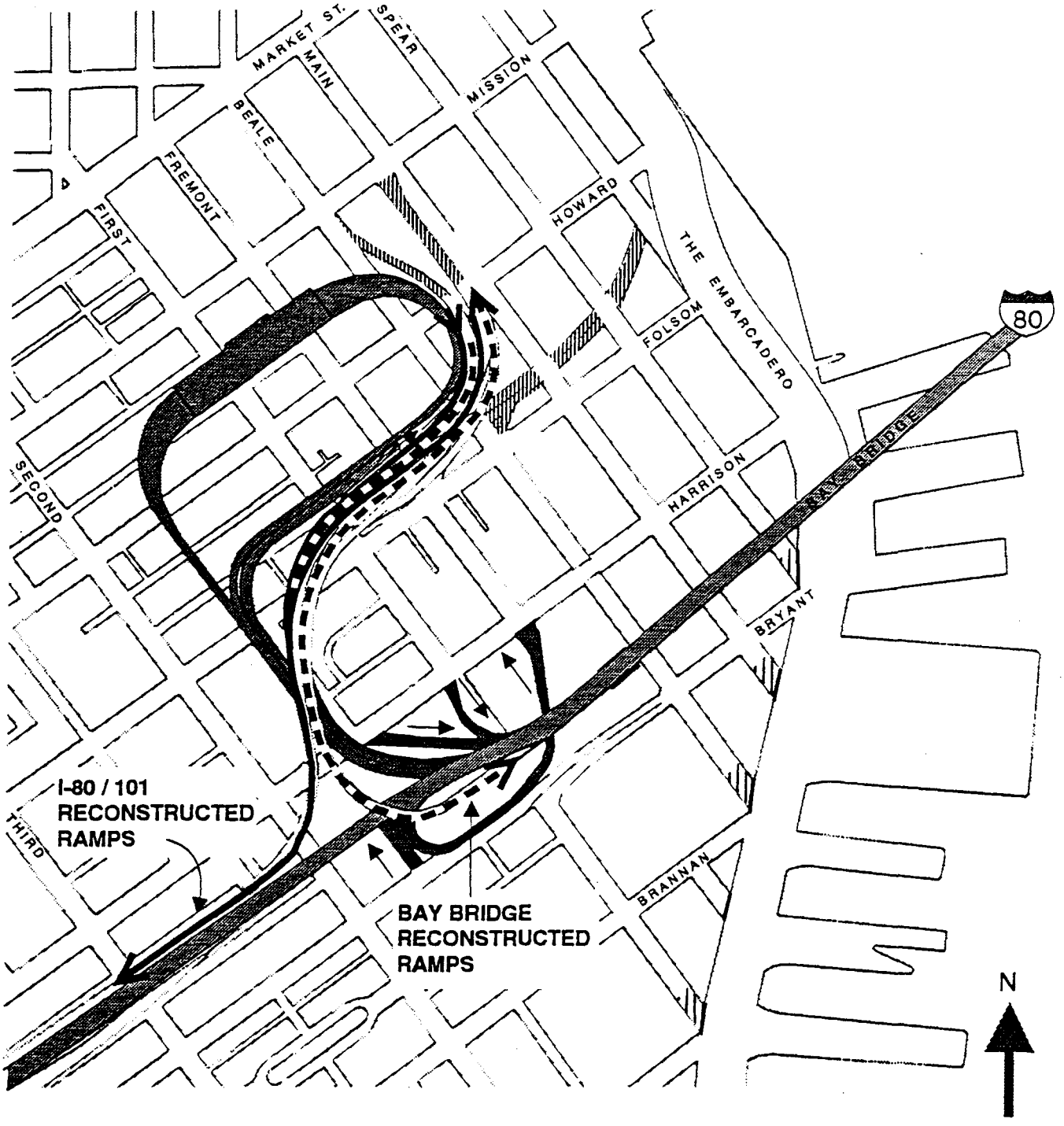


***Figure 9***
***TERMINAL SEPARATOR STRUCTURE***

*ALTERNATIVE 1*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*I-80/101 Reconstructed Ramps*

*Potential Land Opportunity Sites*

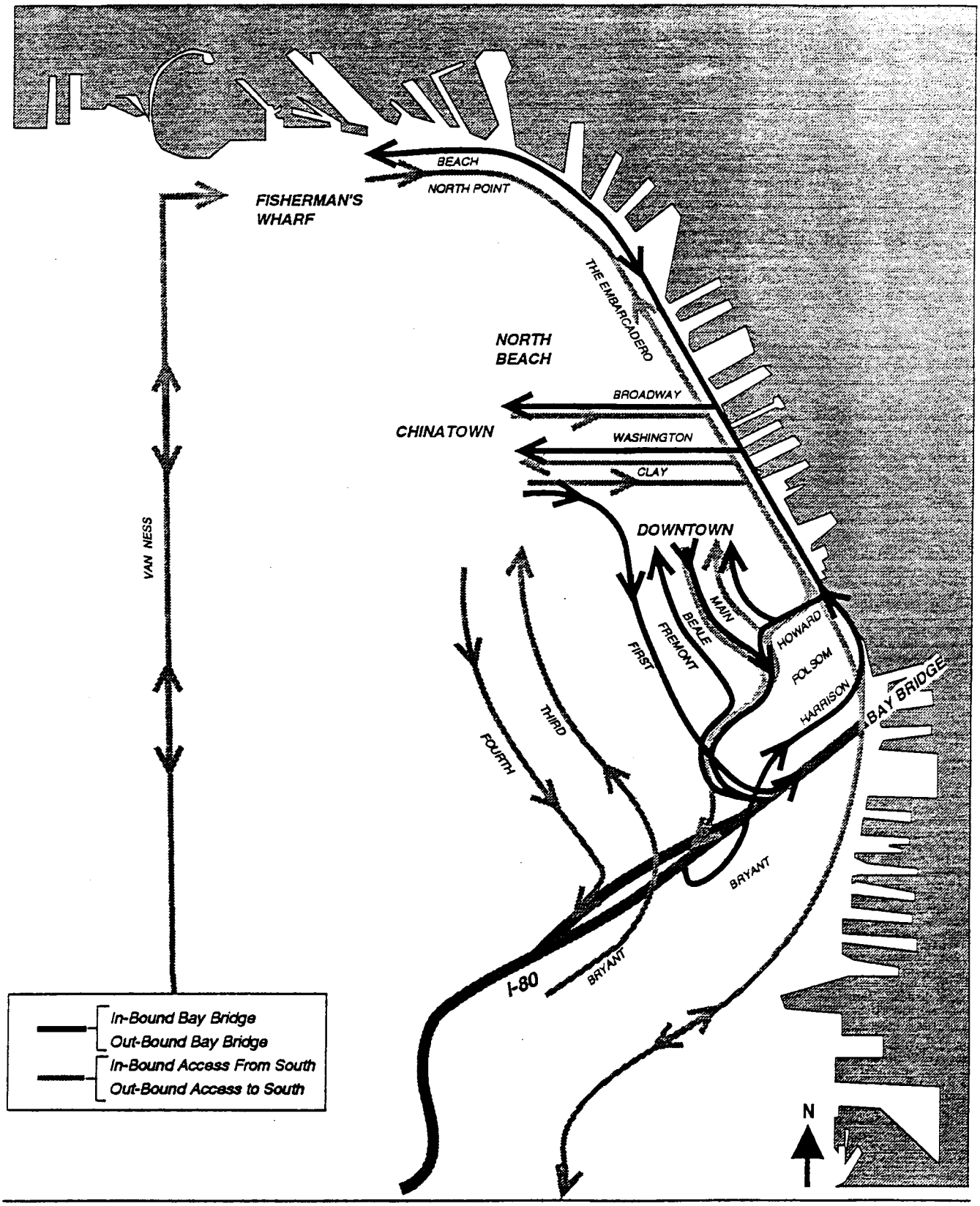


*Figure 10*
***ALTERNATIVE 1 CIRCULATION PATTERN***

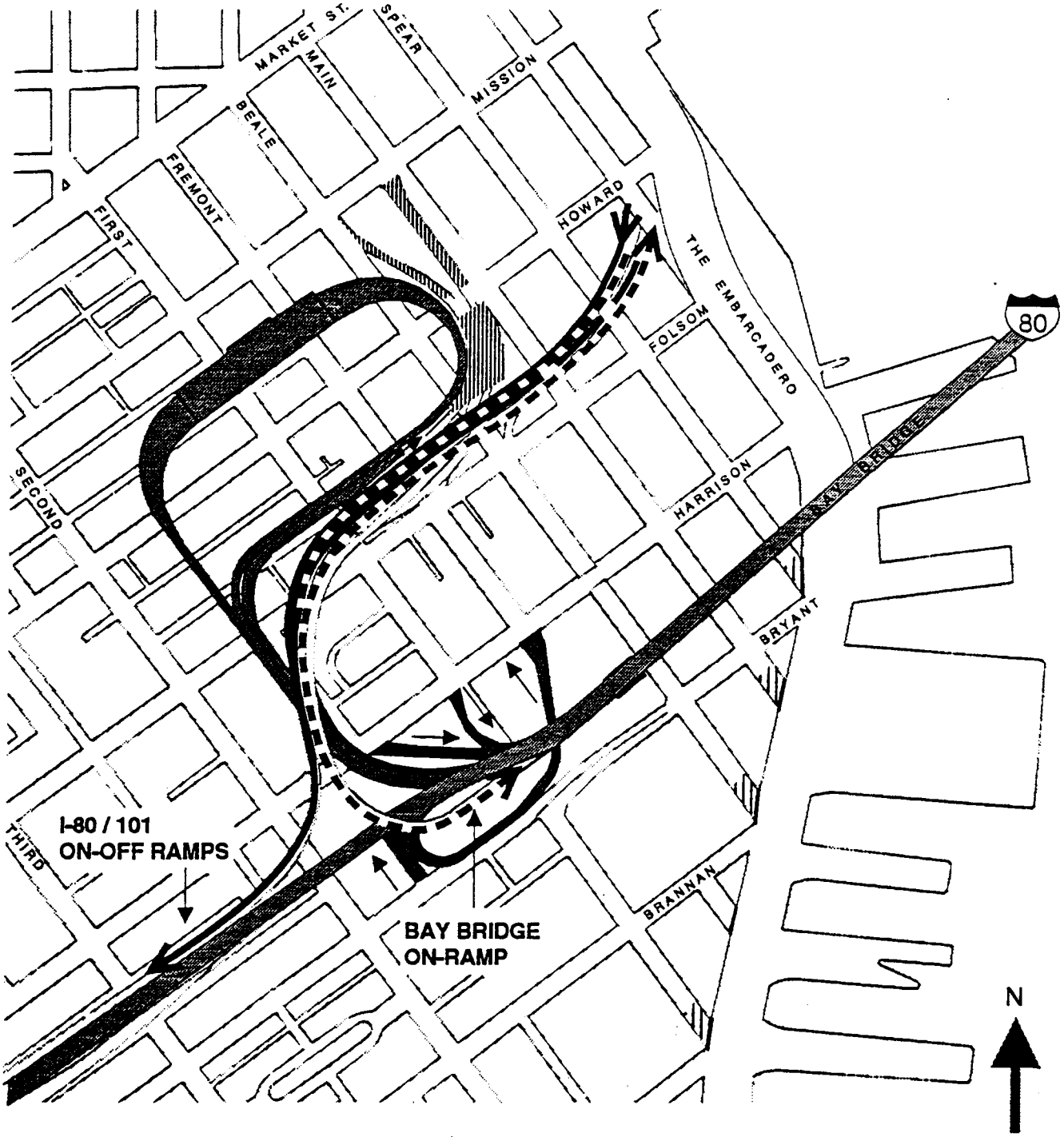


***Figure 11***
***TERMINAL SEPARATOR STRUCTURE***

*ALTERNATIVE 1A*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*I-80/101 Reconstructed Ramps*

*Potential Land Opportunity Sites*

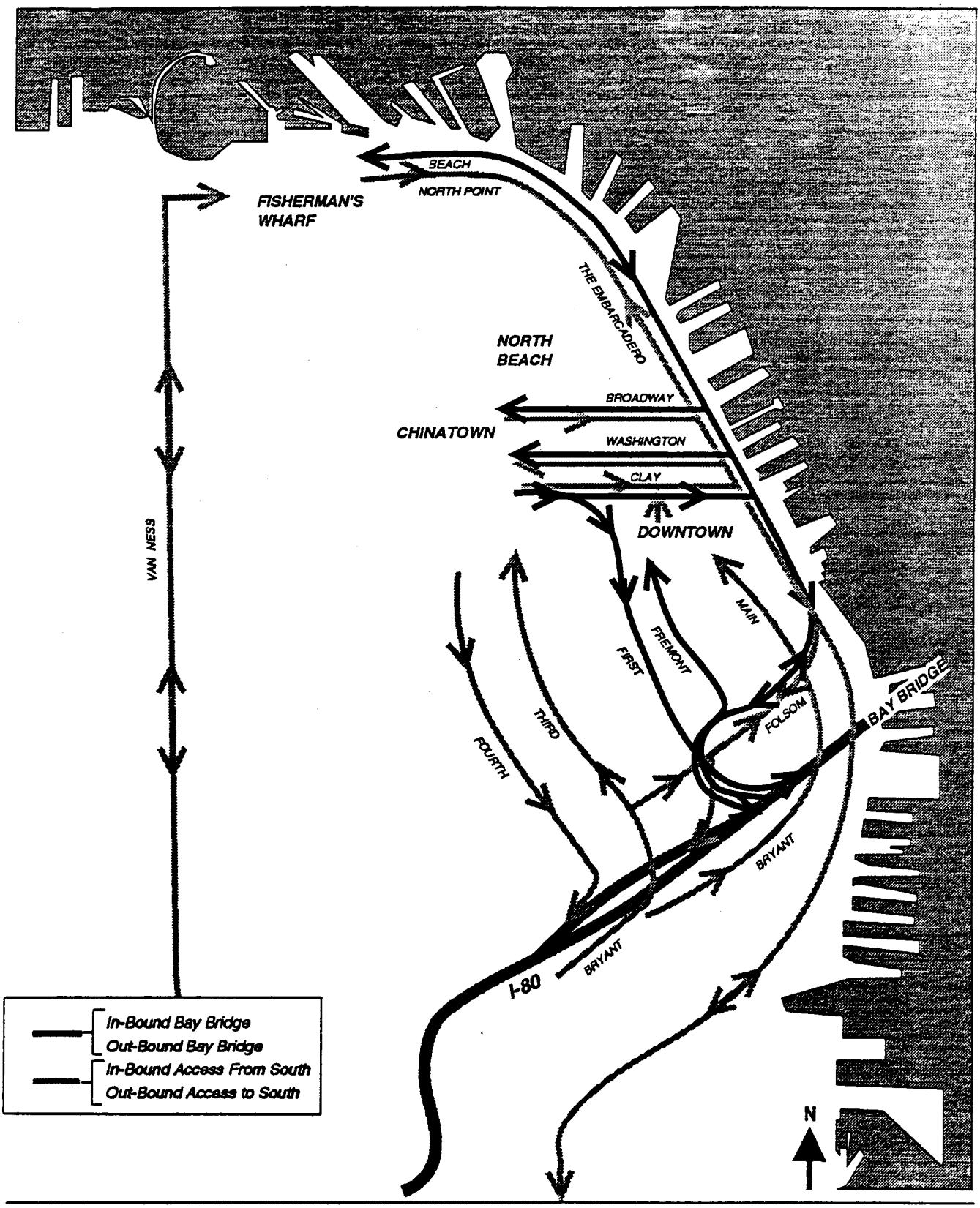


*Figure 12*
***ALTERNATIVE 1A CIRCULATION PATTERN***

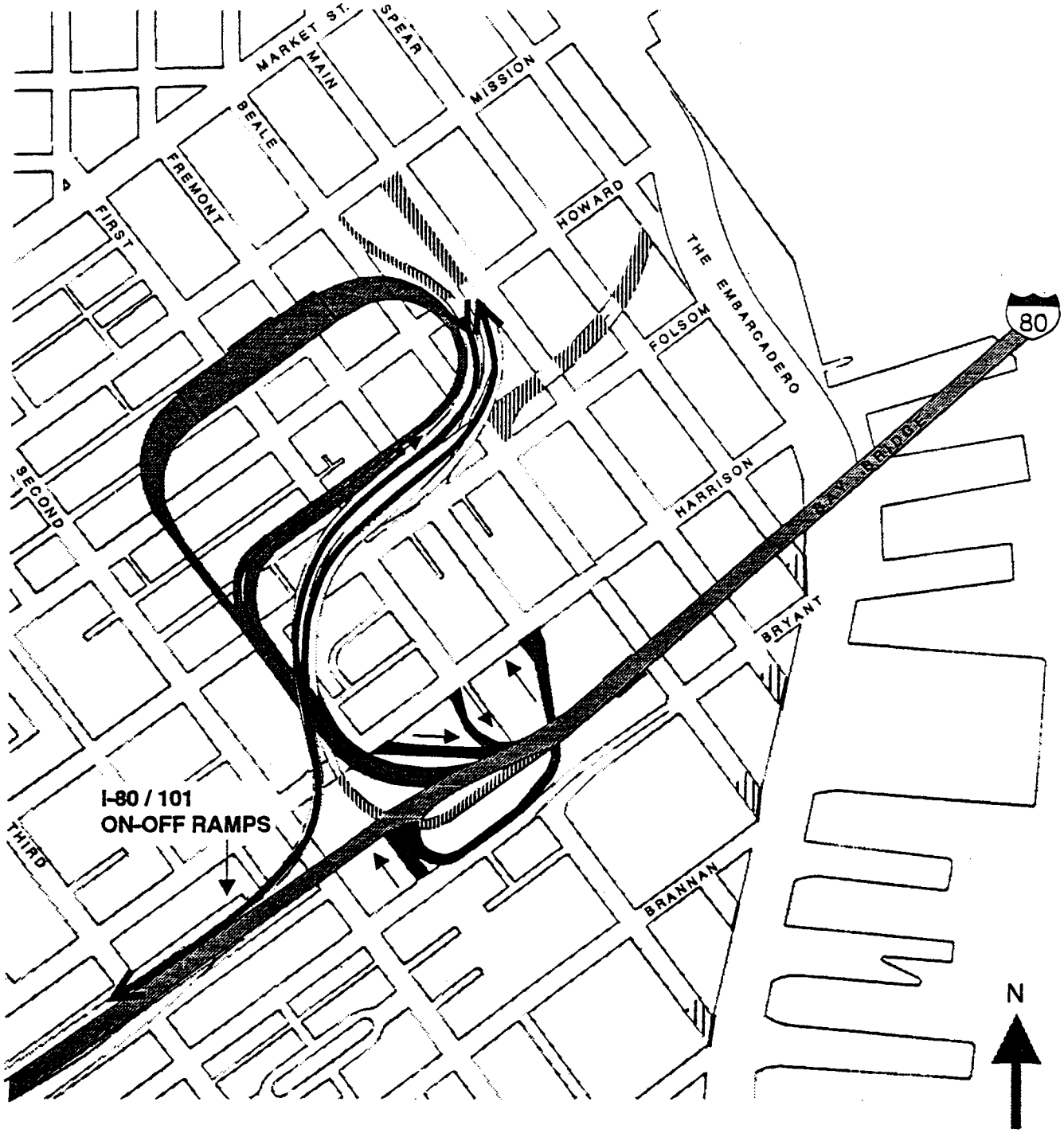


***Figure 13***
***TERMINAL SEPARATOR STRUCTURE***

*ALTERNATIVE 1B*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*I-80/101 Reconstructed Ramps*

