Coast Route Refinement Study
Century Freeway to Marina Area

LOS ANGELES COUNTY TRANSPORTATION COMMISSION
Suite 500, Los Angeles, Calif., 90014

COAST ROUTE REFINEMENT STUDY

CENTURY FREEWAY TO MARINA SECTION

SUMMARY REPORT

JANUARY, 1985

LOS ANGELES COUNTY TRANSPORTATION COMMISSION

in association with:

Bechtel National Inc., (Engineering and Management)
Edward C. Barker & Associates, A.I.A (Architecture)
N.P.C.C., Incorporated (Costing and Scheduling)
Manuel Padron, Consultant (Operations)
Don Camph, Consultant (Liaison)

Figure No.1

Study Area

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA SECTION
SUMMARY REPORT

INTRODUCTION

The Los Angeles County Transportation Commission began its Rail Transit Implementation Strategy in 1983 to develop the Proposition A rail system. Stage One of the Rail Transit Implementation Strategy selected high-priority rail corridors. Stage Two defined representative routes and modes within those corridors and Stage Three identified an operating plan for the high-priority routes.

The Rail Transit Implemenation Strategy process resulted in a conceptual understanding of what routes the initial Proposition A rail system will use and how the system will operate. The next phase of rail development is to begin to refine and protect potential rights-of-way for the high-priority routes, especially in areas undergoing rapid commercial and residential development.

The Commission decided to undertake a route refinement study for the high priority Coast Route between the airport and the marina. Figure 1 locates the study area and sites within it. The Commission selected this route because of the planned developments north of the airport (LAX/Northside) and in the Summa Corporation's Playa Vista Project. These projects are in the initial planning stages and the Commission felt that a better definition of the Coast Route through these properties

would be mutually beneficial for the developers of the projects and the future Coast Route.

Concurrent with the Commission's plans to refine the Coast Route north of the airport, the City of Los Angeles began a Coastal Transportation Corridor Specific Plan study. The purpose of the City's study is to recommend transportation improvements in a travel corridor encompassing the City of Los Angeles between the cities of Santa Monica and El Segundo, the Pacific Ocean and the San Diego Freeway. This area experiences much traffic congestion which is expected to worsen significantly as planned developments progress.

The Coastal Transportation Corridor Specific Plan is intended to balance increases in development with transportation improvements to enhance mobility. As part of the overall transportation improvement strategy for the Coastal Corridor, the City of Los Angeles requested that the Commission study a route refinement throughout their specific plan area. The Commission agreed to expand its Coast Route Refinement study with the financial support of the City of Los Angeles.

This report is a summary of the study's results. It provides the City of Los Angeles with conceptual engineering and cost information on the future Coast Route so that it may incorporate these findings into the Coastal Transportation Corridor Specific Plan. With the Coast Route incorporated into the specific plan, the Commission can establish a process with the City Planning Department and other agencies to reserve the physical requirements for the route.

It is important to note that the alignment derived may not end up as the final specific alignment. A number of steps will lead up to this point. First, as was pointed out above, the future negotiations with developers and city agencies may modify the alignment. Second, the required environmental clearance process and its community involvement may modify the alignment. And finally, further engineering work may discover reasons why the alignment as shown may need to change slightly. Nevertheless, the alignment delineated at the end of this report is a most probable alignment and should be considered very close to the final alignment.

METHODOLOGY

The study was divided into two parts. The first part analyzed the engineering feasibility, utility and traffic impacts and costs of three alternative Coast Route alignments. Commission staff developed the alternative alignments after discussions with various public agencies interested in the Coast Route. Bechtel National Inc., et.al.*, engineering consultants, provided engineering services to determine the impacts and costs of the alternatives. An interim report was prepared which depicted the three alignment options and evaluated their impacts. This report was used as a vehicle for discussion and further refinement of the alignments in the second part of the study.

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* In association with Edward G. Barker and Associates, Manuel Padron, NPCC Inc. and Donald Camph.

In the study's second phase, the three alternatives were discussed with the staffs of various agencies involved (and the Summa Corporation in the Playa Vista area) to determine their reaction to the alternatives. Not suprisingly, there was not unanimity. The Commission consequently defined a compromise or preferable alternative after considering the agencies' comments, additional information and costs. The engineers then provided the Commission with more detailed engineering information about the preferable alternative, illustrated at the end of this report.

The next section of this report describes the preferable alignment plan and vertical profile and the reasons why it was selected. The alignment is described and analyzed in street segments that are shown in the engineering drawings at the end of the report.

DESCRIPTION OF THE PREFERABLE ALIGNMENT AND REASONS FOR SELECTION

The plan and profile description that follows traces the most probable Coast Route alignment from the Century Freeway to the Marina area. This preferable alignment follows, for the most part, major streets and is divided into segments for illustrative purposes. The rationale for preferring a particular horizontal or vertical alignment line segment is explained following the segment descriptions.

IMPERIAL/AVIATION TO CENTURY/AVIATION-DRAWING NOS. 1 & 2

Description

The preferable alignment begins on the west side of Aviation Blvd immediately north of the Imperial Hwy/Aviation Blvd intersection in an aerial configuration. It changes from an aerial structure to at-grade as it passes in front of the Airport's south runways. It again transitions to aerial structure just north of the runways before it turns west into the median of Century Blvd.

Rationale

The beginning of the alignment has to connect the Century Freeway Rail Line with the Coast Line. It has to transition from the end of the Century Freeway Rail Transitway (an aerial rail line), cross Aviation Blvd and Imperial Hwy, and avoid the planned Santa Fe grade-separation at this intersection. For these reasons, the preferable alignment is on the west side of Aviation, in aerial structure.

The route has to change from an aerial to at-grade profile as it passes in front of the airport runways because of the Federal Aviation Administration's flight clearance requirements. The alignment in this area may require an at-grade crossing at the entrance to the airport's cargo facilities immediately north of the Imperial Hwy/Aviation Blvd intersection. The traffic impacts caused by the at-grade crossing could be mitigated with appropriate vehicular controls or other measures.

CENTURY/AVIATION TO AIRPORT/96th-DRAWING NOS. 3, 4 & 5

Description

The preferable alignment continues west in the median of Century Blvd until Airport Blvd. An aerial station is tentatively located immediately east of the Century/Airport intersection. A conceptual Century Blvd station design, and all other Coast Route station designs, are illustrated in drawings at the end of the report.

At Airport Blvd the alignment turns north to 96th St. It remains on an aerial structure adjacent to the west side of Airport Blvd. As the alignment turns west from Airport Blvd to 96th St, it drops down to grade.

The preferable alignment remains at-grade along the southern boundary of Lot C to a station tentatively located in the existing SCRTD Airport Transit Center.

Rationale

The Route could follow the landscaped strip between the airport service road and the south side of Century Blvd, also in an aerial structure. However, this option is more expensive than an alignment in the median of Century Blvd because of the interference between underground utilities and the supports for the aerial columns.

If the alignment uses the median of Century Blvd, a potential visibility impact for cars making left turns from Century to the airport service road exists because of the columns supporting the rail line in the median of the street.

To avoid placing columns in the Airport/Century intersection to support the aerial structure, very costly reinforcement of the curved guideway at this location is necessary. The reinforced guideway structure may have adverse visual impacts.

96TH STREET STATION TO LINCOLN/MANCHESTER - DRAWING NOS. 5, 6, 7, 8, 9

Description

After leaving the 96th Street Station the preferable alignment immediately turns north through Lot C on an embankment until it rises to an aerial structure near the proposed Westchester Pkwy. It remains in the median of Westchester Pkwy as an elevated guideway west across Sepulveda just beyond the proposed extension to La Tijera Blvd. A station could be located at the north end of Lot C and Westchester Pkwy to serve the Westchester Business District on Sepulveda Blvd or between La Tijera and Sepulveda Westway.

The preferable alignment transitions at-grade from La Tijera and travels on the north side of the proposed Westchester Pkwy right-of-way. An at-grade station could be located at Emerson Rd serving the LAX/Northside Development if the Westchester Pkwy/Lot C Station option was chosen.

Rationale

One of the major obstacles confronting the Coast Route is the crossing of Sepulveda Blvd in the vicinity of Lot C. The heavy traffic on Sepulveda requires that the alignment be grade-separated across this major arterial. The flight clearance restrictions for aircraft landing on the airport's north runways is another major constraint in the Lot C area.

In order to satisfy the Sepulveda grade-separation and flight clearance restrictions, the preferable alternative shows the alignment travelling north across the Lot C Parking Lot in an at-grade configuration.

The Commission considered an alternative Lot C alignment that did not traverse the lot. The alternative alignment stayed on the perimeter of Lot C and either crossed Sepulveda in tunnel at Lincoln or continued around the lot's western perimeter before rising up in the air to cross Sepulveda. These options were eliminated because of the proposed new traffic overpass at 96th and Sepulveda. The tunnel was also eliminated after further study revealed a large, old, brick sewer line crossing Sepulveda diagonally; it prevents tunneling in the area.

Another option to avoid the flight restrictions altogether would be to continue the alignment north on Airport Blvd, beyond 96th to Arbor Vitae. It would turn west on Arbor Vitae along the north side of Lot C. This option would avoid traversing Lot C, but it would move the Airport Station and shuttle bus operation away from the existing RTD Transit Center to the northern

perimeter of Lot C at Arbor Vitae. This station location, however, could serve both the Westchester Business District on Sepulveda and the LAX/Northside Development using shuttle bus services.

Precisely how the rail line crosses Lot C remains uncertain. The approach shown has major impacts to the Lot C operation. Since this area will remain undeveloped, resolution of the matter now is not critical. Discussions with the airport and affected agencies should nevertheless continue.

Once the preferable rail alignment crosses over La Tijera, it drops to ground level along the north side of the proposed Westchester Pkwy through the LAX/Northside project. The at-grade line may have potential conflicts with service roads leading into buildings from Westchester Pkwy. However, these conflicts could be lessened since no roads or structures currently exist on the property. Coordinated planning between LACTC, the City's Departments of Airports and Planning, and developers could accommodate both the rail line and planned developments. Westchester Pkwy needs to be realigned slightly in the vicinity of Sepulveda Eastway to allow the aerial rail line to shift more easily to the north side of the parkway.

