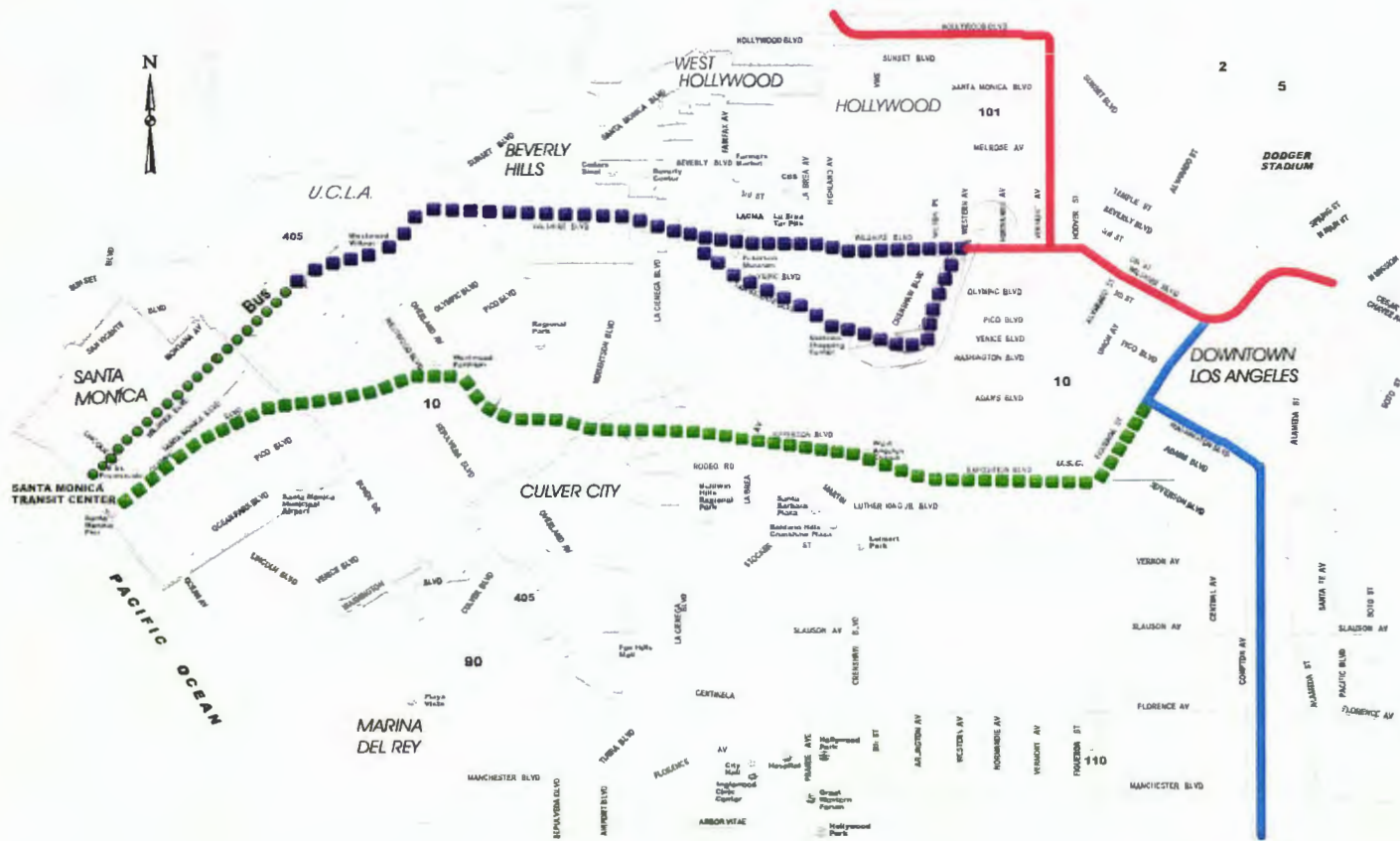