*Potential Land Opportunity Sites*

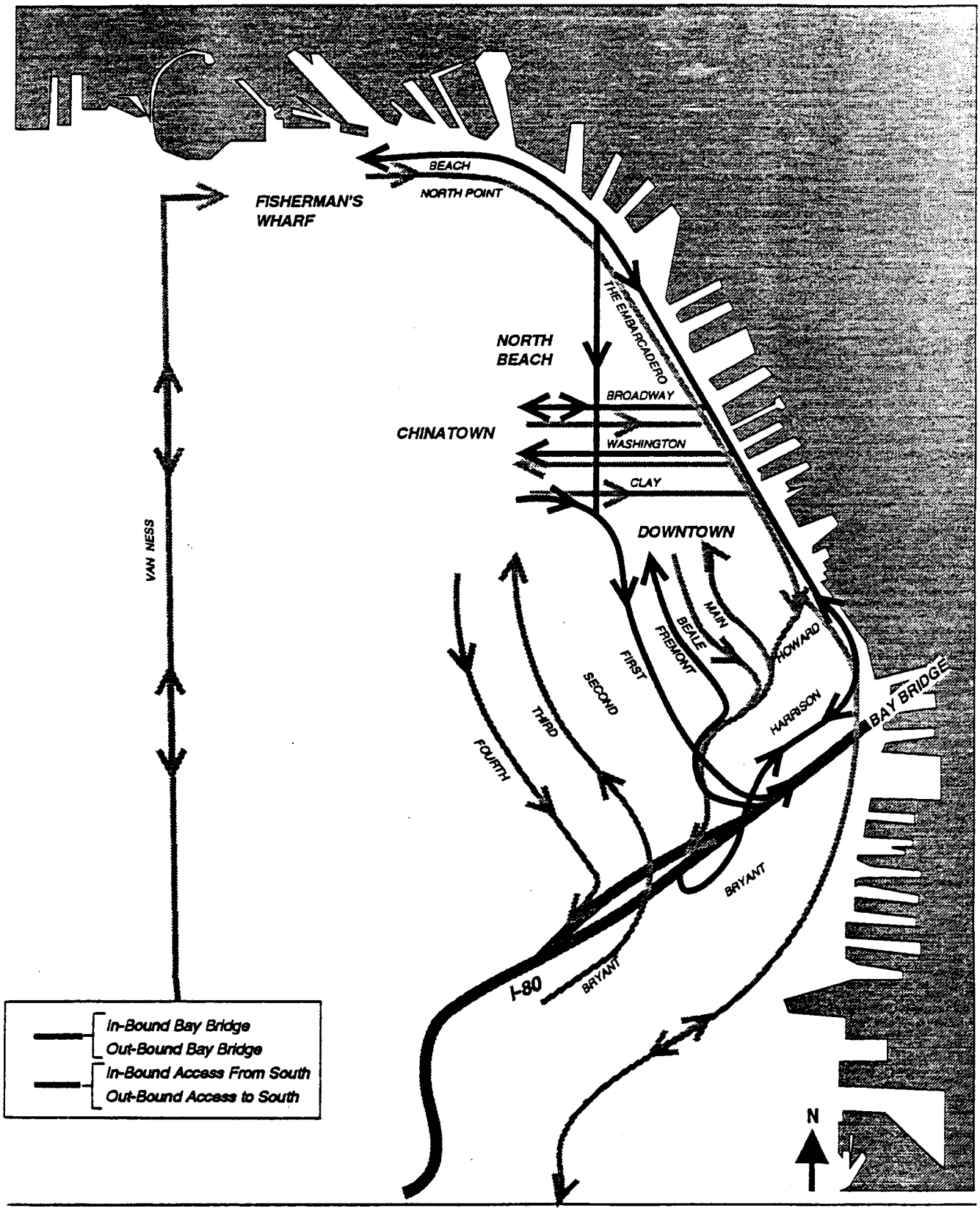


*Figure 14*
***ALTERNATIVE 1B CIRCULATION PATTERN***

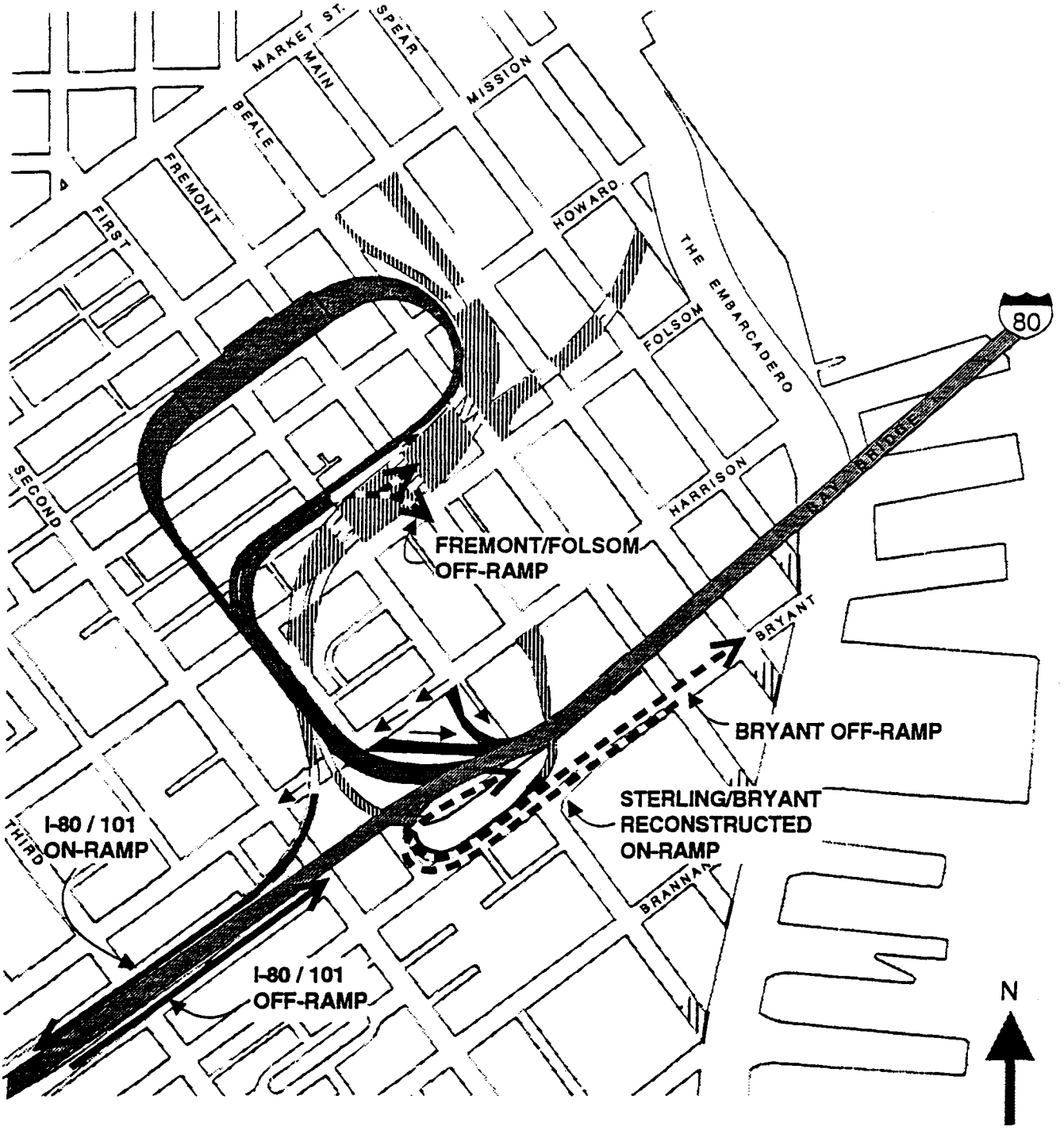


***Figure 15***
***TERMINAL SEPARATOR STRUCTURE***

*ALTERNATIVE 2*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*I-80/101 Reconstructed Ramps*

*Potential Land Opportunity Sites*

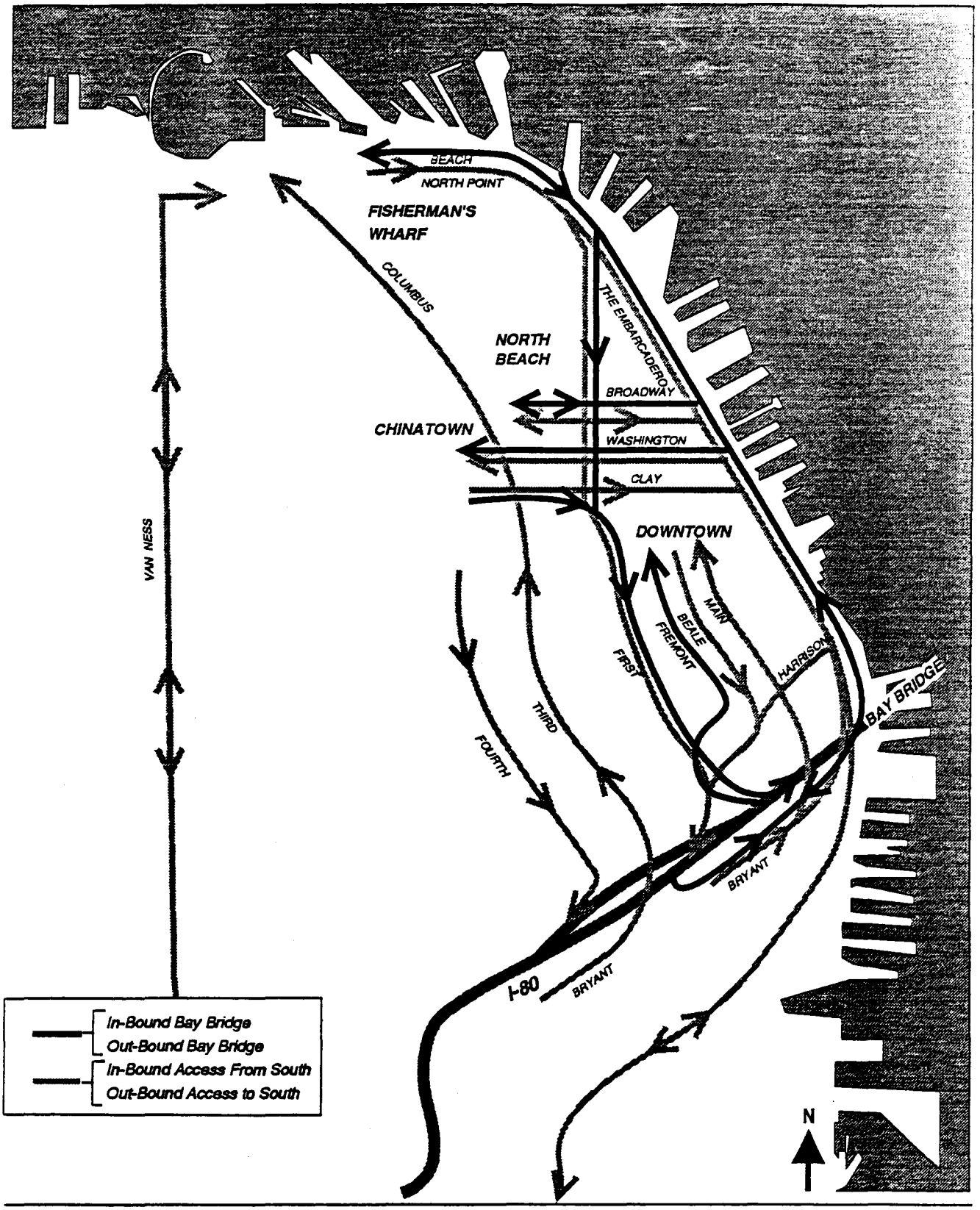


***Figure 16***
***ALTERNATIVE 2 CIRCULATION PATTERN***

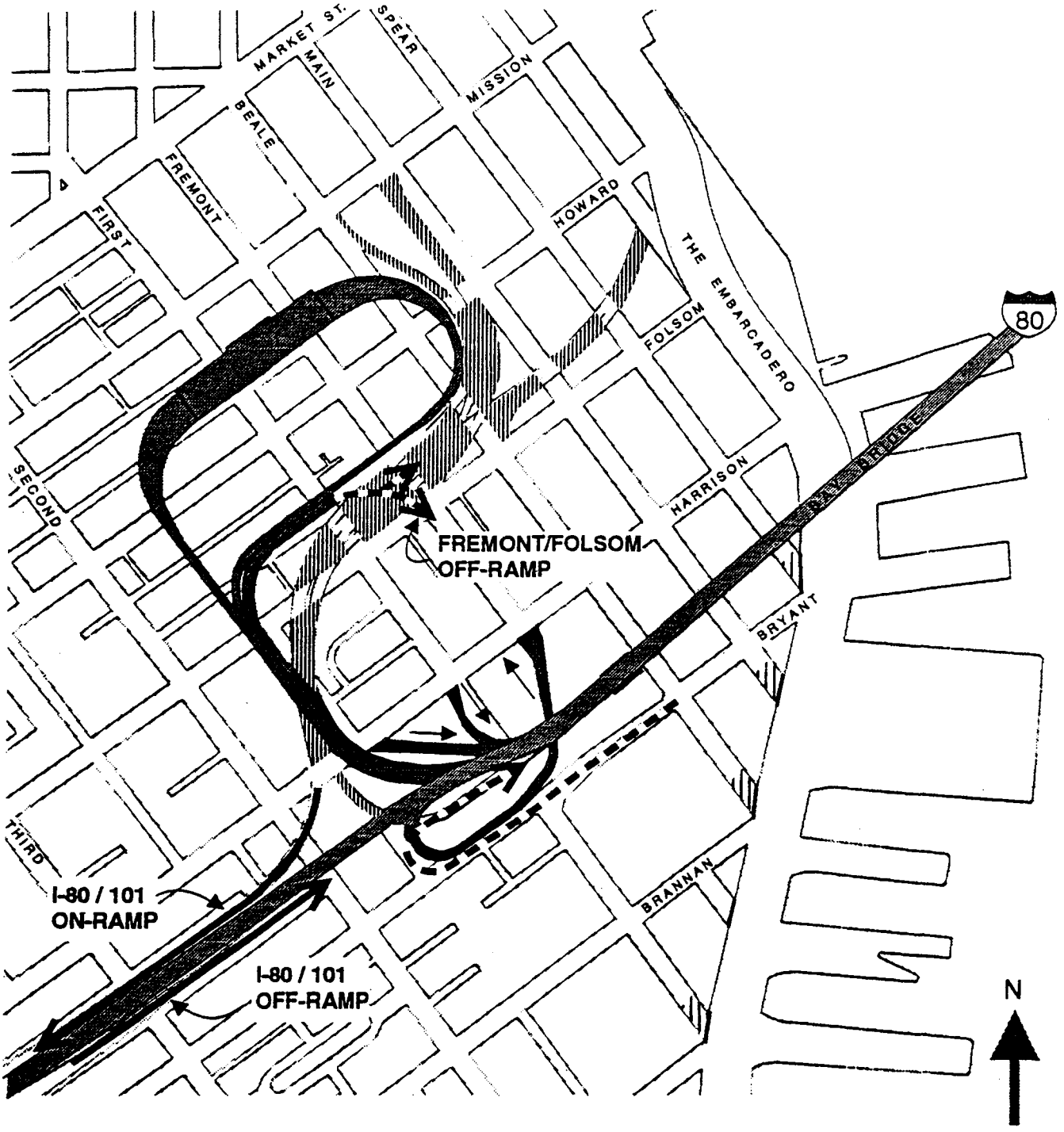


*Figure 17*
*TERMINAL SEPARATOR STRUCTURE*

*ALTERNATIVE 2A*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*I-80/101 Reconstructed Ramps*