An at-grade station could be located at Emerson Rd to serve the LAX/Northside project. This station would replace the La Tijera station discussed above if the two-station option is selected.

LINCOLN BETWEEN MANCHESTER AND THE HUGHES AIRCRAFT CORPORATION HEADQUARTERS BUILDING - DRAWING NOS. 10 and 11

Description

If the area between Manchester and the Hughes Headquarters Building along Lincoln undergoes redevelopment, the rail line should be incorporated into the redevelopment plan at-grade. In the absence of redevelopment, the preferable rail alignment would remain at-grade as it leaves Westchester Parkway, proceed north on the east side of Lincoln Blvd, transition to a tunnel before reaching Manchester Blvd and continue below grade to the Hughes Aircraft Corporation Headquarters Building.

Rationale

In the absence of redevelopment, the preferable rail alignment is in a tunnel to avoid acquiring property for an at-grade section in this area.

The northern tunnel portal shown in the engineering drawing No. 11 is on the east side of Lincoln, near the entrance to the Hughes Headquarters building. This creates a conflict between the rail and the entrance road to the Hughes facility, which will have to be resolved. If the tunnel portal were in the middle of the street, Lincoln would have to be widened to accommodate the train. The portal could also be on the west side of Lincoln, if Lincoln is realigned to the east, toward the Hughes facility. This would keep the remainder of the route through the Playa Vista Project west of Lincoln. However, this westerly alignment

causes problems farther north because the light rail route must cross Lincoln to get to the east side and preserve options for either northerly or easterly extensions at Culver Blvd. This west side alignment is therefore not recommended.

Aerial and At-Grade Options - Lincoln between Manchester and Hughes Aircraft Corporation Headquarters Building

The least costly construction would be at-grade, but would require acquisition of businesses on either side of Lincoln between Manchester and 83rd. Acquiring buildings is unlikely unless the business area undergoes redevelopment and consequently right-of-way for the rail lines becomes available. The alignment cannot be aerial in this section because of the steep grade beginning at the bluffs near the Hughes Headquarters Building.

Nevertheless, if the area undergoes redevelopment, an at-grade rail alignment in this section would result in a savings of at least $19 million, the net cost of the tunnel section. The at-grade alignment could be in the middle of the street, or on either side; the east side would be recommended. In any case, the alignment chosen for this section would largely determine the alignment to the north. For example, if the alignment were in the median of a reconstructed Lincoln Blvd, it would remain in the median of Lincoln through the Playa Vista area.

LINCOLN BETWEEN THE HUGHES HEADQUARTERS BUILDING AND CULVER/LINCOLN - DRAWING NOS. 11, 12, and 13

Aerial Option - Lincoln between the Hughes Site and the Culver/Lincoln Interchange

The preferable rail alignment emerges from the tunnel portal at the Hughes Headquarters Building. It stays on an elevated structure as the Westchester bluffs (in front of the Hughes building) begin to drop-off rapidly. An aerial structure that remains above the descending bluffs decreases the grade the train follows down the bluffs, thereby improving operating conditions. Once the preferable alignment reaches the bottom of the bluffs, it remains elevated through the Playa Vista Project to the Lincoln/Culver interchange.

In order to provide for future rail extension options north along Lincoln Blvd and east along Culver Blvd, it would be desirable to continue the rail alignment parallel to Lincoln from the Hughes site through the Lincoln/Culver interchange. The design of the interchange should accommodate rail movements north on Lincoln and east on Culver. To do this it will have to be a 3-level interchange with the rail line in the middle level. Any redesign of this interchange must accommodate the rail needs.

At-Grade Option - Lincoln between the Hughes site and the Culver/Lincoln-Interchange

The alignment from the Hughes site to the Culver/Lincoln interchange could be on the surface. Whether this is done and where it is located depends on the plan and profile of the alignment south of the Westchester bluffs.

As discussed above, an at-grade alignment is only feasible if the business area between Manchester and 83rd on Lincoln undergoes redevelopment. Similarly, the location of the at-grade alignment would depend on how Lincoln Blvd is realigned or widened. Regardless of whether Lincoln is widened to the east or west, it must be straightened as it passes through the Westchester Bluff to allow for at-grade train operations. The steep grade of the bluffs combined with the existing road curvature would result in very slow train speeds up and down the bluff. The slow speeds would cause excessive wear of the electric train motors in addition to increasing travel time.

Whether aerial or at-grade, the preferable alignment should be designed and constructed integral with the Playa Vista Project development.

Playa Vista Project

The Playa Vista Project is a major mixed-use development including several million square feet of commercial and industrial space and several thousand residential dwelling units. This scale of development is an important source of patronage for the rail line. The rail line, in turn, provides a substantial benefit to the project through increased mobility for residents and patrons using the project's facilities. Planning and development of the rail line and the project should be closely coordinated to maximize the benefits of each.

The preference expressed in this report that the Coast Route alignment follow the Lincoln right-of-way through the Playa Vista Project is based on preliminary land use information about the project. The Summa Corporation does not have any site plans to further define the way in which the land uses will be developed. Without more detailed plans about the structures for the project, LACTC staff could not determine how the rail line would best serve Playa Vista.

The uncertainties about the location of specific Playa Vista structures in conjunction with efficient rail operations indicated that the alignment should follow Lincoln. However, this alignment will be periodically re-evaluated as the specific site plans for Playa Vista emerge.

STATIONS

The following section briefly describes the design and purpose for each of the stations illustrated in the drawings at the end of the report.

CENTURY STATION

The Century Station is a side-platform station designed to serve employess and patrons using the Century Blvd hotels, offices and other buildings. The station is primarily designed for pedestrian access.

AIRPORT STATION

The Airport Station at 96th near Sepulveda is designed to pass directly through the SCRTD Transit Center, allowing for cross-platform transfers from rail to bus. The convenient rail-to-bus transfer encourages transit ridership throughout this area.

The station is also located to be near the existing airport shuttle bus facility. This provides for easy transfers from rail to shuttle buses for the distribution of rail passengers to the airport terminals.

SEPULVEDA EASTWAY STATION

This station could replace the Airport Station if the alignment is chosen which does not serve the existing SCRTD Transit Center and shuttle bus facility. It would provide service for rail passengers travelling to the airport terminals, but would not accommodate rail-to-local bus transfers unless the existing SCRTD Transit Center were moved to this site. Shuttle bus service to the airport might also be less efficient at this station location.

EMERSON ROAD STATION

The Emerson Road Station would be built only if the Sepulveda Eastway Station is also built. This ground-level station would serve the LAX/Northside Project. It would have facilities for

shuttle bus and regional SCRTD bus transfers in addition to parking for Westchester residents using the rail line. The parking might be integrated into the LAX/Northside Project.

LAX/NORTHSIDE STATION

This center-platform, elevated station would combine the purposes of the Sepulveda Eastway and Emerson Stations to serve the LAX/Northside project and the Westchester Business District on Sepulveda. The station has facilities for shuttle and regional busses, kiss-ride access and a parking lot. The shuttle buses would distribute and collect rail passengers using the Westchester Business District and the facilities in LAX/Northside. The parking lot, kiss-ride and bus access elements of this station are spread out south of Westchester Pkwy. The land south of Westchester Pkwy has less development potential than land north of the parkway because of the airport's flight path restrictions. For this reason the parking lot, kiss-ride and bus access station elements are further away from the station entrances than is normally the case.

MANCHESTER STATION

A station should be located at Manchester Blvd. However, since the preferred at-grade configuration is in doubt, no schematic illustration has been prepared. A station in a tunnel section would not be cost-effective at that location.

JEFFERSON STATION

This center-platform station serves the residential, commercial industrial and recreational uses proposed for the Playa Vista Project. It has facilities for the Playa Vista shuttle bus system, SCRTD regional buses, kiss-ride access and a parking lot and should be integrated into Playa Vista developments.

SOUTH MARINA STATION

The South Marina Station is the present terminal station for the Coast Route. It is located near the Culver/Lincoln interchange to serve the Marina, the Playa Vista Project, and rail passengers arriving by bus or car from the north/northeast. The station would be elevated with a center platform. Shuttle and regional bus access is directly under the station to allow for convenient bus-to-rail transfers. Parking extends east in the abandoned railroad right-of-way that occupies a strip of land north of Culver Blvd.

The final design and location of this terminal Coast Route station will depend on the proposed developments in the Playa Vista Project and Marina. Regardless of the station's location, it will maintain its function as a major transfer station for shuttle and regional buses, and as a kiss-ride and park-ride station for rail passengers arriving in autos.

COST

The cost information for the Coast Route Refinement Study at this point in the rail development process is of most use to the City of Los Angeles for its Coastal Corridor Transportation Specific Plan. The City is considering levying a fee for any building permit in the corridor, the revenues from which will be used to help finance transportation projects to increase access and mobility: e.g., roadway widening, intersection improvements, and the rail project. Providing the city with approximate cost estimates for the rail line, especially the cost of any grade separations, is intented to avoid the allocation of transportation fees sufficient only for roadway improvements.

The chart below shows the cost of the preferable alignment with and without certain grade separations. The Commission may not be able to finance on its own as much grade separation as might be desired and requested its consulting engineers to provide cost estimates for segments of the alignment with varying degrees of grade separation.

Coast Route Coast Estimates*
(Million of 1984 Dollars)

Alignment Segment	Cost
1. Imperial/Aviation to Manchester/Lincoln - Aerial & At-Grade	44.9
2. Manchester/Lincoln to Hughes Building - Tunnel	30.9
3. Hughes Building to South Marina Station - Aerial	21.1
Total Cost of Preferable Alignment - Maximum Grade Separation	**96.9**
1. Imperial/Aviation to Manchester/Lincoln - Aerial & At-Grade	44.9
2A. Manchester/Lincoln to Hughes Building - At-Grade (includes and estimate of right-of-way cost)	11.7
3A. Hughes Building to South Marina Station - At-Grade	14.2
Total Cost of Preferable Alignment - Maximum At-Grade Sections	**70.8**

*Costs do not include yards and shops or vehicles. They do include a 20% contingency factor.

On the chart, Line 1 provides an estimate of the alignment's cost up to the Manchester/Lincoln intersection. Line 2 shows the cost of the tunnel section between Manchester and the Hughes Aircraft Corporation Building. Line 3 is the cost of an aerial section between the Hughes Building and the terminal station in the South Marina. Line 2A gives the cost of the at-grade option between Manchester and the Hughes Building. Line 3A is the cost of the Hughes to South Marina station section, but at-grade.