*Potential Land Opportunity Sites*

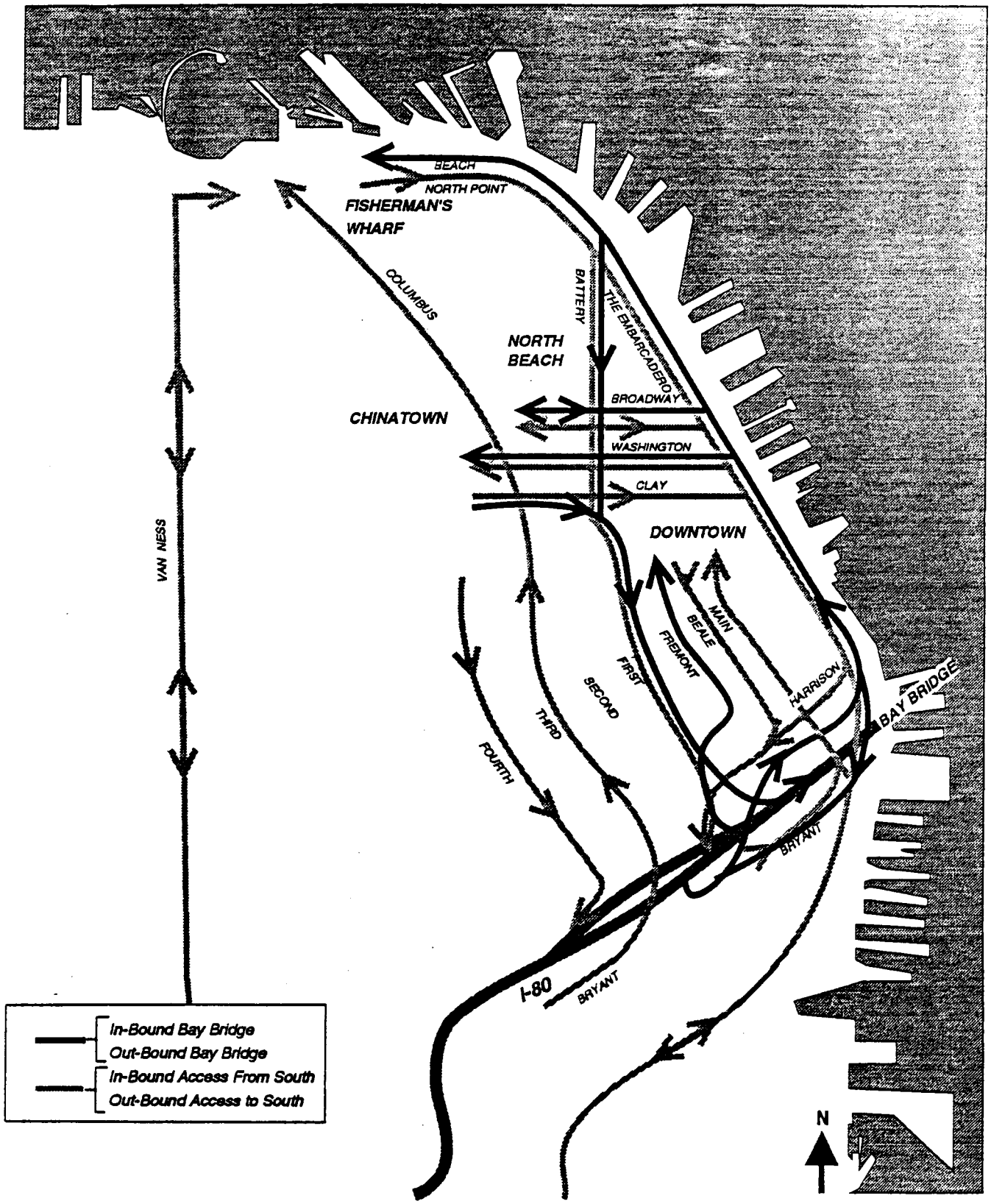


*Figure 18*
***ALTERNATIVE 2A CIRCULATION PATTERN***

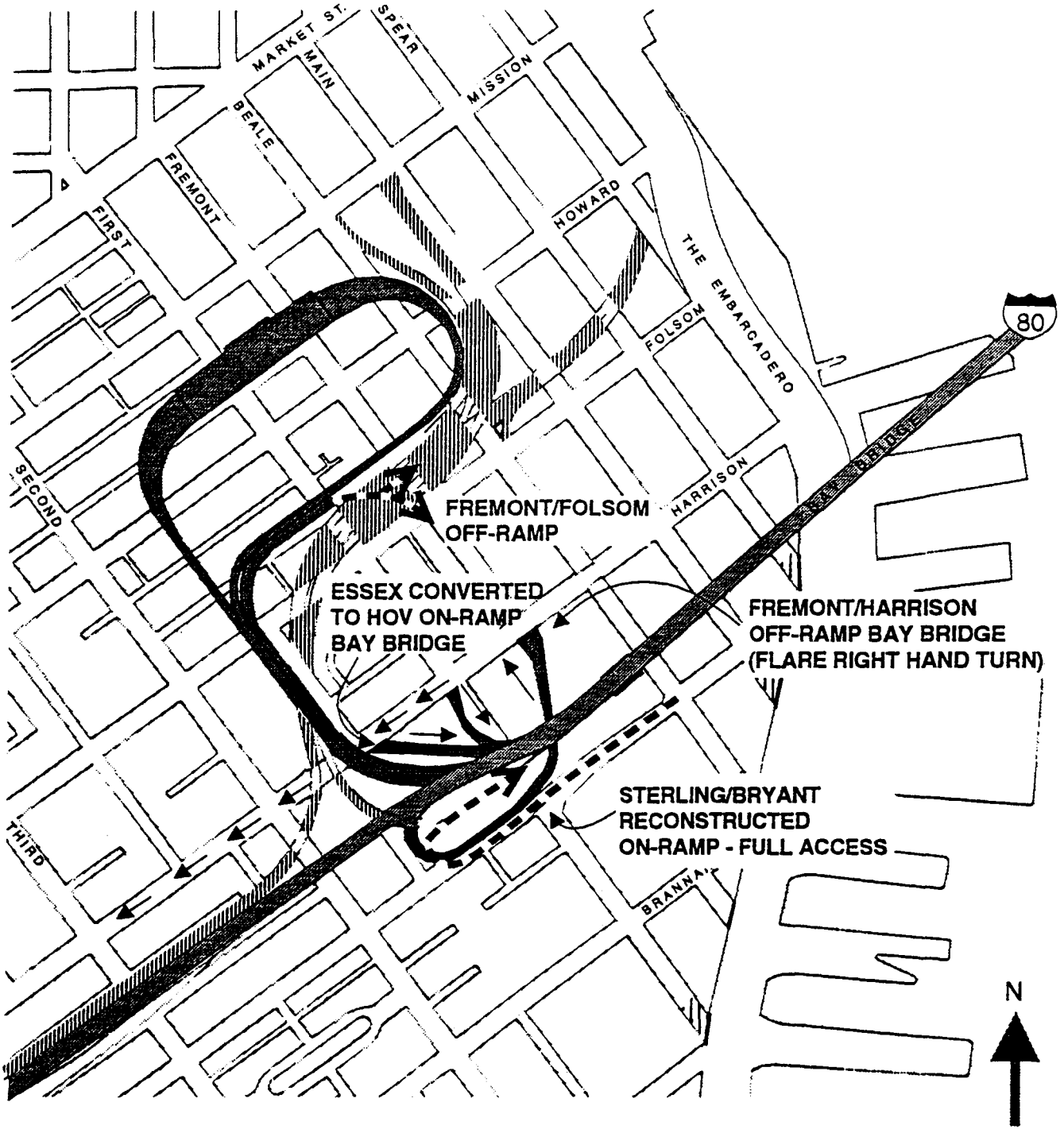


*Figure 19*
*TERMINAL SEPARATOR STRUCTURE*

*ALTERNATIVE 3*

*Existing Transbay Terminal and Traffic Ramps to Remain*

*Bay Bridge Reconstructed Ramps*

*Potential Land Opportunity Sites*

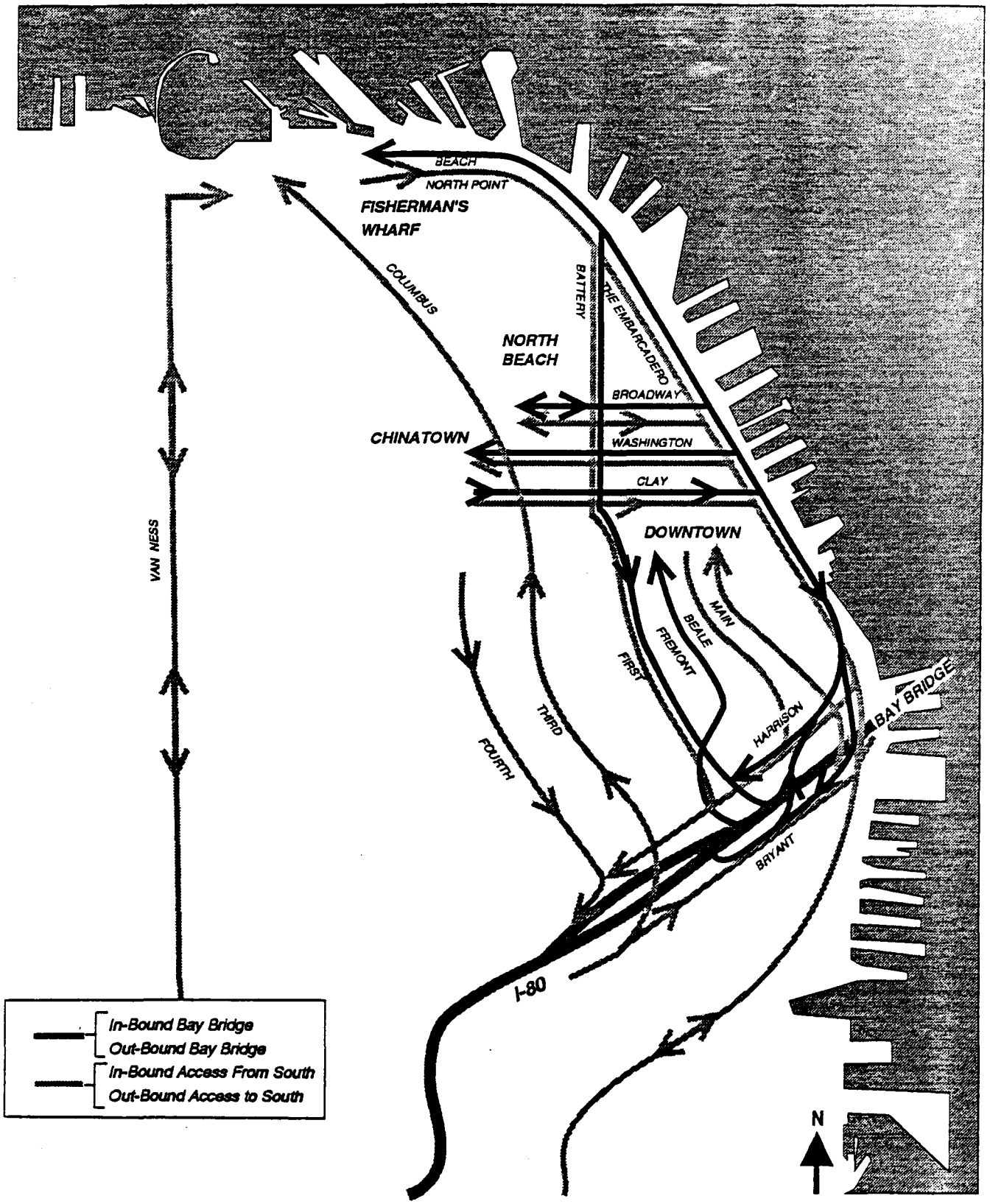


*Figure 20*
*ALTERNATIVE 3 CIRCULATION PATTERN*

**Traffic Operations Objectives:**

1. Improve access to the Bay Bridge for eastbound traffic, to I-80 for westbound traffic, and to and from US 101 for southbound traffic;
2. Provide adequate storage for queuing traffic;
3. Improve traffic conditions on city streets;
4. Provide a clear connection to the waterfront;
5. Provide alternative access to the downtown, and;
6. Segregate traffic by destination.

**Pedestrian/Transit Objectives:**

1. Separate traffic and transit;
2. Minimize pedestrian/traffic conflicts, and;
3. Integrate with existing and planned MUNI services.

**Construction-Related Objectives:**

1. Be free from "fatal flaws," i.e., substandard grades, need for street closures, taking of developed right-of-way, et. al.;
2. Be able to build a cost-effective solution within the estimated funding;
3. Be completed within a reasonable time frame;
4. Require a minimal level of environmental review, so far as possible;
5. Avoid any special problems in building.

**Land Use Opportunity Objectives:**

1. Open up land for new development, while maintaining mobility objectives, and;
2. Minimize negative impacts on other land uses.

Following the analysis of each alternative, it became apparent that no one proposal satisfies every objective. In some cases, because of a lack of detailed information, some alternatives could not be assessed for meeting objectives.

**Evaluation of Alternatives**

Following is an evaluation of each of the above alternatives as to how they meet the stated objectives for the Terminal Separator Structure project. Included in the discussion are those factors that may constrain the construction of the alternative. Except for the Caltrans Alternative, additional analysis would be required to more firmly establish the viability of the alternatives.

CALTRANS REPLACEMENT ALTERNATIVE

Traffic Operations: The Caltrans project improves access to/from the Bay Bridge, westbound I-80 and southbound US 101. Some peak hour queues are removed from city streets and put on elevated structure. Traffic pressures are eased on Third and Fourth Streets and, to a lesser

extent, First and Fremont Streets. Provision for a direct connection to the Embarcadero is made at Bent 57. Travel times to/from the Bay Bridge are modestly improved.

The rebuilt on-ramp to westbound I-80 will have a detrimental effect on the westbound freeway operation. The impact on eastbound traffic will be negligible. Local street operation may be worsened by the merging of the First/Essex Street on-ramps into a single lane. The direct connection to The Embarcadero may necessitate that four lanes of traffic be provided on this section of the waterfront roadway.

Pedestrian/Transit Issues: The replacement on and off-ramps on Mission Street at Main and Beale will conflict with MUNI operations in this major transit corridor. Pedestrian conflicts will return to this location and will be compounded along The Embarcadero.

Construction-Related Issues: Construction costs are currently estimated at $86 million. This alternative is free of major constraints, although ramps have grades approaching 8 percent. Some minor right-of-way purchases for column footings would be necessary. These are expected to be certified, without problem, prior to the start of construction. Because this alternative is a direct replacement in character and capacity for the facility damaged in the 1989 Loma Prieta Earthquake, it is both Categorically Exempt under California Environmental Quality Act (CEQA) and has Categorical Exclusion under National Environmental Policy Act (NEPA). Construction could begin in 1994 and be completed by 1996 up to Bent 57. The direct connection to the Embarcadero would be available at the completion of the Mid-Embarcadero Project in 1998 - 2000.

Land Use Opportunities: The Caltrans project offers no land use development opportunities.

NO BUILD ALTERNATIVE

Traffic Operations: There will be no disruptions for traffic from construction. Motorists will continue using traffic patterns that they have used since the 1989 Loma Prieta Earthquake.

The No Build Alternative does nothing to solve existing congestion problems. There is no integration into plans for the new Mid-Embarcadero Project.

Pedestrian/Transit Issues: The No Build Alternative does nothing to improve or worsen existing pedestrian/transit conditions.

Construction-Related Impacts: Cost of this alternative is currently estimated at $5 million to cover "clean-up contract" costs which are covered in the other alternative costs. There are no construction-related problems with this alternative.

Land Use Opportunities: Doing nothing will provide the maximum 10.8 acres of land for development opportunities.

ALTERNATIVE 1

Traffic Operations: This alternative improves access to eastbound Bay Bridge, westbound I-80 and southbound US 101. It, too, puts more queuing traffic on structure, relieves pressure on Fourth Street and modestly improves travel times to/from the Bay Bridge. Since the on/off ramps are relocated to Howard Street, existing Mission Street traffic will not be affected unless queues extend back a block from the Howard on-ramp. Main Street also becomes a more attractive alternative access route to the downtown area.

Like the Caltrans proposal, Alternative 1 has a detrimental impact on westbound freeway traffic. In addition, since only one set of ramps will be feeding eastbound I-80, not enough traffic may be carried to justify the separate mainline merging lanes. The Caltrans alternative, by contrast, has two sets of ramps feeding these merging lanes. The mid-block Howard Street on-ramp creates a possible traffic conflict, and the close proximity of the on/off ramps on Howard Street may also cause operational problems at nearby intersections. Traffic on city streets near First and Essex Streets may worsen because these two on-ramps will be merged at their entrance to the Bay Bridge.

Pedestrian/Transit Issues: The new ramps on Howard Street at Main and Beale will impact the MUNI 1-California and 41-Union electric trolley bus lines. These buses currently operate via Davis, Main, Howard and Beale Streets. A terminal is located on Howard Street, with another proposed at Beale. Relocation of one or both terminals may be necessary.

Construction-Related Issues: The estimated cost for Alternative 1 is $81 million. It appears that the Howard Street ramps can only be constructed with a grade of 9 percent. Only after more detailed studies are completed can the gradient issue be resolved. This alternative may require partial or full closure or depression of Beale Street to address the grade issues. No right-of-way acquisition is required. Since this is not a direct replacement of the Terminal Separator Structure, environmental studies would be needed. The project could take until 2000 to complete construction.

Land Use Opportunities: Because the land between Main/Beale and Mission and Howard is freed, as is the land under the Mid-Embarcadero connection, some 3.8 acres are available for development opportunities.

ALTERNATIVE 1A

Traffic Operations: This alternative, like the other two previously discussed, improves access to/from the Bay Bridge, westbound I-80 and southbound US 101. More queueing is again handled by overhead freeway structure; Third and Fourth Street traffic is eased because more direct freeway access is provided to and from the south; and travel time is modestly improved from the Bay Bridge.

Under Alternative 1A, no downtown access via Main/Beale Streets is provided. On Steuart Street, the connection to the Mid-Embarcadero, the mid-block ramps may introduce traffic conflicts. Operational difficulties may also be caused by the close proximity of the on/off-ramps on Steuart. The single ramp from Steuart onto I-80 may not carry enough traffic to justify separate merging

lanes, either in the eastbound or westbound directions. Traffic demand on The Embarcadero will be increased, perhaps necessitating a 4-lane section on the Mid-Embarcadero roadway. No alternative access routes are provided to the downtown.

Pedestrian/Transit Issues: Pedestrian/traffic conflicts would be compounded on The Embarcadero.

Construction-Related Issues: Alternative 1A is estimated to cost $81 million. No special problems in constructing this alternative are apparent. Since it is not a direct replacement for the Terminal Separator Structure in character and capacity, environmental studies would be needed. Completion of the project could take until 2000.

Land Use Opportunities: This alternative frees 1.4 acres of land for development.

ALTERNATIVE 1B

Traffic Operations: Very similar to Alternative 1 but without the flyover connection to the Bay Bridge, this proposal improves access to and from westbound I-80 and southbound US 101 because it provides the on/off-ramp system on Howard Street at Main and Beale. Traffic demand is reduced on Third and Fourth Streets since traffic to/from the south has the new ramp options at Howard. Main Street becomes an alternative access route to the downtown and Financial District areas. No modifications will be needed to the existing lane configurations at the First/Essex on-ramps.

The disadvantages are that Alternative 1B will negatively impact westbound freeway traffic operations; provides no direct access to the waterfront; possibly creates problems on Howard Street due to mid-block ramps and the close proximity of the ramps to each other; and provides a single set of ramps serving only one direction of I-80 and probably not carrying enough traffic to justify its cost or construction.

Pedestrian/Transit Issues: Like Alternative 1, this proposal necessitates the relocation of the bus terminals used by the 1-California and 41-Union buses. Because no eastbound Bay Bridge movement is provided, in comparison to the Caltrans Alternative, Alternative 1, and Alternative 1A, traffic headed for the East Bay is shifted from Beale Street to First Street, worsening congestion for transit and other traffic.

Construction-Related Issues: The cost of building Alternative 1B is estimated at $62 million. The ramp system at Howard Street appears to exceed the 8 percent grade requirement. Street closures or the regrading of Beale Street would have to be considered to accommodate this set of ramps. No right-of-way acquisitions are required. Since this is not a direct replacement for the Terminal Separator Structure in character or capacity, environmental studies would be necessary. The project could potentially be completed by 1999 or 2000.

Land Use Opportunities: Alternative 1B is very similar to Alternative 1 in terms of land use opportunities. About 3.8 acres are freed for development.

ALTERNATIVE 2

Traffic Operations: The new and/or revised ramps at Second Street, Sterling Street, Bryant Street and Fremont/Folsom Streets offer several new access options for traffic moving to/from the Bay Bridge, I-80 and US 101. The new off-ramp south of the Bridge offers a new waterfront connection, although its terminus would not fall within the current project limits for the Mid-Embarcadero Project. Since motorists would use Bryant Street to reach the re-built Sterling Street on-ramp, Harrison Street would be relieved of some East Bay bound traffic. The rebuilt Sterling Street on-ramp will relieve congestion on First Street by allowing cars to queue on Beale Street as well as First Street. However, the new Second Street on-ramp will put more traffic on Harrison, especially from the waterfront to Second Street. The advantage of the reconstructed Fremont/Folsom off-ramp is that direct access will be provided to Folsom Street. Folsom can then be taken to the waterfront. Presently traffic must use the Main/Embarcadero exit to Fremont and travel north from the Fremont/Harrison Intersection one block to Folsom.

Similar to the other alternatives discussed so far, Alternative 2 will have a detrimental impact on westbound freeway operation because it provides additional on-ramp capacity into an area already congested by a downstream bottleneck at Hospital Curve.

Unique to Alternative 2 are several other potential traffic problems, including the potential that The Embarcadero, which will have two lanes in each direction south of Folsom, may overload between Bryant and Folsom Streets as westbound traffic tries to reach Harrison and eastbound traffic tries to reach Bryant Street.

As currently proposed, the direction of traffic at the terminus for the new off-ramp paralleling Bryant Street is unconventional. The ramp has traffic exiting in the opposite direction of the traffic traveling on Bryant Street. This may be confusing for motorists.

The reconfigured off-ramp to Fremont/Folsom could present driver safety problems. The combined off-ramp, as proposed, has a steep downgrade that would reduce a driver's decision time in determining which direction to take, leading to confusion and compromising safety.

The new ramps at Second Street will have to be designed so that traffic entering eastbound I-80 from the Fifth Street on-ramp will not be able to cross travel lanes to exit at Second Street to alleviate safety concerns. The construction of an auxiliary lane between the merge of the TSS and the 4th Street on-ramp could add ramp capacity for the freeway at this location. This proposal needs further study.

Pedestrian/Transit Issues: By shifting a substantial amount of East Bay traffic to Bryant Street, this alternative may create congestion affecting both the 42-Downtown Loop and the 80X bus operations between Second and Main Streets. On First Street, existing congestion for transit/automobiles will remain since no ramps are proposed for freeway traffic from the immediate South of Market Street area. A new MUNI Metro line along The Embarcadero might be adversely impacted by the heavy traffic shifts to Bryant Street. Pedestrian conflicts with increased traffic may also be introduced along the southern Embarcadero.

Construction-Related Issues: Alternative 2 has some major construction issues. The replacement for the Main/Embarcadero off-ramp is proposed to be built on a structure with a grade likely to

exceed 8 percent. To compensate for grade problems, Beale Street might have to be fully or partially closed at Bryant Street. In addition, a privately-owned, undeveloped parcel would have to be acquired north of Bryant Street to accommodate this ramp.

The proposed rebuilding of the Sterling Street on-ramp will require the relocation of several columns on the existing Main/Embarcadero off-ramp. This structure is listed in the National Register as a structure of historical significance. While not an insurmountable problem in itself, perhaps, this must be viewed as a potentially time-consuming hurdle. The new Sterling Street on-ramp also appears to require a curve radius less than the standard 425 feet. A variation of this alternative would be to leave the Sterling Street ramp as currently configured. This approach also has potential capacity benefits.

The Second Street off-ramp will require the sliver widening on the Bay Bridge approach structure, creating potential traffic operation problems during construction and possible structural problems for the existing viaduct. Stillman Street, which is parallel to the proposed off-ramp at Second Street, will likely have to be narrowed to accommodate the new freeway ramp. Access to existing buildings could be affected. Adding an auxiliary lane between the TSS on-ramp and the 4th Street on-ramp could also present construction problems for the mainline freeway if such a variant is pursued.

Finally, to construct the new Fremont/Folsom off-ramp, the existing ramp could temporarily be closed.

The cost of Alternative 2 is estimated at $36 million. Environmental studies would be required for this alternative. The total project could potentially be completed by 1998. These schedule and cost estimates do not however take into account the delays and costs associated with right-of-way acquisition.

Land Use Opportunities: Because it requires much less freeway structure, Alternative 2 frees up 9.5 acres for redevelopment. Another land use issue related to this proposal is the previously mentioned requirement that a private parcel be acquired for the new off-ramp south of the Bridge. In addition, neighborhood groups have expressed dissatisfaction with the proposed ramp system in the Bryant Street corridor, fearing negative impacts on existing residential land uses.

## ALTERNATIVE 2A

Traffic Operations: Similar to Alternative 2, but without a new East Bay off-ramp to Bryant/Main, Alternative 2A establishes access to/from I-80/US 101 at Second Street. Access to eastbound Bay Bridge is provided by the Sterling Street on-ramp re-configuration or could be provided via the current Sterling Street ramp for added overall ramp capacity. Since East Bay traffic will access the revised Sterling Street on-ramp by Bryant Street, some traffic should be diverted from Harrison Street. The rebuilt Sterling Street on-ramp will relieve congestion on First Street by allowing cars to queue on Beale Street as well as First Street. The new on-ramp at Second/Harrison may shift more South Bay traffic to Harrison, however, somewhat negating the positive impact provided by Bryant Street.

This alternative improves access to the waterfront via the new Folsom Street connection. Ramp capacity improvements could be made at the I-80/US101 on-ramp if an auxiliary lane is added between the TSS on-ramp and the 4th Street on-ramp. As noted previously, this variation would require additional study. The potential operational problems for the ramps at Second Street, described under Alternative 2, are applicable to this alternative, too.

More traffic queuing will occur on city streets.

Pedestrian/Transit Issues: Because this alternative offers an alternative access to the Bay Bridge by the rebuilt Bryant Street/Sterling Street on-ramp, some traffic congestion may be reduce on First Street Any net addition of traffic to The Embarcadero at Folsom or to the south could affect transit operations.

Construction-Related Issues: Alternative 2A is estimated to cost about $25 million. Like Alternative 2, there are a number of construction-related issues that have to be resolved.

All questions relative to the Second Street ramps, discussed under Alternative 2, apply to this proposal, too. The re-building of the Sterling Street on-ramp requires that bridge columns be relocated and that a standard 425 foot curve radius be achieved. To accomplish the latter, access to properties on Sterling Street might be affected, which is a right-of-way concern. (This alternative could be accomplished without this reconstruction with a potential benefit in freeway ramp capacity.)

Environmental studies will be necessary if this proposal were to be pursued. The project could be expected to be completed by 1998 or 1999.

Land Use Opportunities: Alternative 2A offers 8.9 acres of land for development.

ALTERNATIVE 3

Traffic Operations: This alternative provides new city street queueing routes, particularly on Harrison Street as it approaches the Fourth Street on-ramp. The revised Sterling Street on-ramp should alleviate some congestion on Harrison Street and on First Streets. The new on-ramp at Sterling would have a separate eastbound Bridge merge lane (or could be left as it is with increased ramp capacity benefits).

This alternative provides improved access to the waterfront via the new Folsom Street connection to The Embarcadero. At the Essex Street and First Street ramps, which will revert to pre-earthquake conditions if the Sterling Street ramp were redesigned, congestion may worsen an city streets. Southbound traffic, without any new access, would have to rely heavily on the proposed King Street/I-280 improvements.

Pedestrian/Transit Issues: Alternative 3 offers some traffic relief on First Street since it provides an alternate route to the Bay Bridge. Alternative 3 also fails to offer traffic relief to Third and Fourth Streets because no direct freeway access for the downtown core is provided to and from south on I-80/US 101. Existing transit operations on each of these streets will see little or no

improvement under this proposal. Any net addition of traffic to The Embarcadero at Folsom or to the south could affect transit operations.

Construction-Related Issues: Alternative 3, at $14 million estimated cost, is the least expensive of all alternatives. No street closures are needed, nor are grade problems with city streets apparent.

The chief construction issue is the proposed Sterling Street on-ramp. As in Alternatives 2 and 2A, bridge columns would have to be relocated, a substandard turning radius might have to be addressed, and access to properties on Sterling Street might be affected. (This alternative could be accomplished without this reconstruction with potential increased ramp capacity benefits.)

Environmental studies would be required for this proposal. Project completion could be expected by approximately 1998.

Land Use Opportunities: Alternative 3 frees 10.8 acres for development, the maximum amount of land available.

**Summary of Traffic Implications of Alternatives**

None of the alternatives, including the Caltrans alternative, would fully restore traffic circulation patterns to what they were before the Loma Prieta earthquake. The traffic analysis has been separated into two components:

- freeway ramp capacities;
- routings to and from the freeway network.

Freeway ramp capacities

Table 6 shows that only the Caltrans alternative would reestablish freeway ramp capacities equal to pre-earthquake. Alternative 3 would be most deficient among the alternatives both for on- and off-ramp capacity. Each of the other alternatives would have 80-82 percent of the off-ramp capacity which existed before the earthquake. There is considerable variability between the alternatives regarding the capacity of on-ramps. Alternatives 1B and 2A have the greatest on-ramp capacity.

Two factors are most crucial in determining the capacity of the on-ramps:

- whether or not the two merge lanes from First and Essex at the eastbound Bay Bridge approach are retained;
- whether a westbound widening of I-80 between the Terminal Separator Structure and the Fourth Street on-ramp is considered.

Retention of the existing two merge lanes at the eastbound Bay Bridge approach would result in more efficient merging than would restoration of the pre-earthquake situation which had one lane for First and Essex on the north side of I-80 and one lane for the flyover lane on the south side of I-80. This is why Alternative 1B has greater ramp capacity than Alternatives 1 or 1A or the Caltrans Alternative. Variants of Alternatives 2A and 3 which do not include modifications to the

TABLE 6
FREEWAY RAMP CAPACITY COMPARISONS FOR TERMINAL SEPARATOR ALTERNATIVES

| FREEWAY RAMP ALTERNATIVE | ON-RAMPS (a) | | OFF-RAMPS | |
|---|---|---|---|---|
| | CAPACITY (VPH) | PERCENT OF PRE-EARTHQUAKE | CAPACITY (VPH) | PERCENT OF PRE-EARTHQUAKE |
| PRE-EARTHQUAKE | 4,600 | 100 % | 7,800 | 100 % |
| EXISTING (1993) | 3,700 | 80 % | 4,000 | 51 % |
| TERMINAL SEPARATOR STRUCTURE ALTERNATIVES | | | | |
| CALTRANS ALTERNATIVE | 4,600 | 100 % | 7,800 | 100 % |
| ALTERNATIVE 1 | 3,800-4,300 | 83-93 % | 6,400 | 82 % |
| ALTERNATIVE 1A | 4,100-4,600 | 89-100 % | 6,200 | 80 % |
| ALTERNATIVE 1B | 4,400-4,900 | 96-107 % | 6,400 | 82 % |
| ALTERNATIVE 2 | 3,900-4,900 | 85-107 % | 6,300 | 81 % |
| ALTERNATIVE 2A | 4,400-4,900 | 96-107 % | 6,300 | 81 % |
| ALTERNATIVE 3 | 3,200-3,700 | 70-80 % | 5,200 | 67 % |

Notes

(a) The range in on-ramp capacity relates to two variations: 1) An auxiliary lane add between the TSS on-ramp to I-80/US 101 and the 4th Street on-ramp could potentially increase capacity by 500 vehicles (this variation is subject to further analysis) and 2) retention of the current Sterling Street ramp configuration could potentially increase ramp capacity by 500 vehicles.

Sterling Street ramp would also provide more on-ramp capacity than would creation of a dedicated merge lane from this ramp.

A brief widening of westbound I-80 between the Terminal Separator Structure and the Fourth Street on-ramp has the potential to improve merging efficiency. This improvement could be constructed with all alternatives except Alternative 3 which does not restore a downtown ramp for the South Bay.

Routings for freeway access

Table 7 summarizes freeway routing patterns. The Caltrans Alternative and Alternative 1A would each redirect traffic towards The Embarcadero and provide fairly direct access for traffic destined to Chinatown, North Beach, and Fisherman's Wharf. Alternative 1A would also direct traffic to The Embarcadero that was destined to the financial district, particularly from the South Bay.

Alternatives 1 and 1B focus traffic towards the Howard Street intersections with Main and Beale. Routings would split, with downtown traffic using Main and Beale and Chinatown, North Beach, and Fisherman's Wharf traffic using Howard to reach The Embarcadero. Considerable potential for congestion would exist at these Howard Street intersections as traffic travelling to and from different destinations converged.

Alternative 2 provides access to The Embarcadero as well as Chinatown, North Beach, and Fisherman's Wharf from the East Bay via either Bryant or Folsom to reach The Embarcadero. South Bay routings for North Beach and Fisherman's Wharf would similarly use either Bryant or Folsom. South Bay access for Chinatown would appear to be more direct via Third/Kearny and Fourth/Stockton.

As presently configured, the proposed new South Bay on- and off-ramps on Second Street between Harrison and Bryant for both Alternatives 2 and 2A do not provide well-defined paths to and from the financial district which avoid overlapping use of Fremont and First Streets with East Bay traffic.

Alternatives 2A and 3 have similar routings for North Beach and Fisherman's Wharf access which use Folsom, Harrison, or Bryant to reach The Embarcadero. Chinatown access from the East Bay would also use Folsom to reach The Embarcadero, while South Bay traffic would likely use Third/Kearny and Fourth/Stockton for Chinatown access. Alternative 3 would add no freeway access east of Fourth Street for the South Bay.

The Caltrans Alternative and Alternative 2A appear to provide paths to north of Market destinations which minimize overlapping routes between traffic destined to the financial district relative to Chinatown, North Beach, and Fisherman's Wharf. Each of these alternatives also provides some separation between inbound movements from the East Bay and the South Bay, but Alternative 2A does have overlapping use of Battery/First for outbound access.

## TABLE 7
## PRIMARY TRAVEL ROUTES FOR NORTH OF MARKET DESTINATIONS FOR TERMINAL SEPARATOR STRUCTURE ALTERNATIVES

| ALTERNATIVE | DOWNTOWN | CHINATOWN | NORTH BEACH | FISHERMAN'S WHARF |
|---|---|---|---|---|
| CALTRANS ALTERNATIVE | Main & Beale for East Bay & South Bay; Fremont & First for East Bay | Embarcadero for East Bay & South Bay | Embarcadero for East Bay & South Bay | Embarcadero for East Bay & South Bay |
| ALTERNATIVE 1 | Main & Beale for East Bay & South Bay; Fremont & First for East Bay | Howard to & from Embarcadero for East Bay & South Bay | Howard to & from Embarcadero for East Bay & South Bay | Howard to & from Embarcadero for East Bay & South Bay |
| ALTERNATIVE 1A | Fremont & First and Embarcadero for East Bay; Third & Fourth and Embarcadero for South Bay | Embarcadero for East Bay & South Bay | Embarcadero for East Bay & South Bay | Embarcadero for East Bay & South Bay |
| ALTERNATIVE 1B | Fremont & First for East Bay; Main & Beale for South Bay | Howard to & from Embarcadero for East Bay & South Bay | Howard to & from Embarcadero for East Bay & South Bay | Howard to & from Embarcadero for East Bay & South Bay |
| ALTERNATIVE 2 | Fremont & First for East Bay; Bryant or Folsom to Main inbound & First or Beale to Harrison outbound for South Bay | Bryant or Folsom to & from Embarcadero for East Bay; Third & Fourth for South Bay | Bryant or Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay | Bryant or Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay |
| ALTERNATIVE 2A | Fremont & First for East Bay; Bryant or Folsom to Main inbound & First or Beale to Harrison outbound for South Bay | Folsom to & from Embarcadero for East Bay; Third & Fourth for South Bay | Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay | Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay |
| ALTERNATIVE 3 | Fremont & First for East Bay; Third & Fourth for South Bay | Folsom to & from Embarcadero for East Bay; Third & Fourth for South Bay | Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay | Folsom for Embarcadero access or Fremont/Sansome & Battery/First for East Bay; Bryant or Folsom for Embarcadero access or Third/Kearny & Battery/Sansome for South Bay |

## TRANSBAY TERMINAL

### Process of Identifying Transit Needs

Following the Loma Prieta earthquake, the Office of State Architect (OSA) conducted studies for Caltrans to upgrade the Transbay Transit Terminal (TTT). The OSA study released in 1992 concluded that the TTT building needed substantial upgrades to meet current seismic and other fire/life/safety codes. The current estimated cost for the basic upgrades would be about $34 million. This basic upgrade, however, would not address long-term transit needs and goals of the Terminal.

In December of 1992, in a letter to James van Loben Sels, the Director of the California Department of Transportation, Frank Jordan, the Mayor of San Francisco, asked Caltrans to consider the removal of the Transbay Terminal and to replace it with a smaller facility that would be a more appropriately designed building to serve the functions of the Terminal. This request was made in light of the major capital cost faced by Caltrans to bring the building to seismic and code compliance.

In early 1993 Caltrans drafted a Request For Proposal (RFP) in which the City of San Francisco was requested to jointly participate to solicit interest in a joint real estate development of the property site of the Terminal.

In March of 1993, at the request of the City of San Francisco, Caltrans agreed to postpone proceeding with additional improvements to the TTT building to explore joint development opportunities for a new replacement facility for six months and to initiate a Transit Needs Study in conjunction with MTC and the City. Also in March of 1993, the Board of Supervisors, adopted a resolution calling for an exploration of alternatives to the TTT and agreed to report back to Caltrans by September 1, 1993.

Caltrans has been proceeding with the first phase of the improvements of the Transbay Terminal building which includes temporary replacement of the roof and seismic bracing and shear walls. Due to liability issues, these matters needed immediate attention and could not be delayed.

Starting in early 1993 Caltrans, MTC, the City, and transit operators started working on the Transit Study Needs of the Terminal. The study will provide input regarding the transit parameters into the RFP for a joint development proposal for the Transbay Terminal. In addition to the existing uses, the potential for rail extension projects that are likely to have a terminus at the TTT building are being considered.

By September 1, 1993, the City will have to develop a position and make a recommendation in regards to the future of the Terminal. The City's position will be advisory only; it will be up to Caltrans to decide whether to proceed or not with an RFP which reflects the City's position. The following question needs to be answered by the City in regards to the Transbay Terminal:

1. Should the City continue to work with Caltrans in identifying present and future transit needs, as well as, the potential for land use opportunities for the Transbay Transit Terminal?

## Summary of Existing and Future Bus and Rail Needs

Caltrans and MTC have collected most of the information regarding the existing transit functions of the Transbay Terminal. The following paragraphs summarize information available to date.

Existing conditions

Currently there are 13 commute, non-commute and tour bus operators using the Terminal building. In 1992 more than 31,000 passengers used the terminal and the streets around the terminal daily. Seven of the thirteen bus operators use the interior bus deck located at the upper level of the building for loading and unloading purposes and a passenger waiting area. The two areas to the north of the terminal, one at the mezzanine level known as the "hump" and one at the street level known as the "crescent", are on Caltrans property and are heavily used by MUNI and SamTrans. Natoma Street, under the City's jurisdiction, is to the south of the terminal and is used by some tour buses and, until recently, Amtrak. The streets around the terminal are used by various bus carriers who serve the Bay Area.

Table 8 on the following page shows the 1992 weekday transit ridership at and around the Transbay Terminal. AC Transit with 653 arrivals and departures on weekdays is the largest transit carrier using the Terminal building. S.F. Muni has the largest number of bus arrivals and departures using the crescent area, outside to the north of the Terminal.

Peak hour information was also received from the transit operators. This type of information is essential for the design of the terminal to determine maximum demand requirements. As Table 9 indicates, the peak bus volume in the a.m. peak hour for AC Transit is 102 and for the p.m. peak hour is 117 buses. Amtrak has temporarily moved its operation out of the Terminal and relocated to the Ferry Building.

The TTT building has three levels accessible to the public. Table 10 describes specific types of uses in terms of square feet occupied in the TTT. The interior bus deck occupies the entire upper level of the building. The mezzanine level of the Terminal is used for passenger waiting area, ticketing offices, restaurants, retail and other uses.

A large passenger waiting area is located at the ground level and space is shared with restaurants, ticketing offices and some other uses. Natoma Street is at the same level as this area and passengers leaving from Natoma Street or passengers arriving on Natoma Street use this area for waiting purposes.

The largest single use currently in the TTT is the common passenger waiting area which occupies about 216,000 square feet of space out of about 442,000 square feet of total space at the TTT building. This space is not currently heavily used by transit patrons. Homeless people are using this space as an unofficial shelter during the 24 hour daily operation of the building.