The total cost of the preferable alignment with the maximum amount of grade separations is $96.9 million (lines 1+2+3). With maximum at-grade sections the total cost of the preferable alignment is $70.8 million (lines 1+2A+3A).

As the chart indicates, grade-separating the alignment with a tunnel and aerial section bewteen Manchester/Lincoln and the South Marina Station through the Playa Vista Project increases the rail project cost by $26.1 million.

CONCLUSIONS

The Coastal area near the Los Angeles International Airport and Marina del Rey is undergoing intensive development. New projects, such as Playa Vista and LAX/Northside, are beginning site planning studies. These new developments are within the LACTC's high-priority Coast Route and will influence the route's alignment and cost of implementation.

The Commission initiated the Coast Route Refinement Study to better define this high-priority route and to allow developers of LAX/Northside and Playa Vista and public agencies to better plan for the anticipated rail line. The study will also assist the City of Los Angeles in allocating revenues it plans to collect from developers to help finance transportation improvements in the Coastal Corridor. And it is the first step in establishing a process to help protect the right-of-way for the future rail line.

The second step in the process to protect the future rail line's right-of-way begins with resolving a number of policy issues. Some of these issues must be resolved immediately because of construction projects that are planned within the next few months. Other issues can wait until further commercial development plans proceed.

The following list breaks down the alignment issues into those which should be resolved immediately and future conflicts that will require resolution before the Coast Route can be constructed.

Immediate Issues:

1. Commercial use of the triangular piece of property between 96th St, 96th Place and Airport Blvd. Any structure built on this piece of property would have to accommodate the rail line, proposed in this area to be an aerial structure.

2. Alignment of the proposed Westchester Parkway in the LAX Northside Development. The flyover of the rail line across Sepulveda Blvd would require columns in the street right-of-way and a realigning of the proposed Westchester Parkway currently included in the LAX Northside Subdivision Map. The rail alignment through the LAX Northside development has a determining influence on the route outside the development and should be resolved as soon as possible.

3. The study has indicated a rail-auto conflict at the entrance to the Hughes Aircraft Corporation Headquarters Building. This conflict could be mitigated by placing the line in the median of Lincoln. Placing the train in the street median will require widening of Lincoln to maintain or expand it's traffic capacity. How Lincoln is widened will depend, to some extent, on the way Summa Corporation plans the development of its Playa Vista Property. This interrelationship between the design of the rail line and the physical site plans of the Playa Vista Project will require close cooperation between LACTC, other public agencies, the Summa Corporation, and the Hughes Aircraft Corporation.

Future Issues:

1. The rail line is proposed to cross the air cargo entrance at-grade a few hundred feet north of the Imperial/Aviation intersection. This may present unacceptable rail-traffic conflicts.

2. The impacts to private property associated with an elevated line on the West side of Airport to 96th.

3. A major problem is where and how to cross Airport Lot C. The alternative shown is very disruptive to Lot C operation, but there are few other alternatives.

4. On Lincoln between Manchester and the Hughes Headquarters Building, an aerial/at-grade alternative is preferable, but requires private property. The study has identified the additional cost to place the rail line in tunnel. (The tunnel adds 27% to the cost of the project.)

It is the City of Los Angeles that must have the primary burden of protecting the Coast Route right-of-way because it is the City in this area that approves building permits and widens roadways. The Commission will assist as necessary. This may include negotiations with affected agencies or developers to resolve pending conflicts or, in rare instances, it may involve the purchase of the right-of-way in question with either Corridor Transportation Funds, City Proposition A Local Return Funds, or Proposition A Rail Funds. Procedures for working out these conflicts and financing responsibilities will be a logical follow-up of this study.

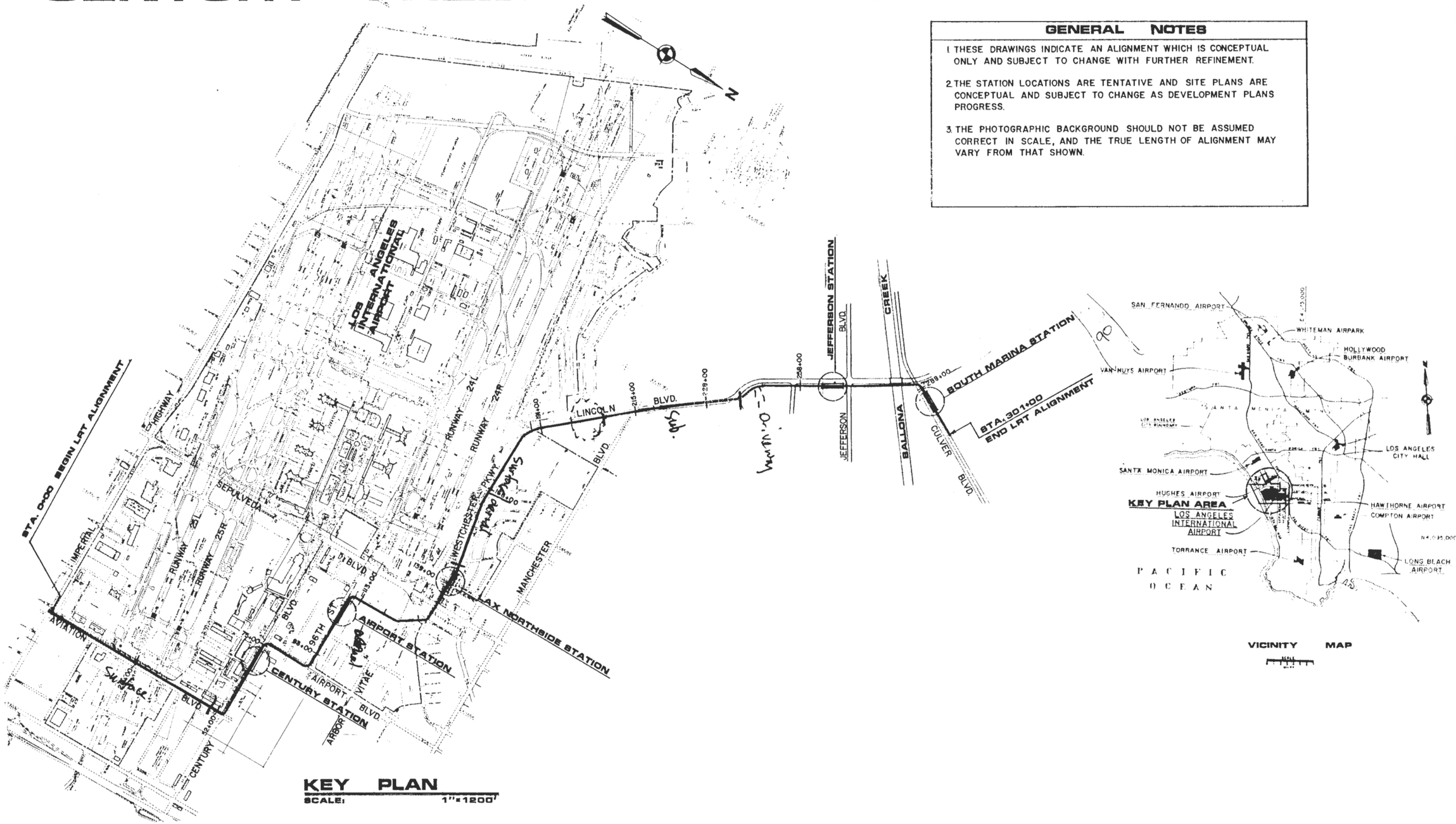
ACKNOWLEDGEMENT

The COMMISSION staff wants to thank the PUBLIC and PRIVATE organizations that devoted much time and effort to the study. The organizations provided Commission staff with initial alignment alternatives, a review of the engineeing feasibility of the alternatives, and final alignment preferences. These organizations include:

Los Angeles City Councilwoman Pat Russell's Office
The Los Angeles City Department of Planning
The Los Angeles City Department of Transportation
The Los Angeles City Department of Airports
The Los Angeles County Regional Planning Department
The California Department of Transportation
The Federal Aviation Administration
The Howard Hughes Development Corporation

LOS ANGELES COUNTY TRANSPORTATION COMMISSION

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

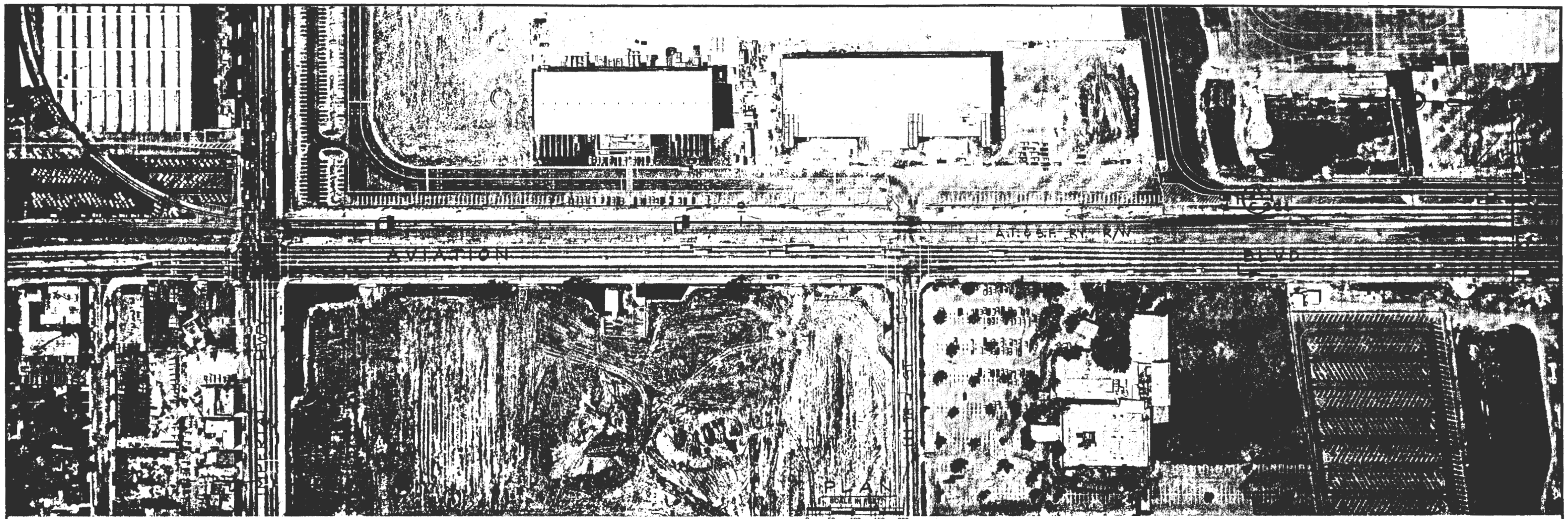


KEY PLAN
SCALE: 1"=1200'

GENERAL NOTES

1. THESE DRAWINGS INDICATE AN ALIGNMENT WHICH IS CONCEPTUAL ONLY AND SUBJECT TO CHANGE WITH FURTHER REFINEMENT.
2. THE STATION LOCATIONS ARE TENTATIVE AND SITE PLANS ARE CONCEPTUAL AND SUBJECT TO CHANGE AS DEVELOPMENT PLANS PROGRESS.
3. THE PHOTOGRAPHIC BACKGROUND SHOULD NOT BE ASSUMED CORRECT IN SCALE, AND THE TRUE LENGTH OF ALIGNMENT MAY VARY FROM THAT SHOWN.