**TABLE 8**
**1992 WEEKDAY TRANSIT RIDERSHIP AT AND AROUND THE TRANSBAY TERMINAL**

| Transit Carrier | # of Bus Stops | # of Bus Lines | # of Arrivals & Departures | * # of Daily Passengers |
|---|---|---|---|---|
| INTERIOR BUS DECK | | | | |
| AC Transit | 23 | 33 | 653 | 13,000 |
| Golden Gate Transit | 4 | 6 | 275 | 600 |
| Greyhound | 13 | 1 | 86 | 2,500 |
| Caltrans Bike Shuttle | Shares w/ AC (1) | 1 | 7 | 50 |
| Amador/Mike Lee & Betty's | Shares w/ AC (1) | 1 | 12 | 90 |
| Gray Line (Tour) | Shares w/ AC (12) | 6 | 45 | 2,500 |
| Gray Line (Sac Commute) | 1 | 1 | 4 | 90 |
| SUBTOTAL | 41 | 49 | 1,082 | 18,830 |
| EXTERIOR HUMP AND CRESCENT | | | | |
| Sam Trans | 3 | 6 | 269 | 1,850 |
| SF MUNI | 3 | 4 | 1,003 | 5,850 |
| SUBTOTAL | 6 | 10 | 1,272 | 7,700 |
| On Mission, First Fremont, Howard & Natoma Streets ** | | | | |
| Amtrak | 3 | 1 | 24 | 1,000 |
| Green Tortoise *** | 1 | 1 | 2 | 70 |
| Golden Gate | 7 | 20 | 364 | 3,380 |
| Silverstar | 1 | 1 | 4 | 20 |
| Falcon | 1 | 1 | 2 | 10 |
| SUBTOTAL | 13 | 24 | 396 | 14,478 |
| Grand Total | 60 | 83 | 2,750 | 31,010 |

Source: Bus Operators

* Boardings and Alightings
** Buses that terminate, originate and lay over on the block immediately surrounding the Transbay Terminal, plus First and Fremont between Mission and Market
*** Fewer buses November through May

TABLE 9
PEAK BUS AND PASSENGER VOLUMES (MAJOR OPERATORS)

| | Grey-hound | AC Transit | Golden Gate | SamTrans | MUNI |
|---|---|---|---|---|---|
| peak hour (a.m.) | NA | 7:00-8:00 | 8:00-9:00 | 7:00-8:00 | 7:30-8:30 |
| peak hour (p.m.) | 5:00-6:00 | 5:00-6:00 | 4:30-5:30 | 4:30-5:30 | 4:30-5:30 |
| # buses (a.m.) | NA | 102 | 20 | 24 | 78 |
| # pass (a.m.) | NA | NA | 100 | 240 | 373 |
| # buses (p.m.) | 11 | 117 | 20 | 25 | 89 |
| # pass (p.m.) | 300 | NA | 100 | 250 | 430 |

NA Not Available
Source: SF Multi-Operator Downtown Bus Storage Feasibility Study,MUNI

# TABLE 10
# TRANSIT CARRIERS SPACE USE AT TTT AND AROUND THE TERMINAL (SQ.FT.)

| Type of Space | Greyhound | AC | Golden Gate | Sam Trans | MUNI | AMTRAK | AMADOR Mike Lee & Betty's | Gray Line Tours | Silver Star | Caltrans Bike Shuttle | Green Tortoise | Gray Line Sacramento | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticketing/Office/Storage/ Toilets/Misc. | 10,050 | 1,830 | N | N | N | *1,180* | 1,210 | 750 | 1,030 | N | N | N | 16,050 |
| Package Express Baggage Handling | 8,640 | N | N | N | N | *480* | N | N | N | N | N | N | 9,120 |
| Common Restrooms | | | | | | | | | | | | | 3,200 |
| Passenger Waiting Area | 1,300 | | | | | *840* | | | | | | | 2,140 |
| Common Passenger Waiting Area | | | | | | | | | | | | | 218,400 |
| Passenger Loading/Unloading Caltrans Property | 11,960 | 22,060 | 3,680 | 1,400 | 2,760 | 1,500 | Shares with AC | Shares with AC | 500 | Shares with AC | 500 | Shares with AC | 44,360 |
| Passenger Loading/Unloading On Streets* | N | N | NA | 700 | N | N | N | N | N | N | N | N | 700 |
| Bus Movement/Short Term Layover Caltrans Property | 29,900 | 55,150 | 9,200 | 3,500 | 8,160 | N | Shares with AC | Shares with AC | N | Shares with AC | N | Shares with AC | 105,910 |
| Bus Movement/Short Term Layover On Streets* | N | N | NA | 1,750 | N | 3,750 | N | N | 1,250 | N | 1,250 | N | 8,000 |
| Bus Storage | N | 36,000 | N | N | N | N | N | N | N | N | N | N | 36,000 |
| Total | 61,850 | 115,040 | 12,880 | 7,350 | 10,920 | 7,750 | 1,210 | 750 | 2,780 | 0 | 1,750 | 0 | 441,880 |

Source Caltrans, Bus Operators

N No Space Allocated
NA Not Available
* For buses that terminate, originate and lay over on the block immediately surrounding the Transbay Terminal, plus First and Fremont between Mission and Market
*Italicized numbers - Projected for late 1993*

A set of exclusive ramps connect the TTT building to the Bay Bridge. These ramps are used primarily by AC Transit and Greyhound buses for access. An on/off ramp from exclusive transit ramps also provides access to the surface streets at Second Street and Harrison for Greyhound and Golden Gate buses. The ramps leading to the TTT are also used for bus storage purposes. Table 11 identifies the storage needs of the transit carriers using the Terminal and the number of buses stored in the TTT building or in the downtown area. Currently AC Transit stores a maximum of 80 buses in the terminal.

The existing minimum radius on the bus ramps is 250 feet and 165 feet for the Second Street ramp. The maximum grade on the dedicated bus ramp is 4 percent.

**TABLE 11**
**CURRENT BUS STORAGE NEEDS OF TRANSIT OPERATORS**

| Transit Carrier | Number of Buses | Current Location |
|---|---|---|
| Golden Gate Transit | 130 | 160 Harrison |
| SamTrans | 40 | 8th/Brannan Streets |
| | 10 - (20)* | Transbay Terminal |
| AC Transit | 40 - (80) | Transbay Terminal |
| Six Private Operators | 40 - 100 ** | Transbay Terminal |
| Vanpools | 30 | Transbay Terminal |
| | | |
| Total Demand | 190-380 | |

00 During School Days
(00) During School Holidays
* Interested in storing additional buses
** Overnight

Future conditions

Transit carriers are in the process of providing a quantitative assessment of their future service needs to Caltrans and MTC for a 20 year period. Beyond the 20 year time line, qualitative information was requested for an additional 10 years to assess future demand.

As mentioned earlier, MTC is summarizing all of the existing and future needs in a working paper due in early September. The information received so far on the future needs and desires of the bus operators is summarized below. These projections will be reviewed and potentially modified by MTC based on comparison to regional travel forecasts.

**Greyhound**

- Total number of buses 110

- Total daily passengers 4,500
- Maintenance of existing exclusive bus ramps,
- Expansion of ticketing offices package and baggage handling, passenger waiting, loading and unloading area,
- Large passenger waiting area and ticketing office,
- Enhanced access to and from the Bay Bridge and I-80/US 101 South.

**SamTrans**

- Three additional stops to handle articulated buses,
- A Stop on Mission Street needs to be upgraded to ADA standards.

**Gray Line**

- Maximum number of buses 60
- Maximum number of passengers 3,000
- Space needed (in square feet) 5,000
- Future storage needs for buses 30-40

**AC Transit**

- Total vehicle trips 1,900
- Total number of peak hour buses 250
- Total passenger boardings 30,000
- Bus storage facility 160
- Bus stops 40
- Increased ticketing office, package and baggage handling, passenger waiting loading/unloading and waiting areas.

Potential New Rail Extensions

By September 1, 1993 the City has committed to make recommendations concerning which transit parameters should be considered in any future design of the Terminal. Four rail extension projects are currently being discussed and studied, and each may have a terminus in the future at or near the TTT building. There are uncertainties regarding which of these projects may proceed in the future. Studies are underway now and so far there is no commitment to fund construction of any of these potential rail projects except the F-line. However, the four projects have been prioritized in the following order after discussions with the transit operators, based on the planning status and funding prospects for each rail project:

MUNI Light Rail - There are three MUNI light rail extension projects which could terminate at the TTT building or its vicinity. The F-line is anticipated to start service in early 1995 and would temporarily use the TTT location until the Mid-Embarcadero project is completed. The F-line may continue to use this as an intermediate terminal after waterfront F line service is

established. Light rail service from the Geary and/or Bayshore corridors could also potentially terminate at the TTT. Accommodation of this service on the north side "hump" of the TTT as has existed in the past would not be a significant issue. If articulated buses can be accommodated rail can be accommodated as well.

Caltrain Rail Extension - The downtown extension alternatives for Caltrain in the Preliminary Draft Environmental Impact Statement, completed in 1991, included two alternatives with an underground terminal behind the TTT building. In July 1993 the Joint Powers Board (JPB) voted to study an alternative that would provide an above ground connection into the terminal.

High Speed Train - This rail alternative from Los Angeles to San Francisco is another rail project being considered now with a possibility of using Caltrain's right of way and terminating at the TTT building.

Cross Bay Train - There is some interest in restoring a regional rail line connection to the East Bay on the Bay Bridge. This train could also accommodate intercity rail as it did in the past.

**Evaluation of Transit Approaches**

Limitations of the Existing Transbay Transit Terminal

While the future operational needs of existing bus operators who use the Transbay Transit Terminal (TTT) have not yet been detailed, the existing level of operations provides a reasonable benchmark against which to assess these needs. The many uncertainties associated with virtually all of the potential new rail extensions to the TTT make assessment of the overall transit needs in the future very difficult to determine. On the one hand, the existing terminal platforms probably have sufficient space to accommodate future expansions in bus service with minimal changes. On the other hand, accommodation of either a Caltrain extension or high speed rail or cross bay rail within the existing terminal would likely necessitate substantial changes to existing bus operations in the TTT.

In addition to operational considerations, the land use implications of the substantial amount of space which the TTT and its elevated access ramps occupy merit examination. The transit terminal function of the TTT is clearly vital. But the TTT was originally sized to accommodate rail operations which were eliminated decades ago, and serious questions have been raised concerning whether the size and design of the TTT is well-suited to its current role as a bus terminal. The prospect of future rail extensions into the TTT also raises concerns about its suitability for accommodating new rail service without substantial modifications.

The elevated ramps which connect the TTT to and from I-80 also directly affect the range of alternatives which can be developed for the Terminal Separator Structure. All Terminal Separator Structure alternatives are constrained by the requirement to pass over the existing TTT ramps with the narrow Essex right-of-way between Harrison and Folsom. The TTT ramps in combination within the elevation of Harrison Street at First Street and the topography of the area dictate that any roadway structure which passes over these ramps cannot reach grade until at least Main Street.

Concepts for Replacing the Transbay Terminal

Three concepts have been developed in schematic form which look at the possibility of replacing the existing TTT with a new facility. Each concept assumes replacement of the TTT on all or a portion of its existing site with the prospect for joint development (see Figures 21-23). Concepts A or B could conceivably work with the TTT moved to an adjacent site, but the description presented assumes no sitechange. In each concept the existing TTT ramps are also assumed to be demolished, with no replacement in Concept A, partial replacement in Concept B, and full replacement in Concept C. In each case, opportunities are created for increased flexibility in the redesign of the Terminal Separator Structure.

Concept A shows the new TTT occupying a smaller building footprint and eliminates the elevated ramps to and from I-80. Detailed study would be needed to determine how large the TTT footprint would need to be to adequately accommodate existing and future bus service needs. Priority access for buses could conceivably be provided through bus lanes and other preferential treatments on adjacent streets. A Caltrain or high speed rail extension would have to be handled in an underground station, and cross bay rail service would be precluded.

Concept B shows the TTT occupying a smaller building footprint west of current site and provides an elevated two-way ramp for I-80 access in the Essex right-of-way. Buses would loop through the TTT and turnback at its east end. A Caltrain or high speed rail extension would have to be handled in an underground station, and cross bay rail service would be precluded.

Concept C is based on the Michael Kiesling proposal and would rebuild both the TTT and its ramps in approximately the same footprint which they now occupy. The TTT and its ramps would be redesigned into several levels to fully accommodate bus service needs and all potential rail extensions, including cross bay rail service.

Table 12 summarizes the findings relative to each of the alternatives.

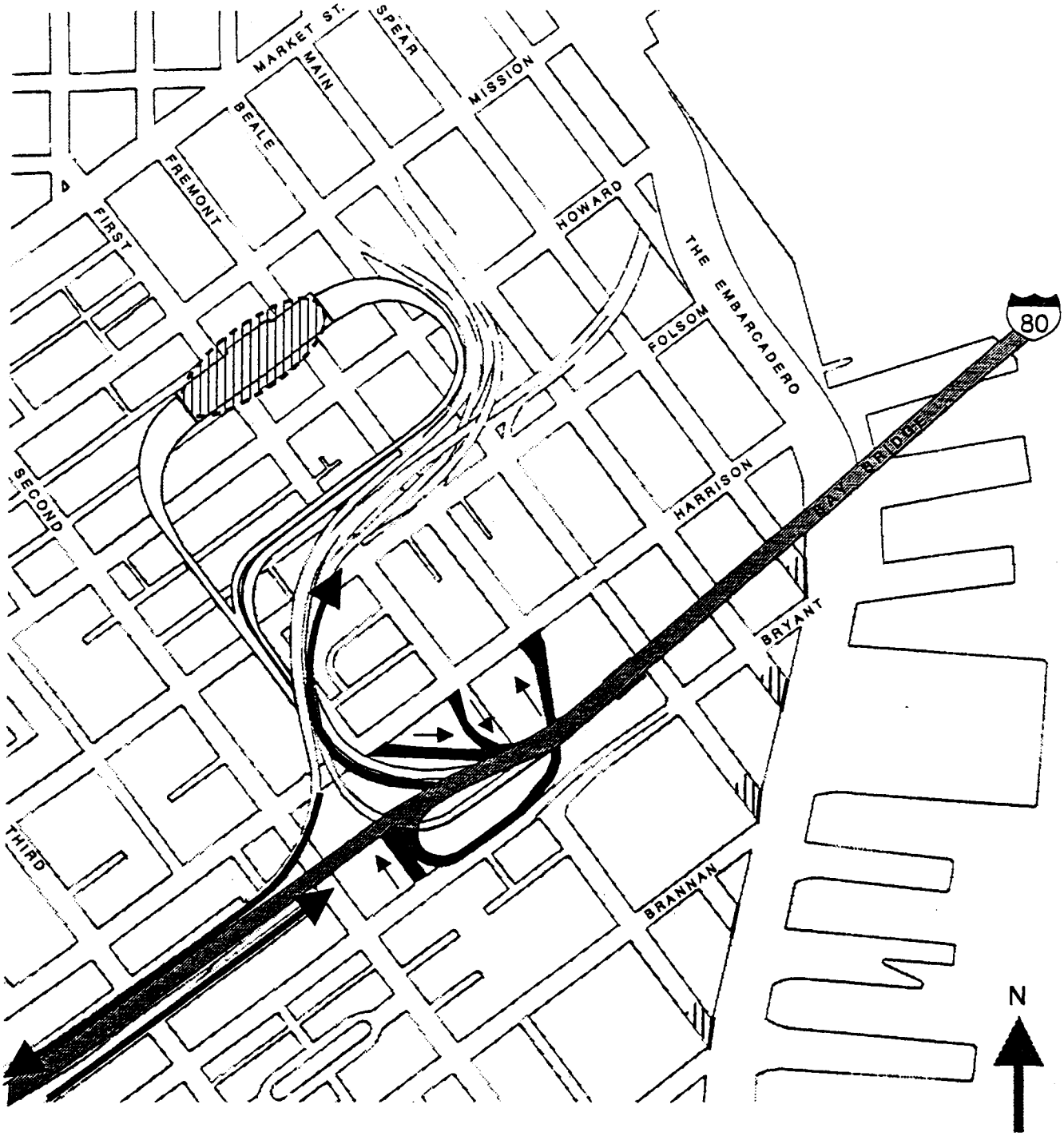


**Figure 21**
**TRANSBAY TERMINAL - Concept A**

Illustrative of Transit Hub Without Exclusive Ramping System

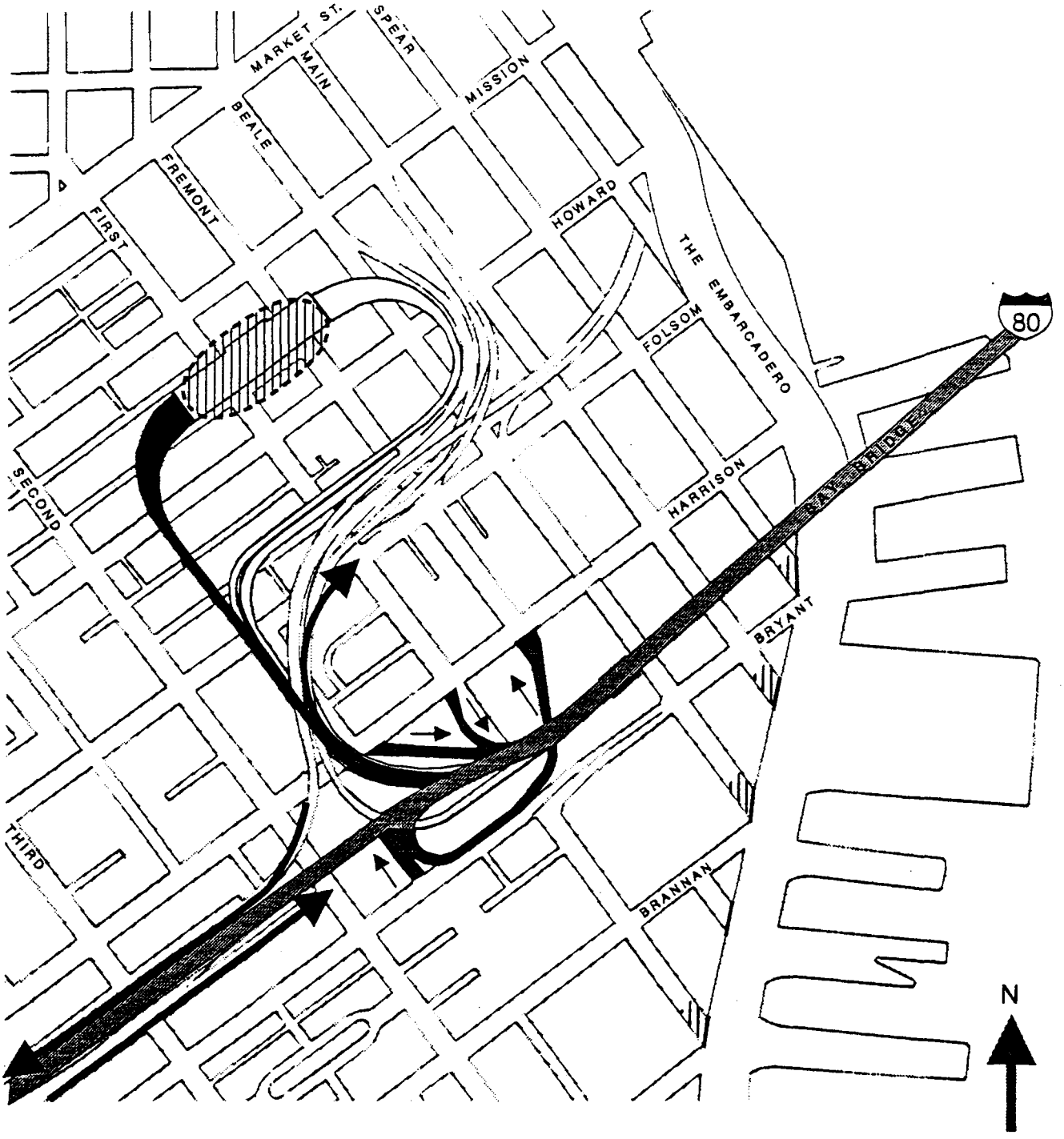


***Figure 22***
***TRANSBAY TERMINAL - Concept B***

*Illustrative of Transit Hub With Two-Way Exclusive Ramp*

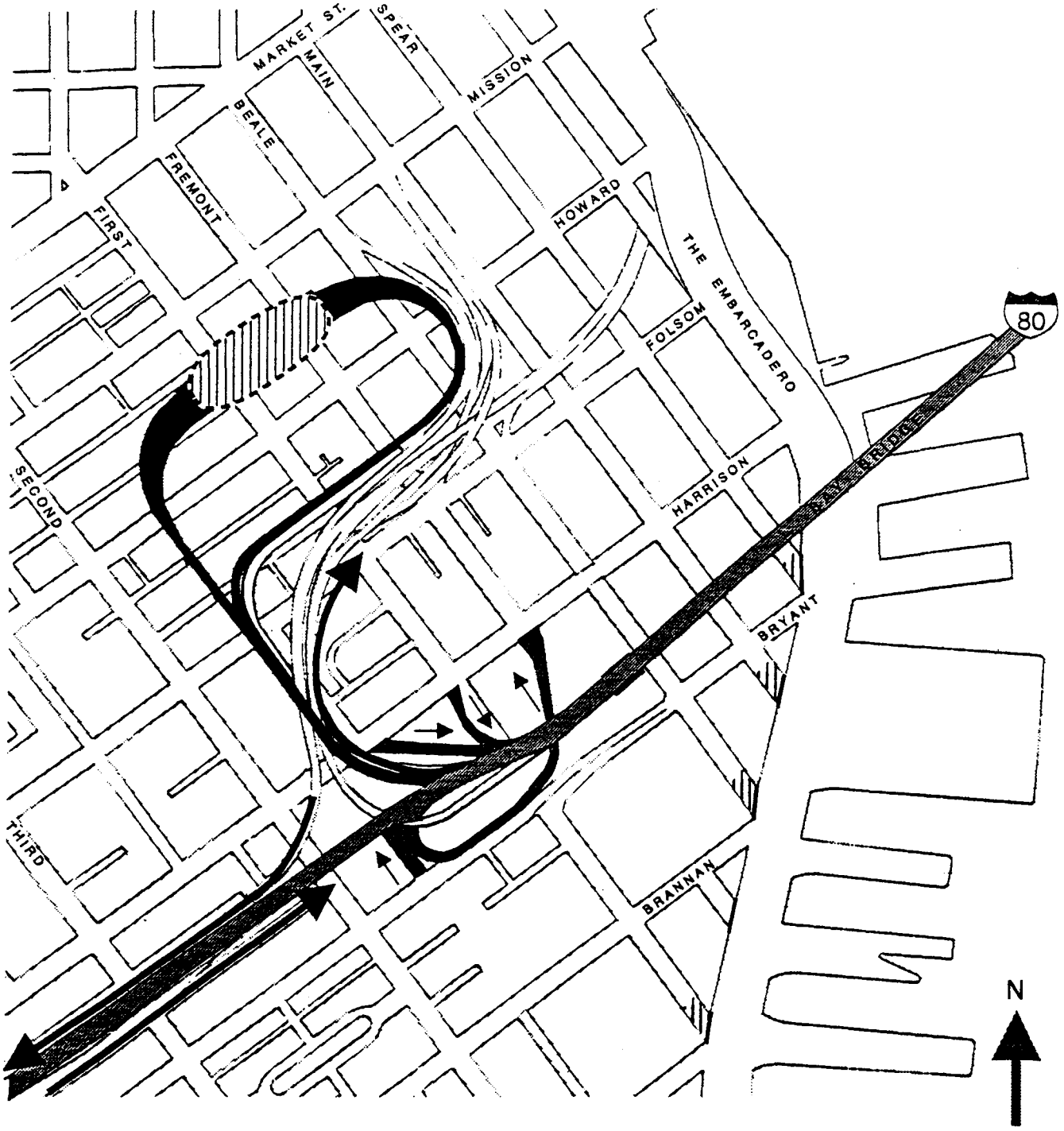


***Figure 23***
***TRANSBAY TERMINAL - Concept C***

*Illustrative of Transit Hub With Exclusive Rail/Bus Ramps*

## TABLE 12
## EVALUATION OF TRANSIT CONCEPTS

| CRITERIA | EXISTING TRANSBAY TRANSIT TERMINAL | CONCEPT A - NO TRANSBAY TRANSIT RAMPS | CONCEPT B - TWO-WAY TRANSBAY TRANSIT STUB RAMP | CONCEPT C - LOOP RAMPS FOR ALL RAIL OPTIONS INTO TRANSBAY TERMINAL |
|---|---|---|---|---|
| **EXISTING BUS SERVICE ACCOMMODATED** | Yes. | Yes, if terminal platform size remains similar to existing. | Probably yes, but internal turnback reduces capacity. | Yes, but total size of transit platform area would need to be expanded if Caltrain, intercity, and/or Bay Bridge rail options within the terminal were included in order to maintain existing bus capacity. |
| **EXPANDED FUTURE BUS SERVICE ACCOMMODATED** | Probably yes, unless limited by Caltrain, intercity, and/or Bay Bridge rail options within the terminal. | Probably yes, if terminal platform size remains similar to existing. | Probably not as single deck, because internal turnback reduces capacity. | Yes, but total size of transit platform area would need to be expanded if Caltrain, intercity, and/or Bay Bridge rail options within the terminal were included in order to accommodate bus capacity. |
| **EXCLUSIVE RAMP ACCESS FOR AC & GREYHOUND PROVIDED** | Yes, but may be limited by elevated rail access to internal rail station. | No, but possibility of on-street, exclusive lane treatments for AC & Greyhound as well as other bus operators. | Yes for East Bay travel, unless limited by elevated rail access to internal rail station; existing South of Market access could be eliminated. | Yes for East Bay travel, unless limited for ingress and/or egress by inclusion of rail to an internal station; existing South of Market access would be eliminated. |
| **ACCOMMODATES MUNI RAIL** | Yes, externally. | Internal or external treatment could be accommodated. | Internal or external treatment could be accommodated. | Internal or external treatment could be accommodated. |
| **ACCOMMODATES CALTRAIN EXTENSION** | Probably yes. | Not within terminal, but compatible with underground station behind terminal. | Not within terminal, but compatible with underground station behind terminal. | Accommodated either within or behind terminal - internal station may eliminate exclusive bus access for ingress or egress. |

| CRITERIA | EXISTING TRANSBAY TRANSIT TERMINAL | CONCEPT A - NO TRANSIT RAMPS INTO NEW OR REDESIGNED TRANSBAY TERMINAL | CONCEPT B - TWO-WAY TRANSBAY TRANSIT STUB RAMP INTO SMALLER TRANSBAY TERMINAL | CONCEPT C - LOOP RAMPS FOR ALL RAIL OPTIONS INTO NEW TRANSBAY TERMINAL |
|---|---|---|---|---|
| **ACCOMMODATES HIGH SPEED INTERCITY RAIL** | Unlikely if combined with Caltrain & Bay Bridge rail. | Not within terminal - only compatible with underground station behind terminal. | Not within terminal - only compatible with underground station behind terminal. | Accommodated either within or behind terminal - internal intercity station in combination with Caltrain station may eliminate exclusive bus access. |
| **ACCOMMODATES BAY BRIDGE RAIL** | Yes, but probably not if combined with Caltrain & intercity rail. | No. | No. | Yes, could be designed to include all rail options. |
| **IMPACTS ON TERMINAL SEPARATOR RAMPING TO AND FROM BAY BRIDGE AND I-80/US 101** | Need to crossover transit ramps limits Caltrans, 1, 1A, & 1B ramps such that they cannot touch down west of Main. | Folsom/1st off-ramp would require redesign of ramps for Caltrans, 1, 1A, & 1B and could replace or supplement off-ramp to Main/Howard for 1 & 1B; new on-ramp in TSS/Essex ROW could be incorporated to replace Beale/Howard on-ramp for 1 & 1B and enhance access for 2, 2A, & 3. | Folsom/1st off-ramp would require redesign of ramps for Caltrans, 1, 1A, & 1B and could replace or supplement off-ramp to Main/Howard for 1 & 1B; new on-ramp in TSS/Essex ROW underneath new Transbay Terminal ramp could replace Beale/Howard on-ramp for 1 & 1B and enhance access for 2, 2A, & 3. | Folsom/1st off-ramp requires replacement of existing Transbay Terminal loop ramp, would not be compatible with Caltrans, 1, 1A, & 1B; new on-ramp in TSS/Essex ROW underneath new Transbay Terminal ramp could replace Beale/Howard on-ramp for 1 & 1B and enhance access for 2, 2A, & 3 |

## LAND USE

### Study Purpose

The Land Use Study examined the potential reclassification of land area potentially vacated by the various transportation alternatives for the Terminal Separator Structure and redevelopment of the Transbay Terminal. Much of the land occupied by the Terminal Separator Structure and the Transbay Terminal, particularly along the north side of Folsom Street and leading to the Embarcadero, is currently zoned "P" or Public, which allows only public uses. Removal of the Terminal Separator Structure and conversion to non-public uses would necessitate the rezoning to another use district. The Land Use Study focused on this area to the north of Folsom Street from the Embarcadero to mid-way between First and Second Streets since the various transportation alternatives may vacate land primarily in this corridor.

The Study examined potential rezoning for any land vacated by a reconfiguration or removal of the Transbay Terminal and its associated bus ramps to provide a land use context for the entire area, and to provide information for the decision making process on the Transbay Terminal.

### Existing Land Use

The land use study area is bounded by the Embarcadero, Mission Street, Hawthorne Street and Townsend Street. In general, existing land use is characterized by office use in the northern portion of the study area, along Mission Street, which is near the Market Street corridor. This area is the most intensely developed in the study area. To the south, the area becomes more industrial and mixed in character, with less dense development.

The area closest to the waterfront is built out, with the exception of the parcels that have been vacated by the demolition of the Embarcadero Freeway. This area, to the east of Spear Street, between Mission and Bryant Streets, is characterized by mixed use development that includes residential and office use in high rise buildings with commercial retail at ground level. Most notable in this area are Rincon Center and Hills Plaza.

To the immediate west, is a cluster of recent high-rise office development, bounded by Spear, Mission, Folsom and Beale Streets, with some vacant parcels. Moving west along Mission Street is an area of downtown support uses and office space in older buildings that are generally five stories in height. The height of the buildings decreases as one moves west along Mission Street.

The area immediately adjacent to and to the south of the Transbay Terminal is characterized by mixed use. Office and industrial uses predominate with retail on the ground floor along Mission Street, in older buildings with heights of three to five stories. The industrial uses tend to front along the alley streets such as Natoma and Tehama Streets, with office space fronting along the major streets, such as Howard and Second Streets. Some retail use is also present along the major streets. To the south of Howard Street is a swath of vacant land, vacated by the Terminal Separator Structure. These parcels abut Folsom Street, on the north side, between Spear and First Streets.

To the west of Second Street, is a mixture of mixed office and retail use. The retail use is on the ground level with the office space on the upper floors. The structures are generally less than 100 feet. However, a cluster of high-rise office development is located on the blocks between the I-80 corridor and Howard Street.

The Rincon Hill Area is characterized by a mixture of uses and many vacant parcels. Between Spear, Fremont, Folsom and Harrison Streets are located a number of vacant parcels, many of which are used for parking. The land in use is either institutional such as the Post Office Annex or industrial. Some office use is present. The area bounded by Beale, Folsom, Harrison and the Terminal Separator is characterized by mixed use including office, industrial and institutional uses. The buildings are generally no higher than four stories. Approaching the Terminal Separator Structure at the crest of the hill along Guy Place and Lansing Street, is a cluster of residential uses along with office and industrial uses. A notable exception to this pattern is Marathon Plaza, an office development at Second and Folsom Streets.

To the south, the area that is immediately underneath the I-80 corridor is mostly vacant, with development in process or recently completed. Baycrest Tower is a recently completed residential project and 401 Main Street, another residential project, is currently under construction. Much of the vacant land is used as parking. The area immediately adjacent to the off ramps leading to the Terminal Separator Structure is vacant, but most of the land is occupied by the ramps leading to the freeway and is therefore not readily developable.

In the vicinity of South Beach, to the south of the Bay Bridge and east of First Street, the area is residential in character with recently constructed condominium complexes that are three to four stories in height. These projects contain some commercial use. Moving to the west, between First and Second Streets, the area is composed of mixed uses, with industrial use most prevalent, and office space is clustered in the vicinity of the Second and Bryant Street intersection. The structures in this area are older and generally are no higher than five stories in height. Some residential uses are interspersed in this area and notable projects include the conversion of former warehouse/industrial uses to residential lofts.

### Existing Zoning

The area to the north of the Folsom Street corridor is within the Downtown Plan area and is zoned C-3-O (SD) (Downtown Office (Special Development) District ( See Figure 24). The downtown is the office center for City, regional, national and international commerce. The Special Development District is the redirected expansion area for the downtown. High density residential uses are permitted in the C-3 Districts as of right.

Small "islands" of C-3-S (Downtown Support) Districts are directly south of the Terminal Separator Structure on the north side of Folsom Street. The Downtown Support District accommodates support functions for the downtown such as wholesaling, printing, building services, secondary office space and parking.

The area between Folsom, Essex and Bryant Streets, and the Bay is in the Rincon Hill Plan area, which is conceived as a housing resource area adjacent to downtown. There are two Special Use Districts (SUDs) within the Rincon Hill zoning district:

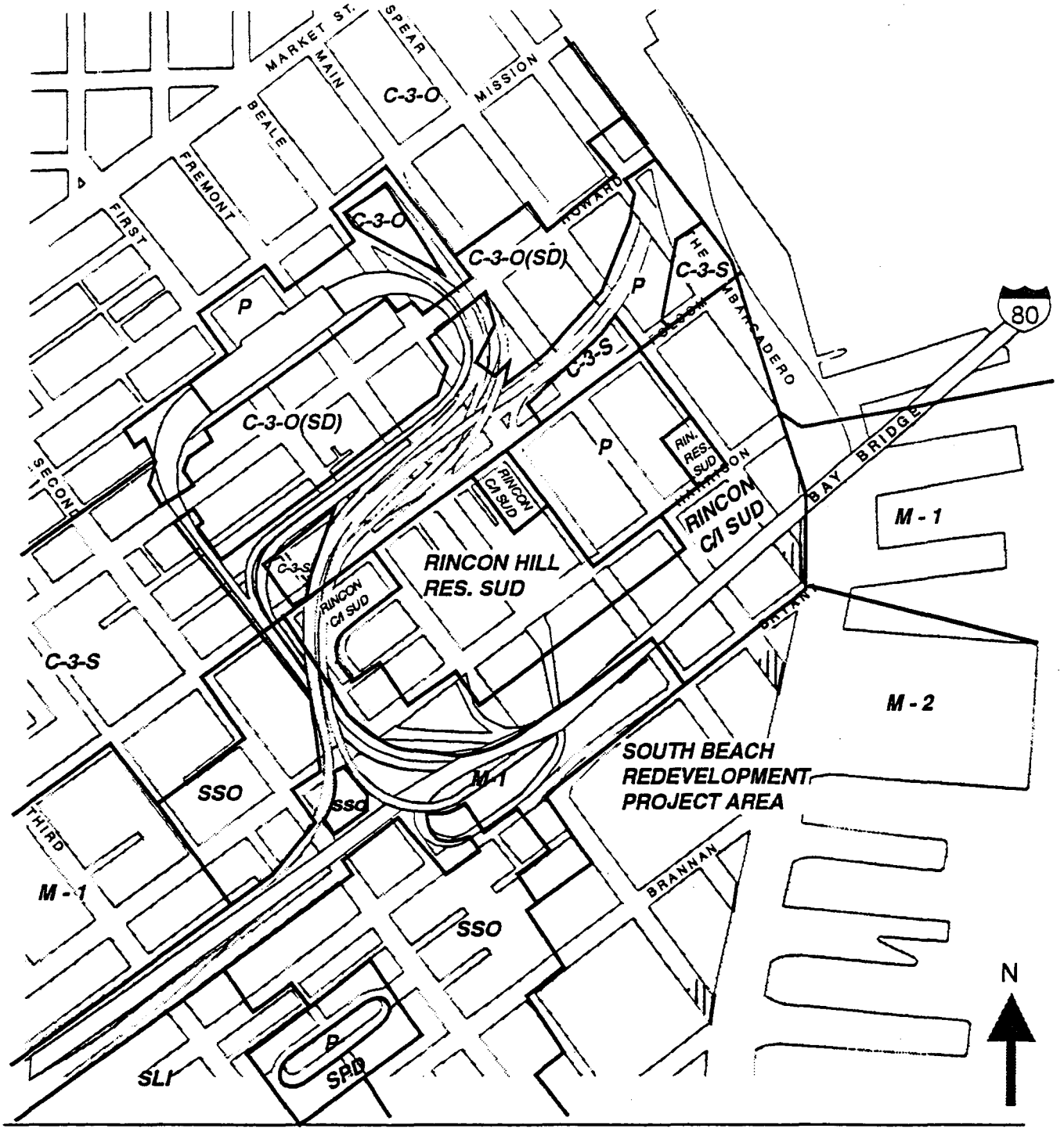


*Figure 24*

***TERMINAL SEPARATOR STRUCTURE***

*EXISTING USE DISTRICTS*

The Residential SUD/RC-4 accommodates high density housing with a mix of retail and personal services to support the residential uses. There are no FAR or housing density limits, so residential and commercial density is set by the bulk and height limits defining the building envelope. Commercial uses are limited to a ratio of one square foot of commercial space for every six square feet of residential space.

The Commercial/Industrial SUD provides a buffer of office and parking uses between the residential uses and traffic generators such as the Bay Bridge, the Terminal Separator Structure and the Embarcadero, and allows the existing industrial, service and office uses to remain. A portion of the Terminal Separator Structure curving from Essex Street to Folsom Street is within this sub-district and could be vacated by Transportation Alternatives 2, 2A and 3.

The two blocks bounded by Main, Harrison, Beale and Folsom Streets are primarily zoned "P" to accommodate the existing Federal- and State-owned land, and to allow the potential for a new arena/ballpark site.

The area to the west of Essex Street is within the South of Market Plan which is conceived as preserving the mixed service, light industrial, and residential character of the greater South of Market Area, and in the SSO sub-district (adjacent to the study area), to allow limited office uses:

Service/Secondary Office (SSO) - Designed to accommodate small scale light industrial, small scale professional office, large floor-plate back office and live-work uses.

The Folsom Street corridor occupied by the Terminal Separator Structure is within an 80-X height and Bulk District to protect the views from the Terminal Separator Structure. Height Districts to the north and south of the Folsom Street corridor are both 200 feet.