VICINITY MAP

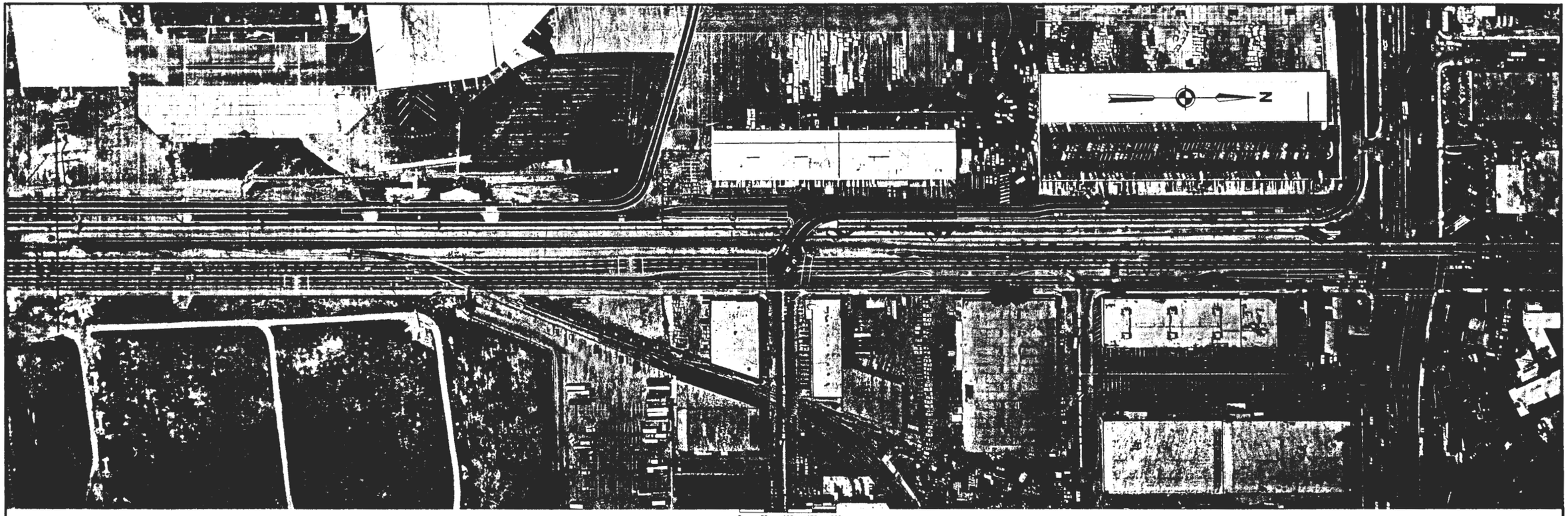


ALIGNMENT AND PROFILE TO MATCH CENTURY RAIL LINE INTERCHANGE REQUIREMENTS

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

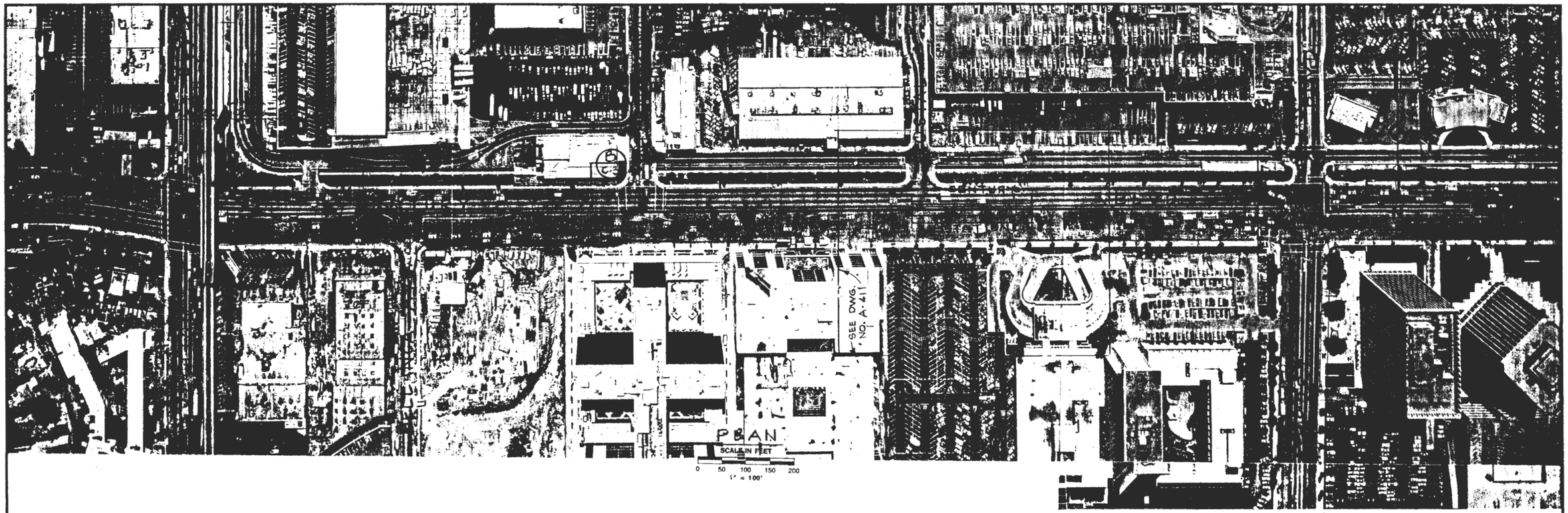
DRAWING NO. 1

22 x 34 "D" SIZE



COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 2

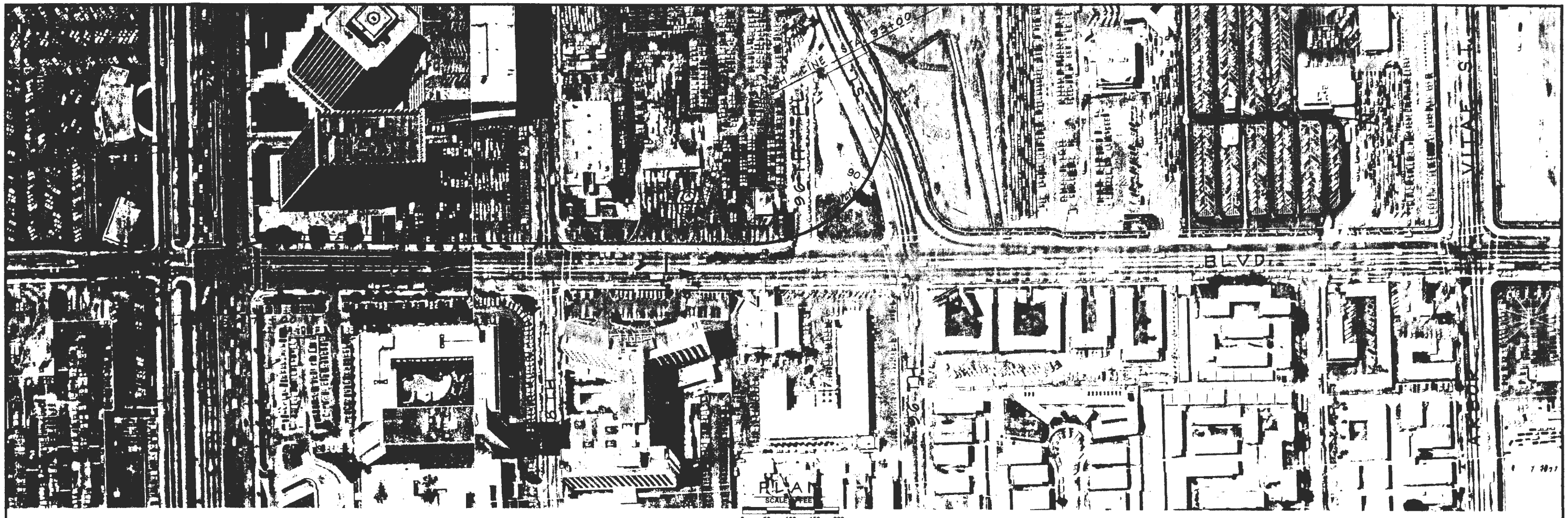


ALIGNMENT SHOULD BE IN MEDIAN OF CENTURY BOULEVARD BECAUSE OF UTILITY IMPACTS ON SOUTH SIDE

STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

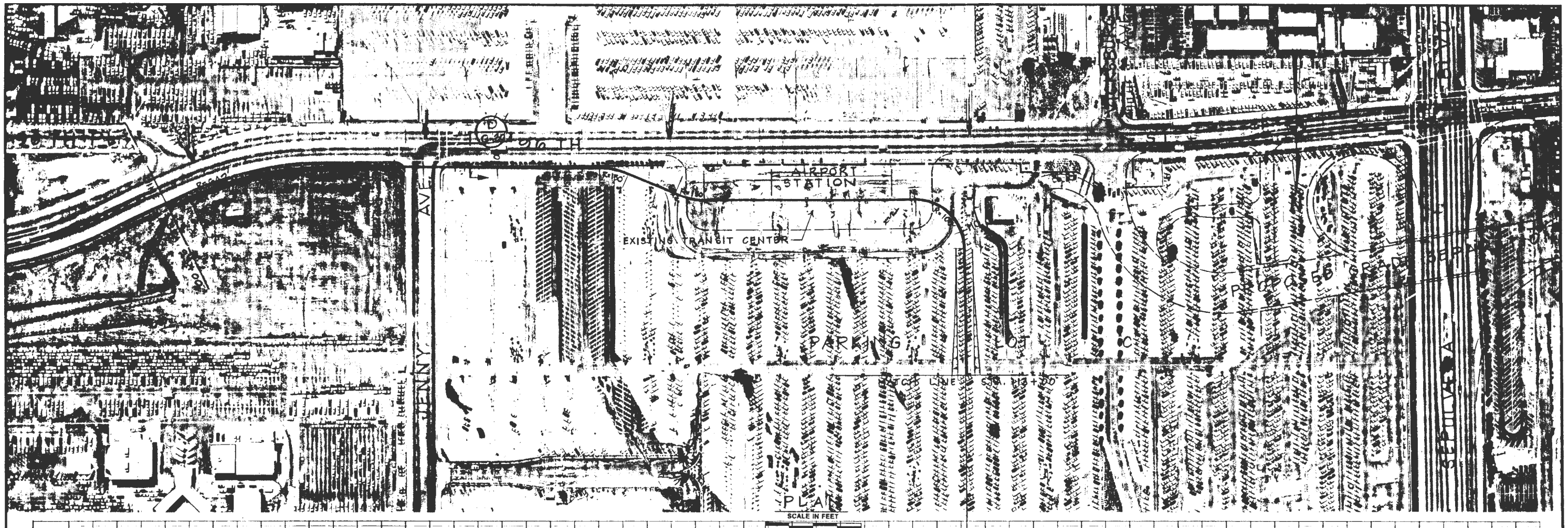
DRAWING NO. 3



ALIGNMENT COULD BE IN MEDIAN OF AIRPORT BOULEVARD IF ROADWAY WIDENED

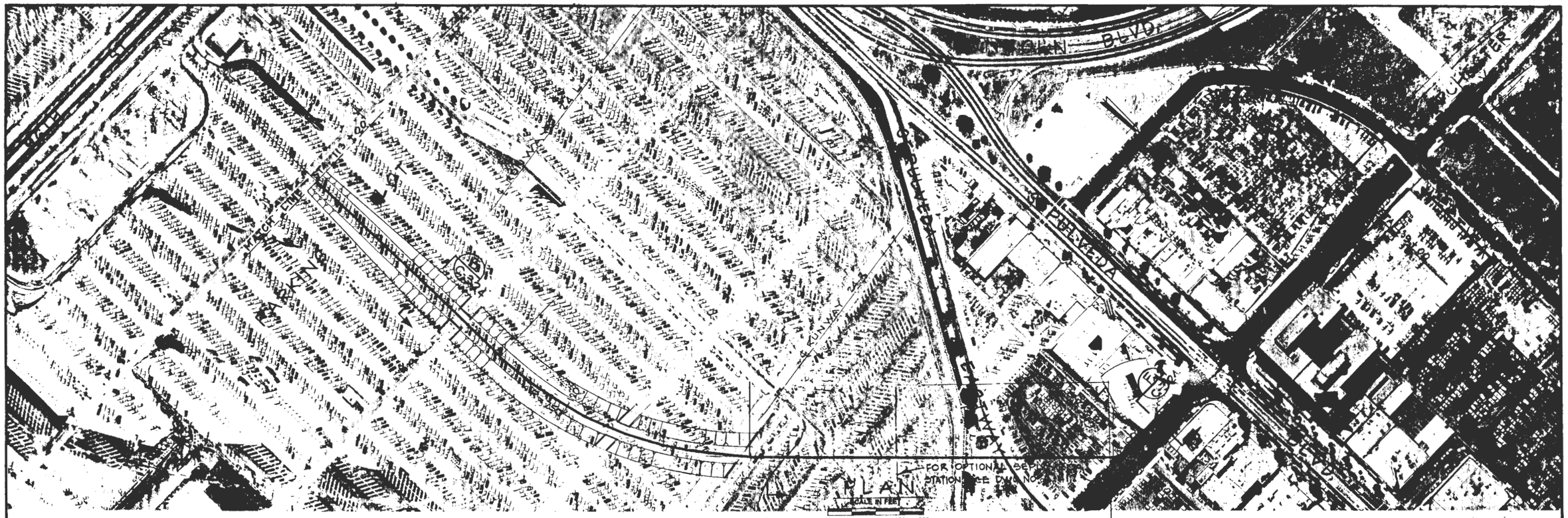
COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 4



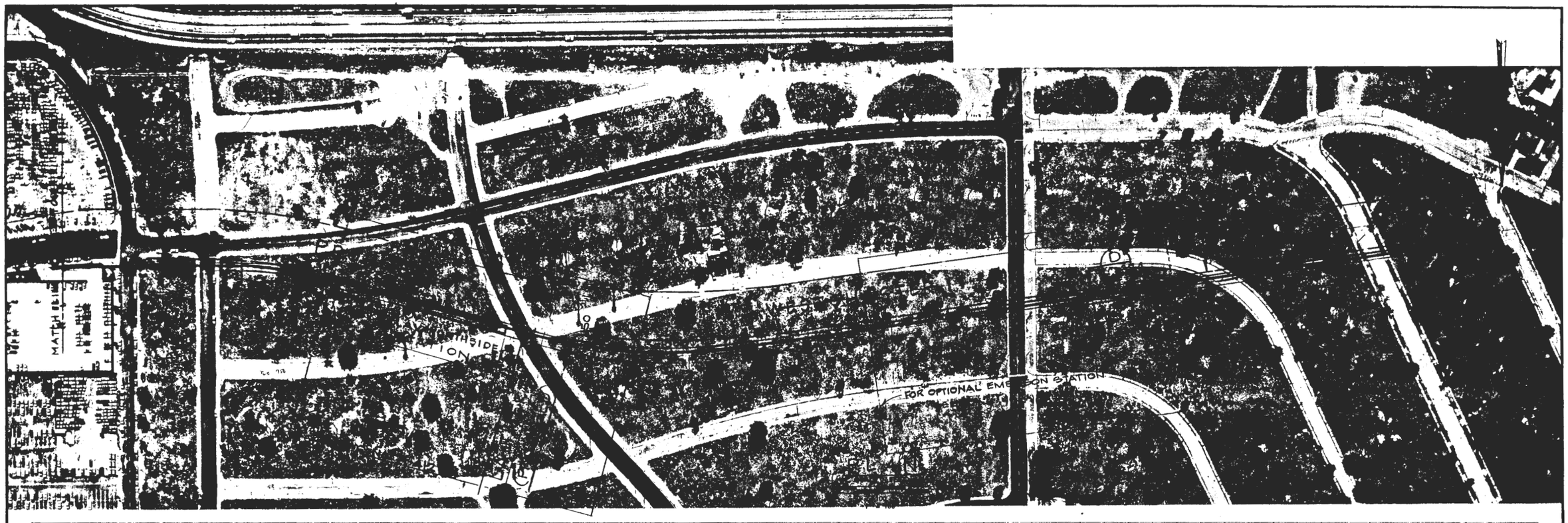
COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 5



COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 6

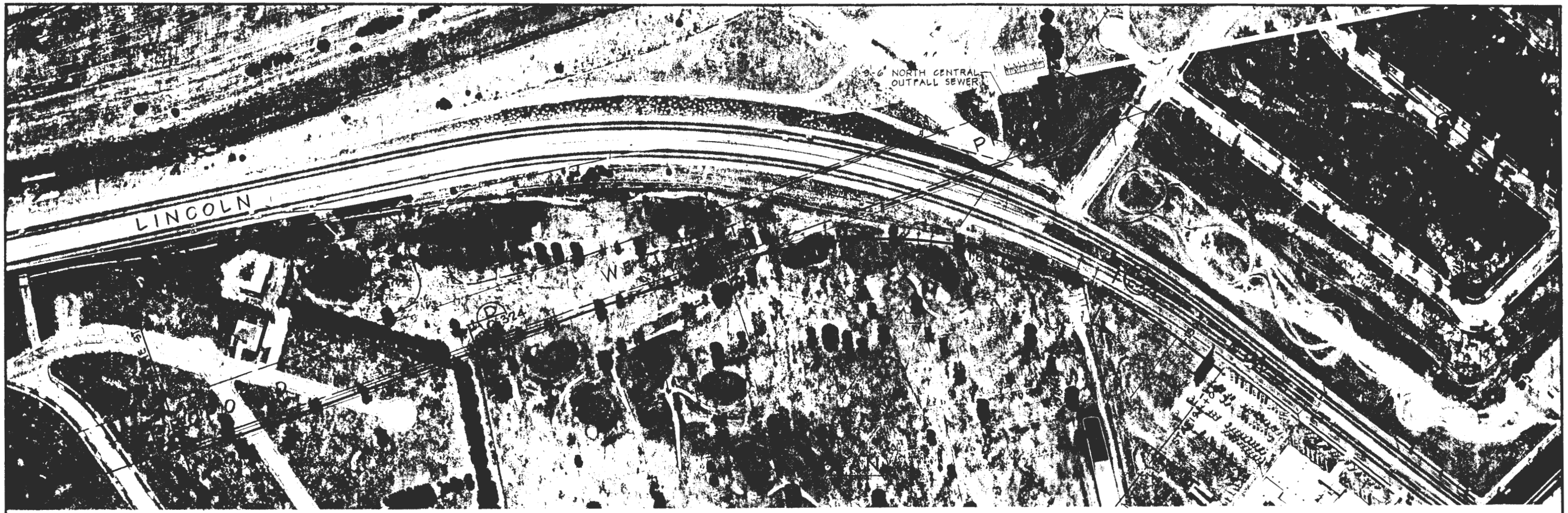


ALIGNMENT CHANGE PROPOSED FOR WESTCHESTER PARKWAY

STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

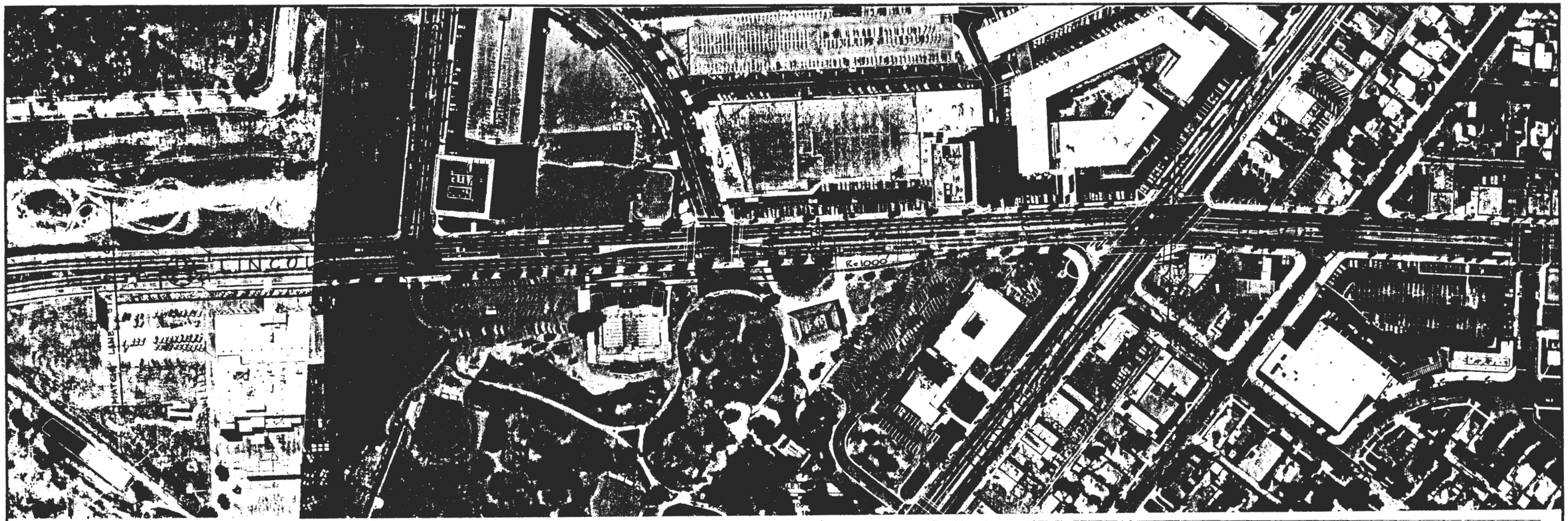
COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 7



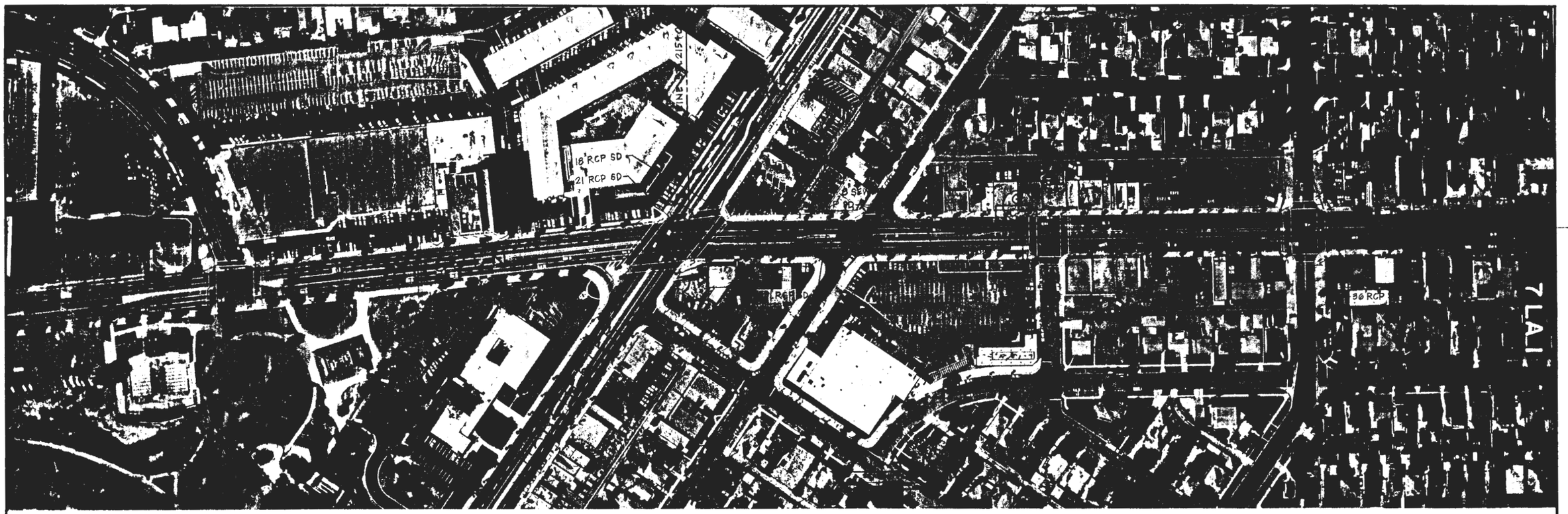
COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 8



COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

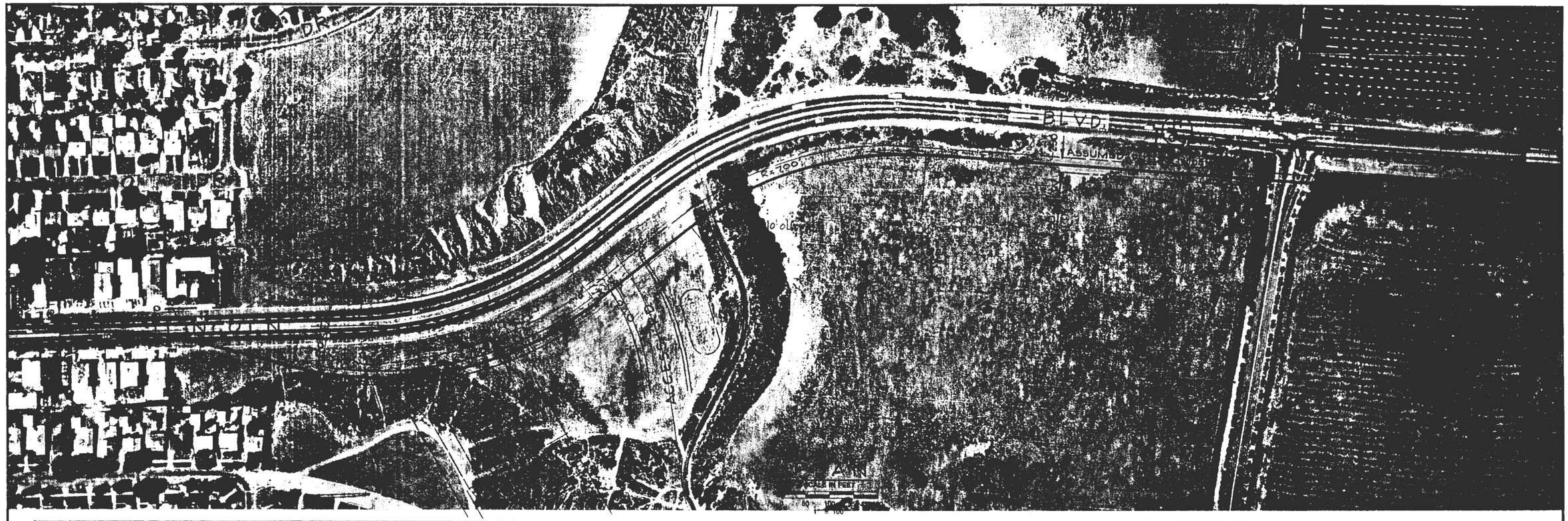
DRAWING NO. 9



RECONSTRUCTION OF LINCOLN BLVD. BY OTHERS WOULD ALLOW RAIL LINE TO BE AT GRADE. THIS CHANGE WOULD PERMIT ADDITION OF STATION IN THIS AREA

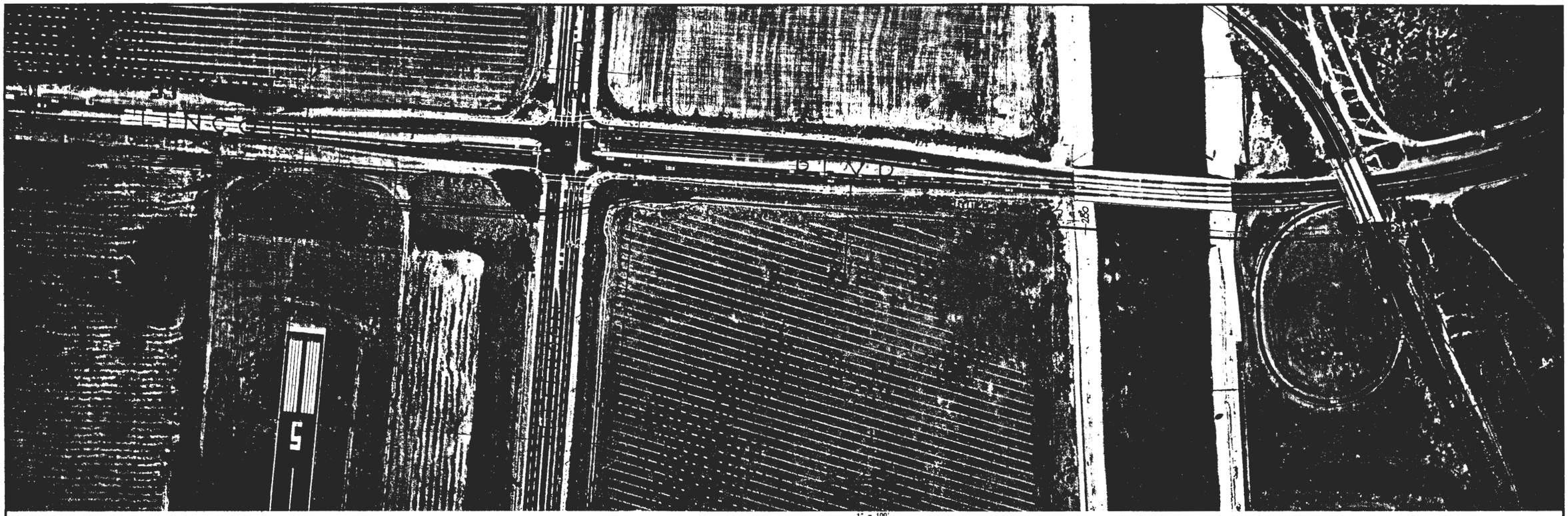
COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 10



COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 11



1" = 100'

RAIL ALIGNMENT FROM BLUFF TO CULVER BOULEVARD ASSUMES WIDENING OF LINCOLN BOULEVARD. ALIGNMENT COULD CHANGE WITH RECONSTRUCTION OF LINCOLN BOULEVARD BY OTHERS. ALIGNMENT COULD ALSO CHANGE TO INTEGRATE WITH DEVELOPMENT

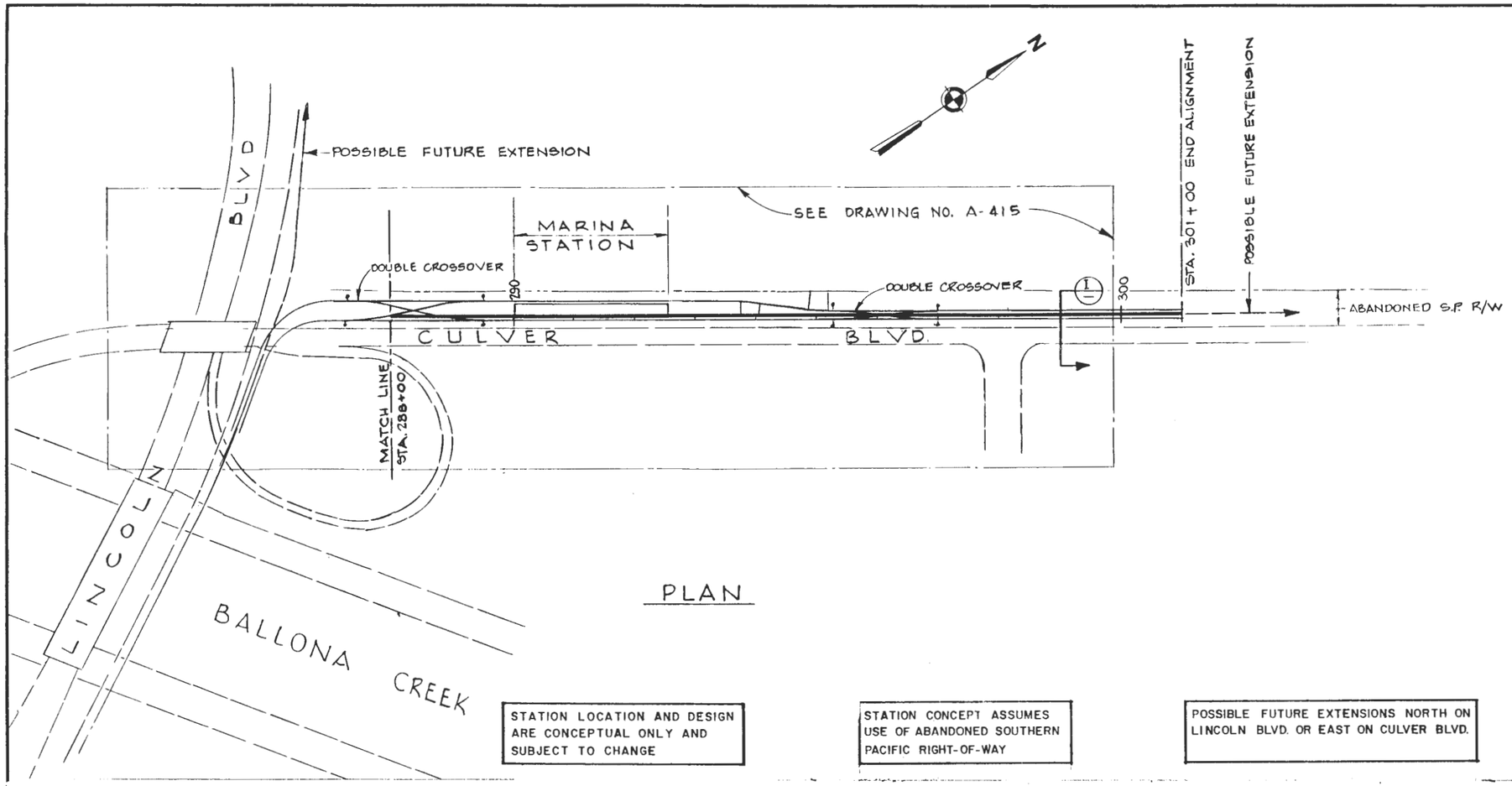
STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

RAIL ALIGNMENT INDICATED ASSUMES INTERCHANGE RECONSTRUCTION BY OTHERS. AN ALTERNATE ALIGNMENT WOULD SKIRT INTERCHANGE TO THE EAST

POSSIBLE FUTURE EXTENSIONS NORTH ON LINCOLN BOULEVARD OR EAST ON CULVER BOULEVARD

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 12



PLAN

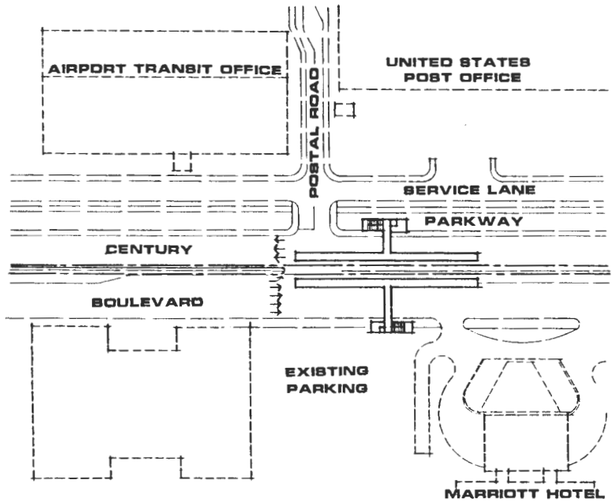
STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

STATION CONCEPT ASSUMES USE OF ABANDONED SOUTHERN PACIFIC RIGHT-OF-WAY

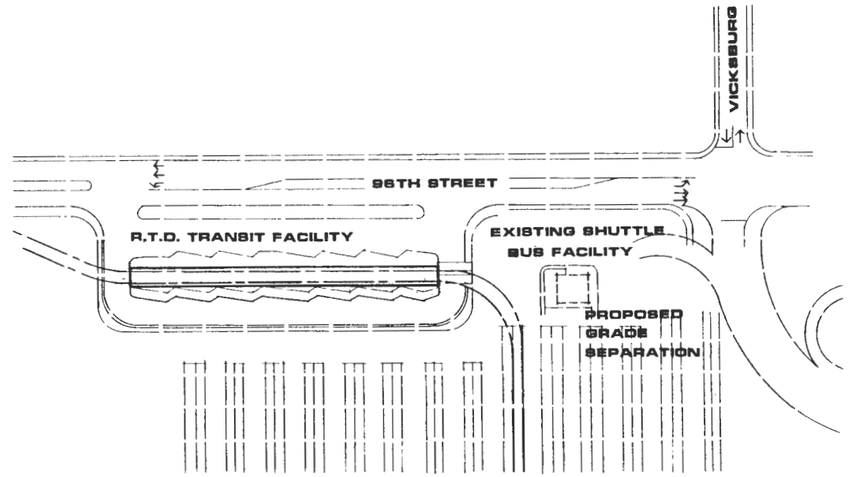
POSSIBLE FUTURE EXTENSIONS NORTH ON LINCOLN BLVD. OR EAST ON CULVER BLVD.

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA

DRAWING NO. 13



CENTURY STATION

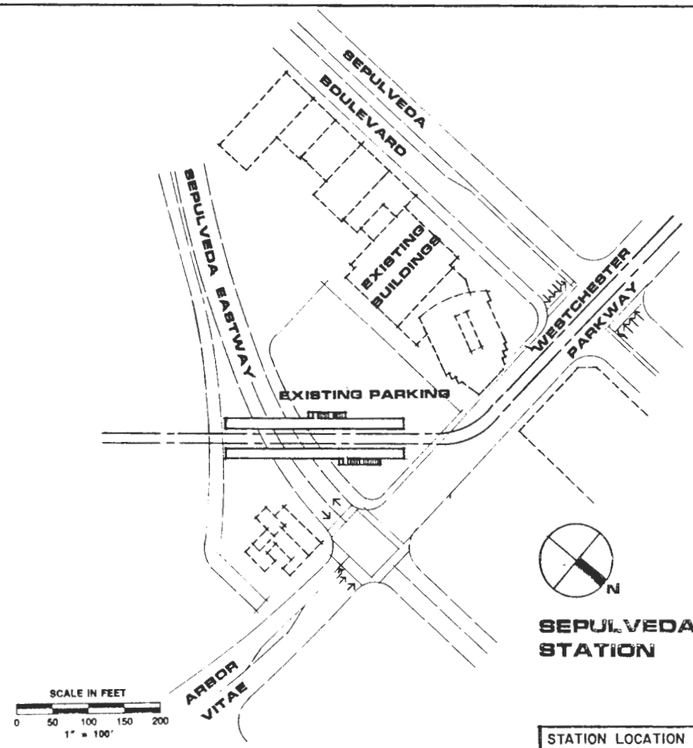


AIRPORT STATION

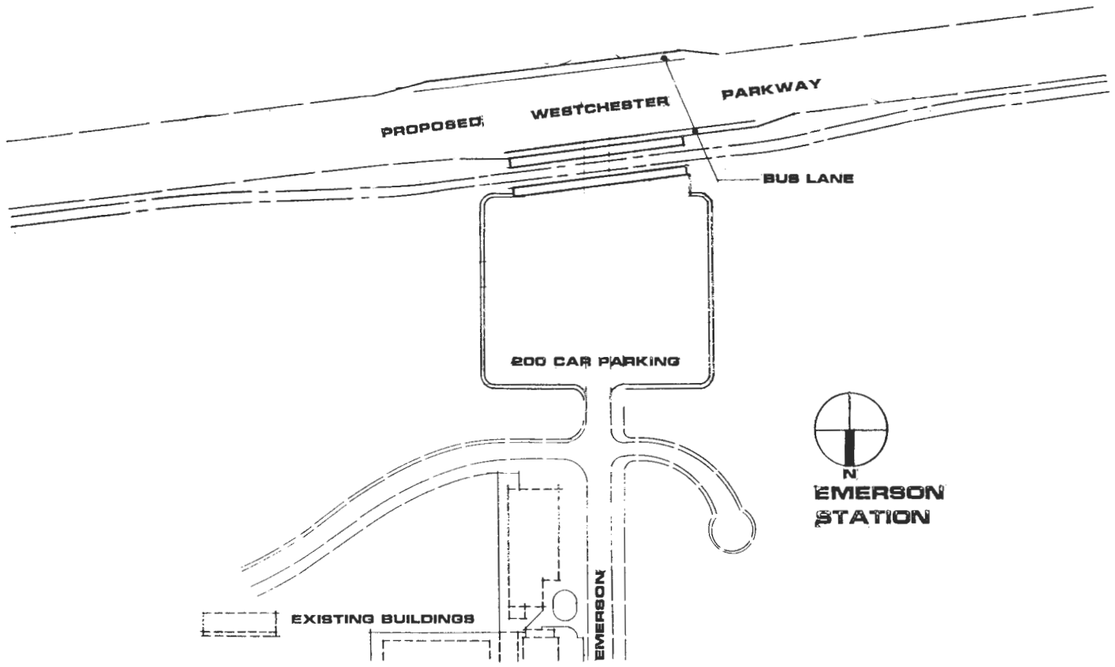
STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

SCALE IN FEET
0 50 100 150 200
1" = 100'

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA



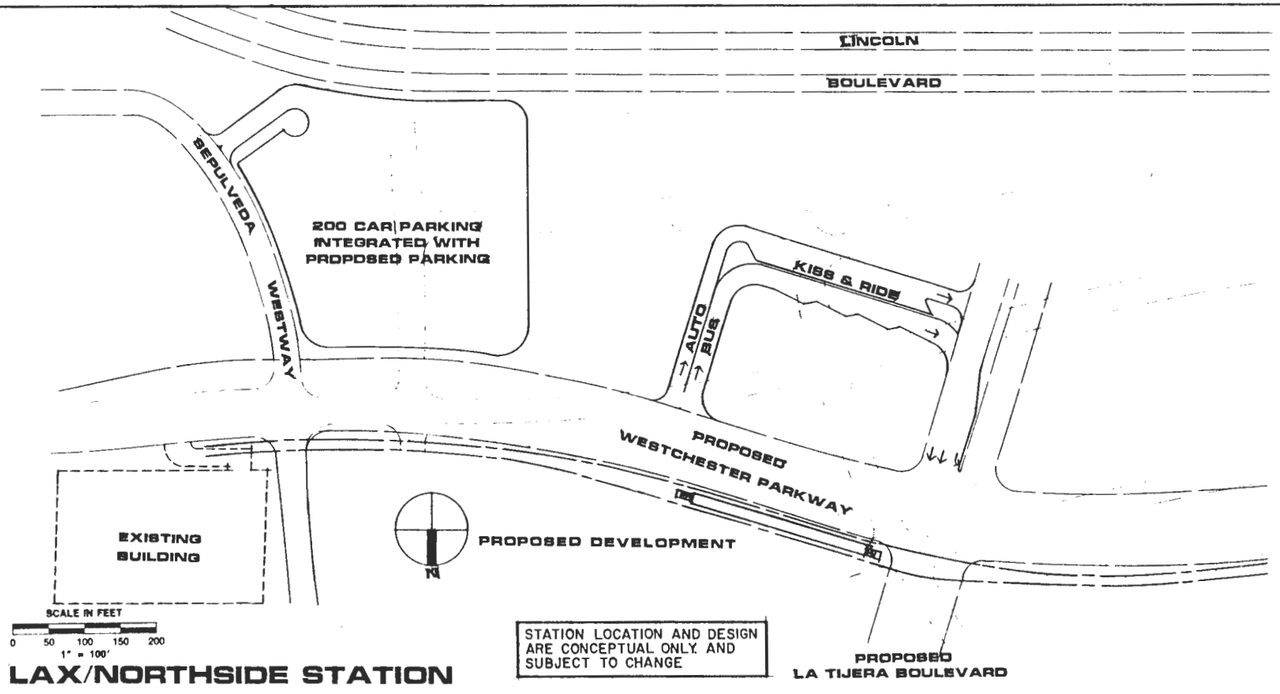
SEPULVEDA EASTWAY STATION



EMERSON STATION

STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

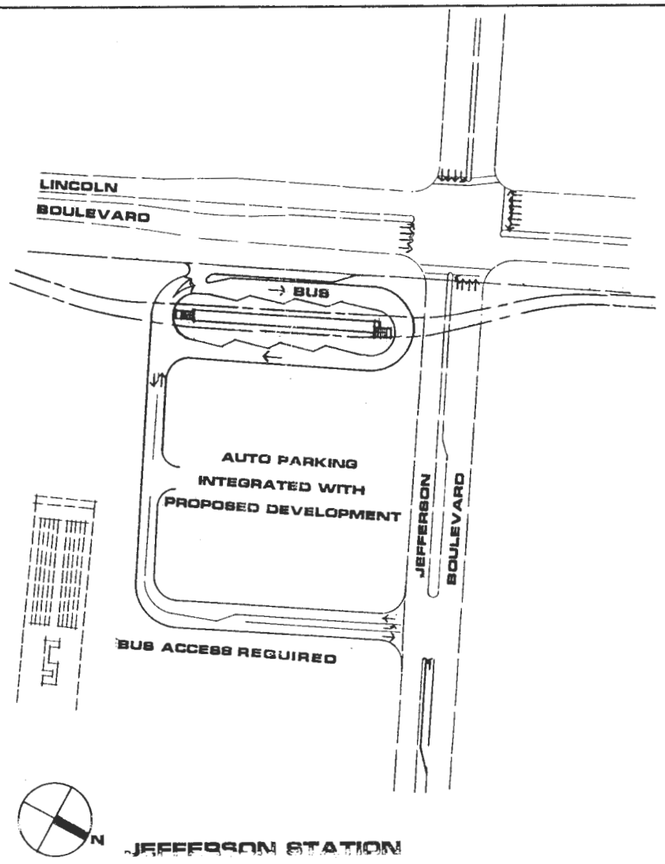
TWO-STATION ALTERNATIVE
SEPULVEDA-LAX/NORTHSIDE STATION



STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE

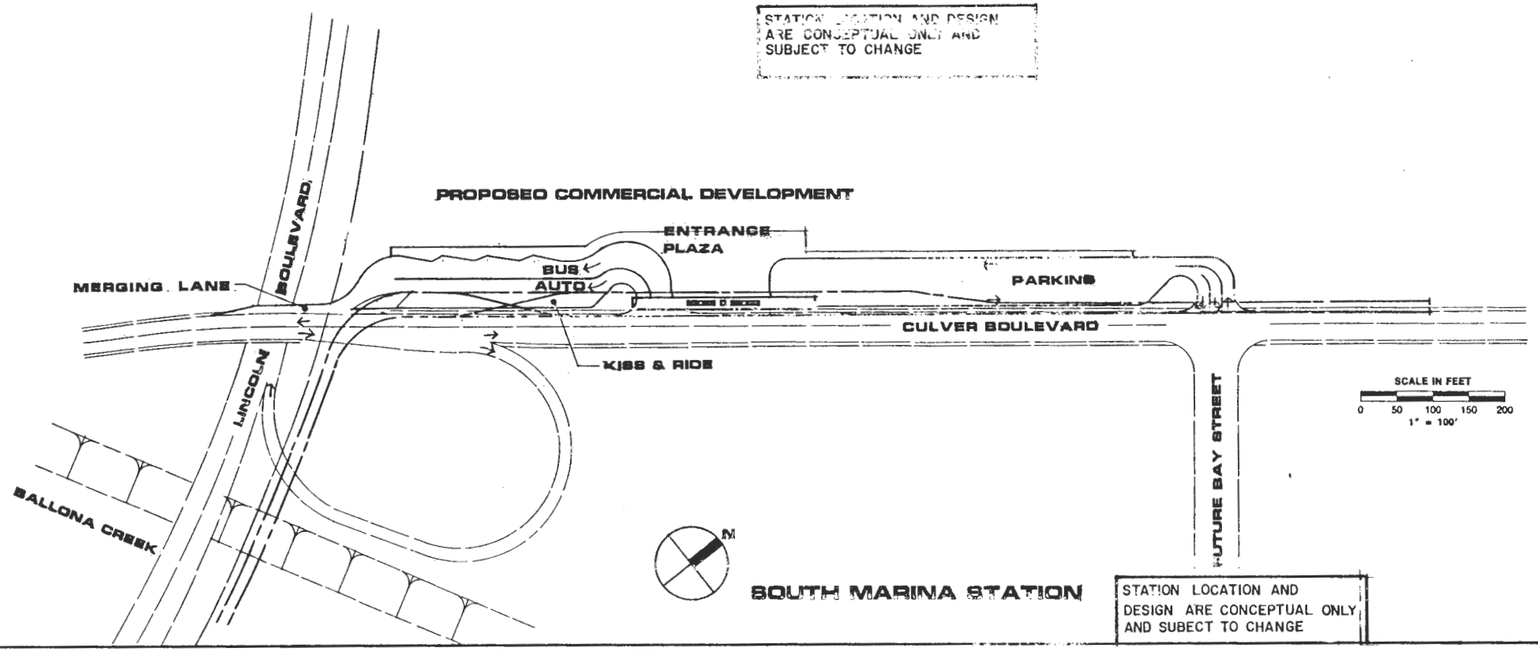
LAX/NORTHSIDE STATION

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA



JEFFERSON STATION

STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBJECT TO CHANGE



SOUTH MARINA STATION

STATION LOCATION AND DESIGN ARE CONCEPTUAL ONLY AND SUBECT TO CHANGE

COAST ROUTE REFINEMENT STUDY
CENTURY FREEWAY TO MARINA AREA