**Land Use Alternatives**

The Department developed two basic land use alternatives for the property vacated by the Terminal Separator Structure:

**Alternative A** calls for rezoning the Folsom Street corridor C-3-0(SD) (Downtown Office (Special Development)) to allow for Downtown Commercial Office expansion (See Figure 25).

**Alternative B** generally rezones the Folsom Street Corridor into the Rincon Hill Residential Special Use District, with three primary exceptions. The southern portion of Assessor's Block 3741, bounded by Steuart, Folsom, and Main Streets is the site of

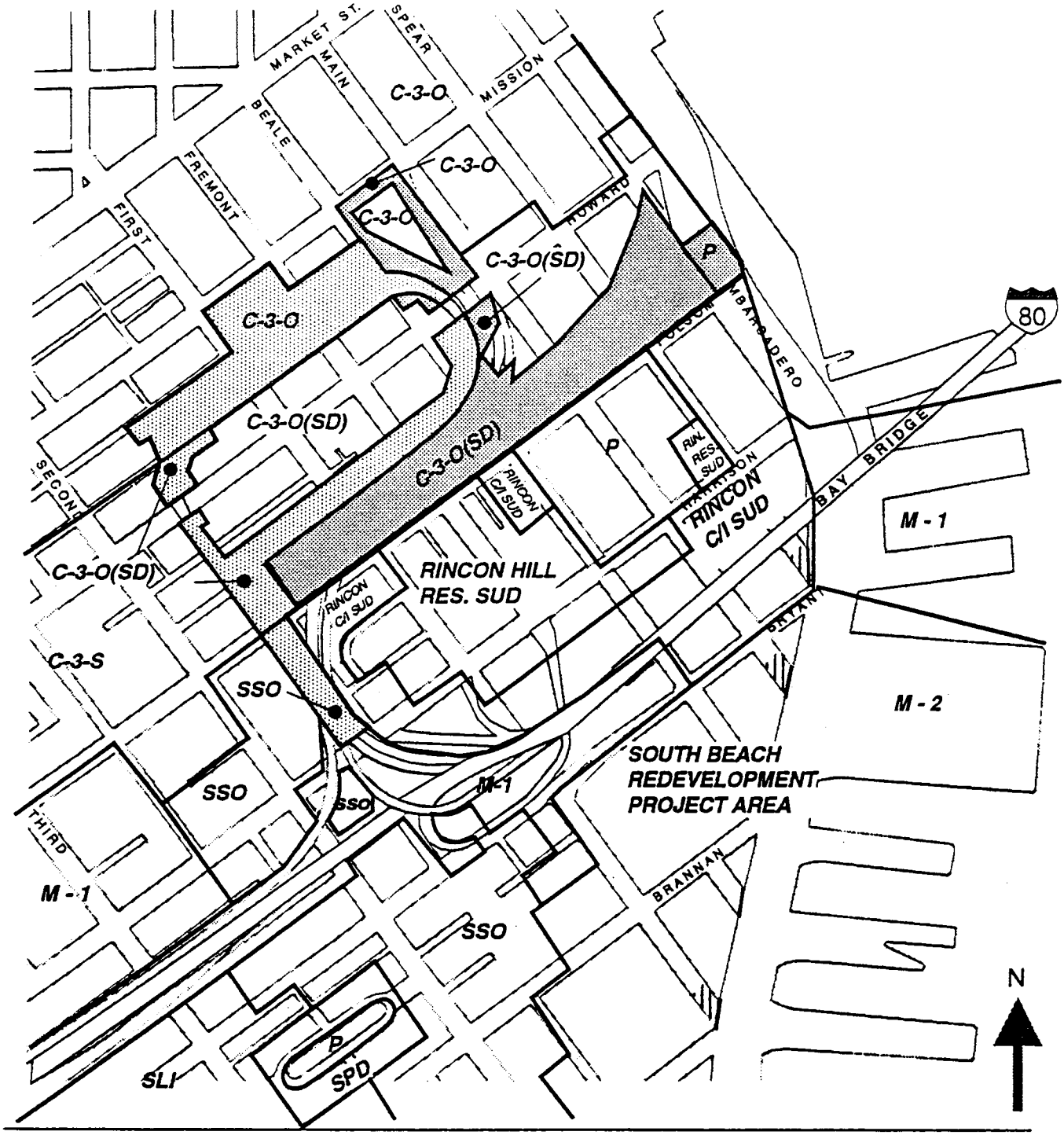


***Figure 25***
***TERMINAL SEPARATOR STRUCTURE***

*PROPOSED USE DISTRICTS*
*Alternative A - C-3 Rezoning*

*Terminal Separator Structure Rezoning*

*Potential Transbay Terminal Rezoning*

the proposed GAP Headquarters Building. Its proposed office use makes a C-3-0(SD) a more appropriate zoning classification for this site. The area north of Folsom Street and to the west of First Street is proposed to be within the Rincon Hill Commercial/Industrial Special Use District to buffer the residential uses from the Transbay Terminal ramps. The area to the west of Essex Street would be rezoned to the adjacent Service Secondary Office District (see Figure 26.)

Both Land Use alternatives have minor variations to respond to the various Transportation Alternatives, propose to reclassify the height district in the Folsom Street Corridor to 200 feet (Figures 27 and 28), propose to rezone the area potentially vacated by the Beale Street and Main Street ramps to C-3-O north of Howard Street and C-3-0(SD) south of Howard Street to conform to the adjacent zoning and would rezone land vacated under Transportation Alternatives 2, 2A and 3 to the west of Essex Street to the adjacent South of Market SSO District.

Under both Land Use Alternatives, any land vacated by reconfiguration of the Transbay Terminal and its ramps would be rezoned to the adjacent C-3-O, C-3-O(SD) or SSO Districts. Alternately, if the City wishes to pursue developing an arena or a joint arena/transit hub, the Transbay Terminal site could either remain in a P district or be rezoned to C-3-S (Downtown Commercial, Service) which would permit an arena by Conditional Use authorization.

Both the Downtown and the Rincon Hill zoning districts require common open space. The individual parcel open space requirements could be aggregated to develop a major open space under either alternative.

**Development Potential**

The analysis focused on the potential buildout under the two alternatives and each development scenario's potential benefits for the City. Vacant parcels, parking lots and low intensity uses adjacent to the Terminal Separator Structure were identified as soft sites, i.e. sites were likely to be developed.

Under Transportation Alternatives 1 and 1B, approximately 165,000 square feet of land was identified as soft sites. Alternative 1A frees up approximately 62,500 square feet of developable land. Under Alternative 2, approximately 413,000 square feet of land was identified as soft sites. Under Alternative 2A, approximately 385,000 square feet of land was identified as soft sites. Transportation Alternative 3 creates the most developable land of the alternatives, approximately 470,000 square feet.

Alternative A - C-3 Rezoning

In order to calculate a reasonable density for development in the C-3-O(SD) District, the Department examined recent proposed development in the area. Although a maximum of 18

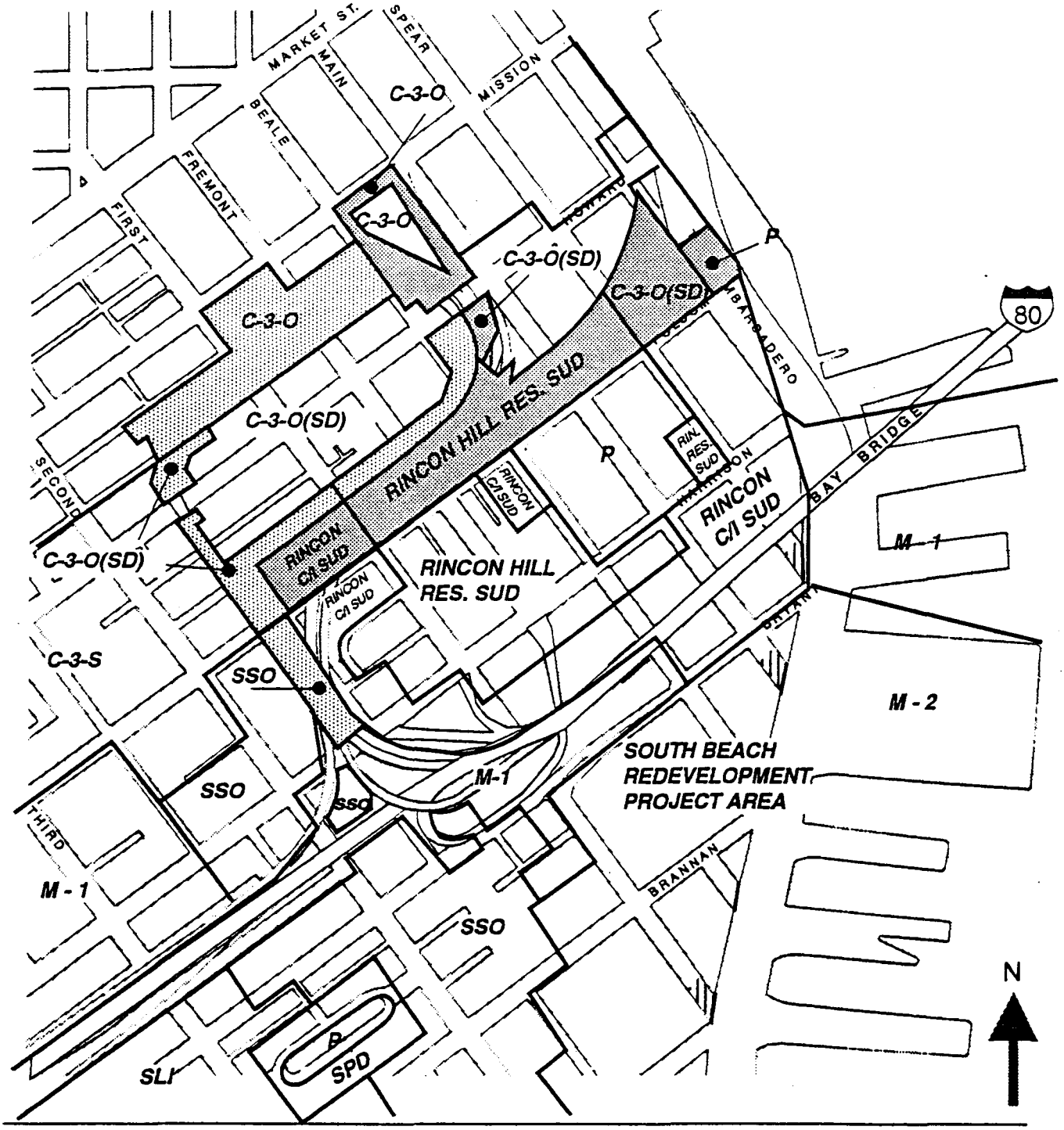


***Figure 26***
***TERMINAL SEPARATOR STRUCTURE***

*PROPOSED USE DISTRICTS*
*Alternative B - Rincon Hill Rezoning*

*Terminal Separator Structure Rezoning*

*Potential Transbay Terminal Rezoning*

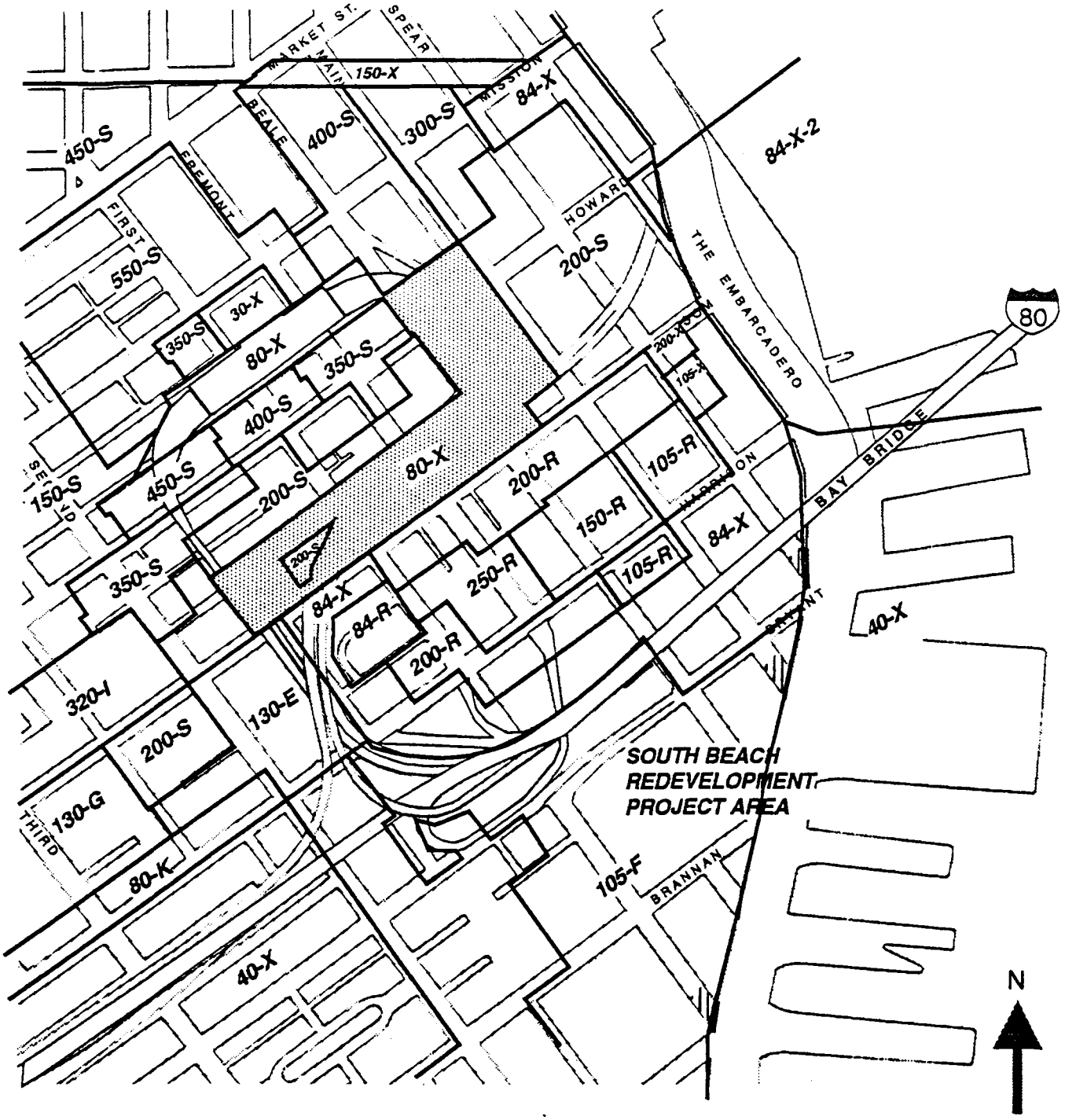


***Figure 27***
***TERMINAL SEPARATOR STRUCTURE***

*PROPOSED HEIGHT DISTRICTS*
*Alternative A - C-3 Rezoning*

200-S

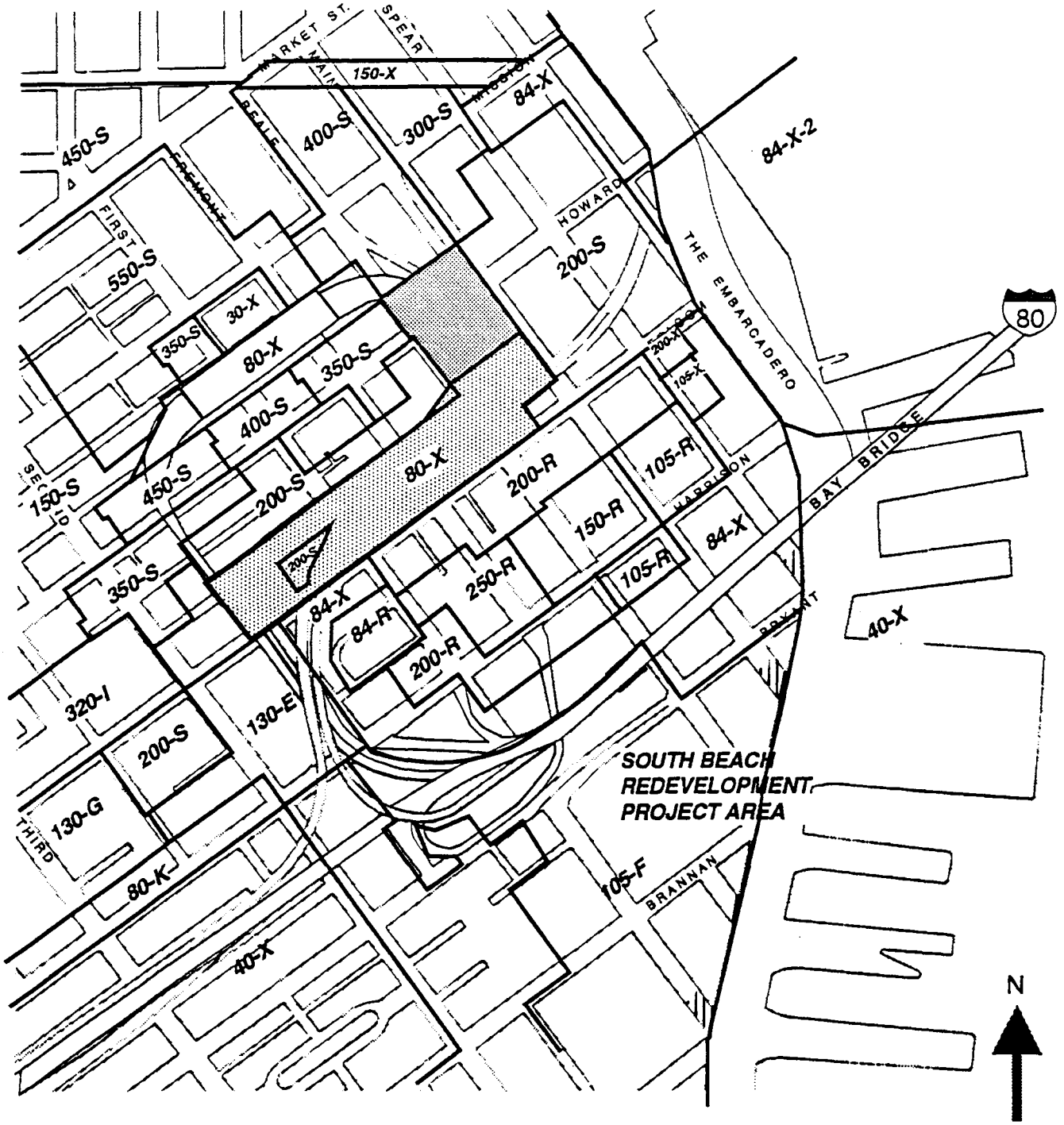


***Figure 28***
***TERMINAL SEPARATOR STRUCTURE***

*PROPOSED HEIGHT DISTRICTS*
*Alternative B - Rincon Hill*

*200-S*
*200-R*

to one FAR is permitted in the C-3-O(SD) District, development at that density is unlikely. Comparable approved office projects in the area are:

| BUILDING | Office GFA | SITE SIZE | FAR |
|---|---|---|---|
| 222 2nd | 220,250 | 23,925 | 9.2:1 |
| 299 2nd | 260,000 | 30,875 | 8.4:1 |
| 300 Howard | 382,582 | 35,003 | 10.9:1 |

These developments are located slightly to the north and west of the Folsom Street corridor, and are developed to a slightly higher density than can be expected in the Folsom Street corridor. Thus, an 8 to 1 FAR provides a conservative but reasonable estimate of development potential for the area. The Rincon Hill Commercial/Industrial SUD potential was estimated under a 4 to 1 FAR. The Service/Secondary Office District potential was estimated at a 4.5 to FAR.

Transportation Alternative 1A frees up a minimal amount of land along Beale and Main Streets, between Mission and Howard Streets, but creates a developable parcel at Howard and Main Streets. This parcel could accommodate approximately 500,000 square feet of development potential. Alternatives 1 and 1B could accommodate 1.3 million square feet. Under Transportation Alternative 2, approximately 2.95 million square feet of development could be accommodated. Under Transportation Alternative 2A, approximately 2.8 million square feet of development could be accommodated. Transportation Alternative 3, could accommodate approximately 3.2 million square feet of development. (See Table 13 below.)

**TABLE 13**
**TOTAL DEVELOPMENT POTENTIAL BY TRANSPORTATION ALTERNATIVE**

| Transportation Alternative | Land SF | Alternative A C-3 Rezoning | Alternative B Rincon Hill Rezoning | |
|---|---|---|---|---|
| | | Office SF | Office SF | Residential DU |
| 1A | 62,500 | 500,000 | 500,000 | 0 |
| 1 and 1B | 166,256 | 1,330,051 | 280,000 | 1,010 |
| 2 | 412,958 | 2,953,996 | 948,510 | 1,822 |
| 2A | 385,656 | 2,844,797 | 839,310 | 1,822 |
| 3 | 470,110 | 3,224,840 | 1,219,353 | 1,822 |

Alternative B - Rincon Hill Rezoning

Alternative B creates a mix of residential and commercial zoning districts.

Several existing and proposed residential projects were surveyed to determine their density per square foot of lot area. Baycrest Towers (201 Harrison Street) was developed at one dwelling unit per 131 square feet of lot area. Rincon Towers (120 Spear Street) has a density of one dwelling unit per 134 square feet of lot area. A density of one dwelling unit per 130 square feet of lot area and a standard dwelling unit size of 885 square feet was used to estimate the residential density.

Under these assumptions, Transportation Alternative 1A could accommodate approximately 500,000 square feet of commercial development potential but would not create any residential development potential. Alternatives 1 and 1B could accommodate 280,000 square feet of commercial development potential and create approximately 1,000 dwelling units. Under Transportation Alternative 2, approximately 950,000 square feet of commercial space and approximately 1,800 dwelling units could be accommodated. Under Transportation Alternative 2A, approximately 850,000 square feet of development and approximately 1,800 dwelling units could be accommodated. Transportation Alternative 3, could accommodate approximately 1.2 million square feet of development and 1,800 dwelling units. (See Table 13.)

Fiscal Impacts of Alternatives

Table 14 on the next page presents the annual fiscal benefits of the Land Use Alternatives under the various Transportation Alternatives. In general, Alternative A - C-3 Rezoning, offers greater fiscal benefits to the City than Alternative B - Rincon Hill Rezoning. The annual fiscal benefits of Alternative A range from $2.99 million to $19.33 million depending on the Transportation Alternative. The annual fiscal benefits of Alternative B range from $2.99 million to $11.60 million. The fiscal benefits projected relate to the property and payroll taxes from the office development and the property taxes from the residential development. The analysis does not include sales or parking taxes generated by potential development.

Transbay Terminal

Elimination of the Transbay Terminal and its associated ramps would vacate approximately 450,000 square feet of land. For the area to the north of Natoma Street, zoned C-3-O, a development potential based upon an FAR of 12 to 1 was assumed. For the area to the south of Natoma Street, zoned C-3-O (SD), a development potential based upon an FAR of 8 to 1 was assumed. Total development potential was estimated at 4.7 million square feet of office space.

**Alternative Comparison**

In evaluating which of the two Land Use Alternatives provided preferable outcomes for the City, the Department reviewed the relative demand and/or need for office and residential space

**TABLE 14**
**FISCAL BENEFITS BY TRANSPORTATION ALTERNATIVE**

| Transportation Alternative | Alternative A C-3 Rezoning (In Million $/Year) | | Alternative B Rincon Hill Rezoning (In Million $/Year) | | Total Fiscal Benefits (In Million $/Year) | |
|---|---|---|---|---|---|---|
| | Prop. Tax | Payroll Tax | Prop. Tax | Payroll Tax | Alt. A | Alt. B |
| 1A | 0.83 | 2.16 | 0.83 | 2.16 | 2.99 | 2.99 |
| 1 and 1B | 2.19 | 5.75 | 2.79 | 1.21 | 7.94 | 4.00 |
| 2 | 4.93 | 12.77 | 5.16 | 4.10 | 17.69 | 9.96 |
| 2A | 5.40 | 12.29 | 5.66 | 3.63 | 17.02 | 9.29 |
| 3 | 5.06 | 13.93 | 6.33 | 5.27 | 19.33 | 11.60 |

Office Demand

The Downtown Plan EIR predicted an office employment of 322,530 people in the C-3 Districts by 1990 and 372,120 by 2000. The Mission Bay EIR revised the 2000 employment figure downward to 331,160 and predicts an office employment figure of 360,800 in 2020. This figure is approximately 12,000 less the Downtown Plan EIR figure for 2000. Since the Mission Bay EIR was certified, the economy has experienced a prolonged downturn, reducing the projected rate of growth of employment.

The Downtown Plan policies were designed to accommodate the expected growth to the year 2000. The Mission Bay EIR predicts that the policies of the Downtown Plan will actual accommodate the predicted growth to the year 2020, and given the downturn in the economy, probably beyond.

Based on the foregoing, it does not appear necessary to expand the area devoted to C-3-O to accommodate additional area for office space in the near future.

The Downtown Area Plan of the Master Plan supports the creation of a compact financial district. Expansion of the C-3-O(SD) District when enough space currently exists to accommodate demand to the year 2020 would not further that policy.

Residential Demand

The San Francisco Residence Element's 1992 Annual Evaluation Report notes that the Association of Bay Area Governments (ABAG) sets a target for San Francisco for the construction of 1,800 units per year from 1990 to 1995. From 1990 - 1991, San Francisco

approved over 3,100 units. However, only 987 of these units were financed. In 1991, approximately 1,900 units were completed. However, only 767 units were completed in 1992. Table 24 of the Report identifies an estimated annual shortfall from 1990 to 1992 of 2,760 units, for a total shortfall over that period of 15,197 units. Table 25 of the Annual Evaluation Report sets targets for annual new dwelling unit construction of 1,210 for 1992 and 1,100 for 1993. The City is not reaching these targets

The Residence Element calls for increasing the area available for housing, creating high density housing within the area adjacent to the Downtown and rezoning areas to increase housing potential in the City. These figures and policies support the rezoning of the Folsom Street corridor to Rincon Hill Residential Special Use District.

While the C-3 District allows high density residential development, it primarily encourages commercial development. As the office vacancy rate declines, there could be increased pressure to develop office space in the Folsom Street corridor. Some parcels would inevitably be developed for high density office, precluding residential development on these sites. Interspersed office development would also limit the development of a sufficient density of residential uses to create a viable residential community.

The Rincon Hill Rezoning proposal creates a mix of residential and commercial zoning districts, but creates a core which would be sufficient to create a residential community.

At this time, financing for both high density residential and high density office uses is limited. As financing becomes more available, residential project are more likely to be financed, since demand exists for residential uses. Thus, residential zoning is more likely than commercial zoning to provide development of the vacant land in the near future.

**Implementation**

If the decision-makers choose to pursue one of the Transportation Alternatives which requires rezoning of a significant area, the Department would do a more in depth analysis of the two Land Use Alternatives, including discussions with affected property owners, tenants and interested parties. Environmental Review of the rezoning proposals would be required. Eventually, public hearings before the City Planning Commission and the Board of Supervisors on amendments to the Master Plan and the City Planning Code would be held. In order to implement a unified development of the study area, it may be appropriate to create a redevelopment project area. This could facilitate the controlled disposition and development of public land vacated by the Terminal Separator Structure. It could also provide a mechanism to stimulate and control the timely development of privately-owned parcels through owner participation agreements. Other innovative land use financing tools may be appropriate to encourage development of this area as a planned residential community.

## SCHEDULING AND FUNDING ISSUES

Two of the most critical issues affecting the City's decision to pursue alternatives to the reconstruction of the Terminal Separator Structure are the ability to deliver the project in a timely fashion and the ability to secure use of the Federal Emergency Relief (ER) funds designated for the Terminal Separator reconstruction for an alternative project. Both of these issues are interconnected to decisions being made on the Mid-Embarcadero Project.

### Scheduling/Environmental

Mid-Embarcadero

Initiating a review of alternatives to the Terminal Separator Structure reconstruction will require completion of a combined Environmental Impact Report (EIR) to meet California Environmental Quality Act (CEQA) requirements and an Environmental Impact Statement (EIS) to meet National Environmental Policy Act (NEPA) requirements. This will mean a delay in completion of a replacement project and probable impacts on the Mid-Embarcadero project schedule.

The current Caltrans plans for the Terminal Separator Structure assume that demolition will be completed by September 1993. Reconstruction would begin immediately and be completed in 1996. The Terminal Separator project would not, however, provide a direct connection to The Embarcadero Roadway. That link could not be completed until completion of the Mid-Embarcadero project, which will potentially provide the ramp connection from Bent 57 (the project limit for the TSS project, between Main and Beale Streets) to The Embarcadero Roadway.

The current schedule for the Mid-Embarcadero project is summarized below:

| | |
|---|---|
| Completion of EIR/EIS | 1995 |
| Completion of Design | 1996 |
| Completion of Construction | 1998 (surface alternative) |
| | 2000 (partial underground alternative) |

Under any of the alternatives, a link to The Embarcadero could not be provided until 1998 at the earliest.

Table 15 summarizes the potential project delays associated with each of the alternatives. In general, delays are added by the introduction of environmental review and design processes that were either exempted or had been completed for the Caltrans replacement project. Those projects with significantly condensed design and construction schedules effectively compete in scheduling with the Caltrans replacement proposal when the lags associated with the Mid-Embarcadero project are taken into consideration.

## TABLE 15
## SUMMARY OF SCHEDULES BY ALTERNATIVE

| | Caltrans | No Build | Alt.1 | Alt. 1A | Alt. 1B | Alt. 2 (a) | Alt. 2A | Alt. 3 |
|---|---|---|---|---|---|---|---|---|
| Environmental Review Period (b) | – | – | 2.5-3.0 years | 2.5-3.0 years | 2.5-3.0 years | 2.5-3.0 years | 2.5-3.0 years | 2.5-3.0 years |
| Design Duration | – | – | 1.5 years | 1.5 years | 1.5 years | 1.2 years | 1.0 years | 1.0 years |
| Construction Duration | 2.5 years | – | 2.3 years | 2.3 years | 2.0 years | 1.2 years | 1.0 years | 1.0 years |
| Expected Date of Completion | 1996 | – | 2000 | 2000 | 1999/2000 | 1999 | 1999 | 1998/1999 |

Notes:

(a) Alternative 2 right-of-way acquisition period is not included. This would extend the completion date.
(b) The variation in the environmental review process depends on whether the Mid-Embarcadero is linked with the TSS process.

There is a potential for time savings in the environmental review process for the Terminal Separator project if it is linked with the Mid-Embarcadero project. The City could potentially save 6-9 months through combination. If the projects are pursued independently the Mid-Embarcadero environmental review process would be completed mid-1995 and the TSS completed at the end of 1996. A combined environmental document could be completed early to mid-1996.

FHWA has given support to further exploration regarding a combined Mid-Embarcadero/Transbay Separator Structure environmental document and has also agreed to a concurrent rather than sequential review of the project by Caltrans and their own staff. Since the restoration of full access to the waterfront is dependent upon the completion of both projects, combining the projects appears to provide the most expeditious solution if alternatives are to be analyzed.

### Transbay Terminal

All TSS alternatives at this point assume that the Transbay Terminal (TTT) ramp system would remain in place. If the questions related to the future of the Transbay Terminal are kept independent of the Terminal Separator Structure, there should be no additional impact on the Mid-Embarcadero schedule. If the decisions regarding the future of the Transbay Terminal are linked to the Terminal Separator Structure and the larger issue of how regional transit service should be accommodated in this area is engaged, significant additional up-front delays to the Mid-Embarcadero project could result.

Land Use Alternatives

The Department of City Planning proposes to make a single recommendation for the land use program for the purposes of further Transbay Terminal Studies and Terminal Separator studies. An attempt to evaluate alternative land use scenarios, as well as, transportation alternatives would double the number of alternatives if two scenarios were considered and triple the number of alternatives if three scenarios were considered, etc.. It would unnecessarily complicate the process. Caltrans and FHWA have consistently rejected the idea of mixing land and transportation alternative analyses on the Mid-Embarcadero Project.

As further land use studies are completed and development proposals are considered, additional environmental review would be undertaken on the land use issues independently.

## Funding

If the City decides to pursue an evaluation of alternatives to the reconstruction of the Terminal Separator Structure, there needs to be assurance that the federal Emergency Relief (ER) monies will be available for an alternative project. The decisions made by the City regarding the Terminal Separator Structure could directly affect the options available for the Mid-Embarcadero project and vice versa. These decisions could also directly affect our case for funding eligibility. The estimated $95 - $100 million dollars for the Terminal Separator Structure replacement project and the $58.5 million for the Mid-Embarcadero project are at stake.

There are three critical issues to be addressed:

- Can an extension of the September 30, 1993 encumbrance date for the federal ER monies be granted,
- Can project funding be secured for an alternative replacement project, and
- Can the alternatives under consideration qualify as comparable facilities from a traffic and transit perspective?

To date, extensions beyond the September 30, 1993 deadline have been granted for the Mid-Embarcadero and the Central Freeway project. FHWA has given the City a preliminary indication that they would extend the deadlines while the City continue to work with Caltrans to explore alternatives.

The City will need to continue to work with Caltrans and FHWA before a determination is reached on the issue of secured funding. Initial assessments of comparable capacity indicate that all alternatives under consideration are in the range of 70 to 100 percent of pre-earthquake capacity.

# ACKNOWLEDGEMENTS


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Frank M. Jordan

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# APPENDIX

3/22/93-As amended in Board.
3/18/92-Amendment of the Whole

FILE NO. 171-92-9

RESOLUTION NO. 229-93

[Terminal Separator]

REQUESTING CALTRANS TO UNDERTAKE A STUDY OF ALTERNATIVE DESIGNS TO THE TERMINAL SEPARATOR STRUCTURE REPLACEMENT AND THE TRANSBAY TERMINAL.

WHEREAS, The elevated freeway known as the Terminal Separator Structure, was that portion of the Embarcadero Freeway which previously linked to the Bay Bridge and Highway 101 and included ramps in the vicinity of Main and Beale Streets, and was damaged and made inoperable by the 1989 Loma Prieta earthquake; and,

WHEREAS, The California Department of Transportation (Caltrans) is currently demolishing the Terminal Separator Structure and working on engineering designs for its replacement with a similar structure; and,

WHEREAS, An examination of current and future downtown transportation and land use may indicate that the design of the Terminal Separator replacement might best serve San Francisco's needs if it is different from the design of the structure being demolished; and,

WHEREAS, The City and County of San Francisco recognizes the economic dependence of the Northeastern Business District (including Chinatown, North Beach and Fisherman's Wharf) and their need for a timely and effective freeway connector that provides traffic flow and capacity comparable to that provided by the old Route 480, between I-80 and the Embarcadero roadway; and,

Supervisors Maher, Alioto, Shelley

BOARD OF SUPERVISORS

WHEREAS, The City and County of San Francisco recognizes the important need for timely and effective interim street access to and within the City and the necessity of preparing, funding and implementing an interim traffic program, including directional signage; and,

WHEREAS, Caltrans has completed cost estimates for the improvement of the Transbay Terminal facility, in order to meet seismic and other code standards, of between $30 and $60 million; and,

WHEREAS, An examination of current and future transit requirements may indicate that such requirements could be better met with a modern and efficiently designed transit hub at or near the existing site; and,

WHEREAS, Caltrans has expressed interest in working with San Francisco in an examination of alternatives to the full rehabilitation of the Transbay Terminal; and,

WHEREAS, An examination of alternative designs for a Terminal Separator replacement should consider information resulting from an examination of possible changes to the Transbay Terminal because of their proximity, land use planning and transportation planning implications; and,

WHEREAS, The study will place priority on examining alternatives within the existing Terminal Separator Structure footprint to ensure federal funding and to avoid a new environmental impact review; and,

BOARD OF SUPERVISORS

WHEREAS, The City and County of San Francisco recognizes the importance of improved access to the Transbay Terminal Area, Mission Bay and the Northeast Corridor and when studying alternatives, these needs will be considered; and,

WHEREAS, Caltrans has agreed to study with the City and County of San Francisco alternative designs to the Terminal Separator structure; and,

WHEREAS, When considered together, San Francisco has an unprecedented opportunity to plan for traffic and transit investments which will better serve existing and future land use patterns while potentially reducing the amount of land devoted to elevated freeway structures; now, therefore, be it

RESOLVED, That the City and County of San Francisco does hereby request Caltrans to alter the process they are following on the Terminal Separator Structure in order to work with San Francisco in the development and consideration of alternative replacement designs; and, be it

FURTHER RESOLVED, That the City and County of San Francisco does hereby request that any study of alternative replacement designs for the Terminal Separator Structure not substantially delay the construction and operation of the aforesaid flow of traffic from I-80 to the Embarcadero Roadway; and, be it



FURTHER RESOLVED, If the City determines that funding for the Terminal Separator Structure and the Mid-Embarcadero project is in jeopardy or at serious risk, or if any alternative adds substantial time to the rebuilding of said structures then Board of Supervisors shall then reconsider this Resolution to determine if continued preparation of a study is appropriate; and be it

FURTHER RESOLVED, That the study of the Terminal Separator Replacement design be completed by September 1, 1993; and be it

FURTHER RESOLVED, That San Francisco does hereby request Caltrans to work closely with San Francisco in the examination of alternatives to the costly rehabilitation of the Transbay Terminal, with the intent of considering an improved ~~replacement~~ transit hub; and be it

3/22/93 ajp

FURTHER RESOLVED, That the Mayor working with the Board of Supervisors urges the Department of Parking and Traffic to take immediate action to implement interim traffic measures without delay, and requests the Transportation Authority to make funds available for the interim traffic measures; and be it

FURTHER RESOLVED, That San Francisco does hereby request that Caltrans designate the City of San Francisco as the lead agency to undertake the studies called for on both the Terminal Separator Structure and the Transbay Terminal, and provide the City with adequate resources for said studies.

cr

Adopted - Board of Supervisors, San Francisco March 22, 1993

Ayes: Supervisors Achtenberg Alioto Bierman Hallinan Kennedy Maher Shelley

Excused: Supervisor Kaufman

Absent: Supervisors Conroy Hsieh Migden

I hereby certify that the foregoing resolution was adopted by the Board of Supervisors of the City and County of San Francisco

John L. Taylor
Clerk

File No. 171-92-9

MAR 26 1993
Date Approved

Mayor