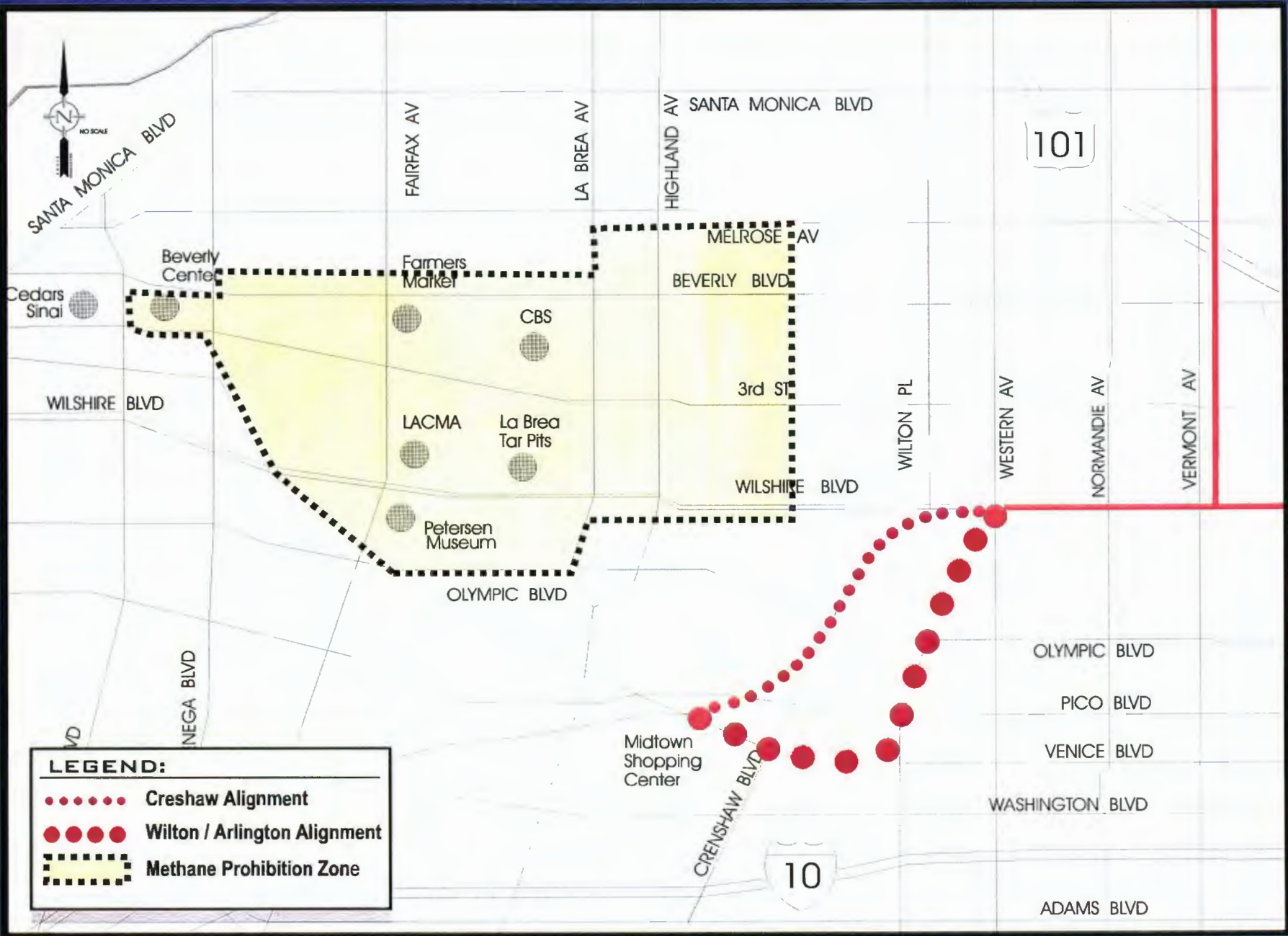


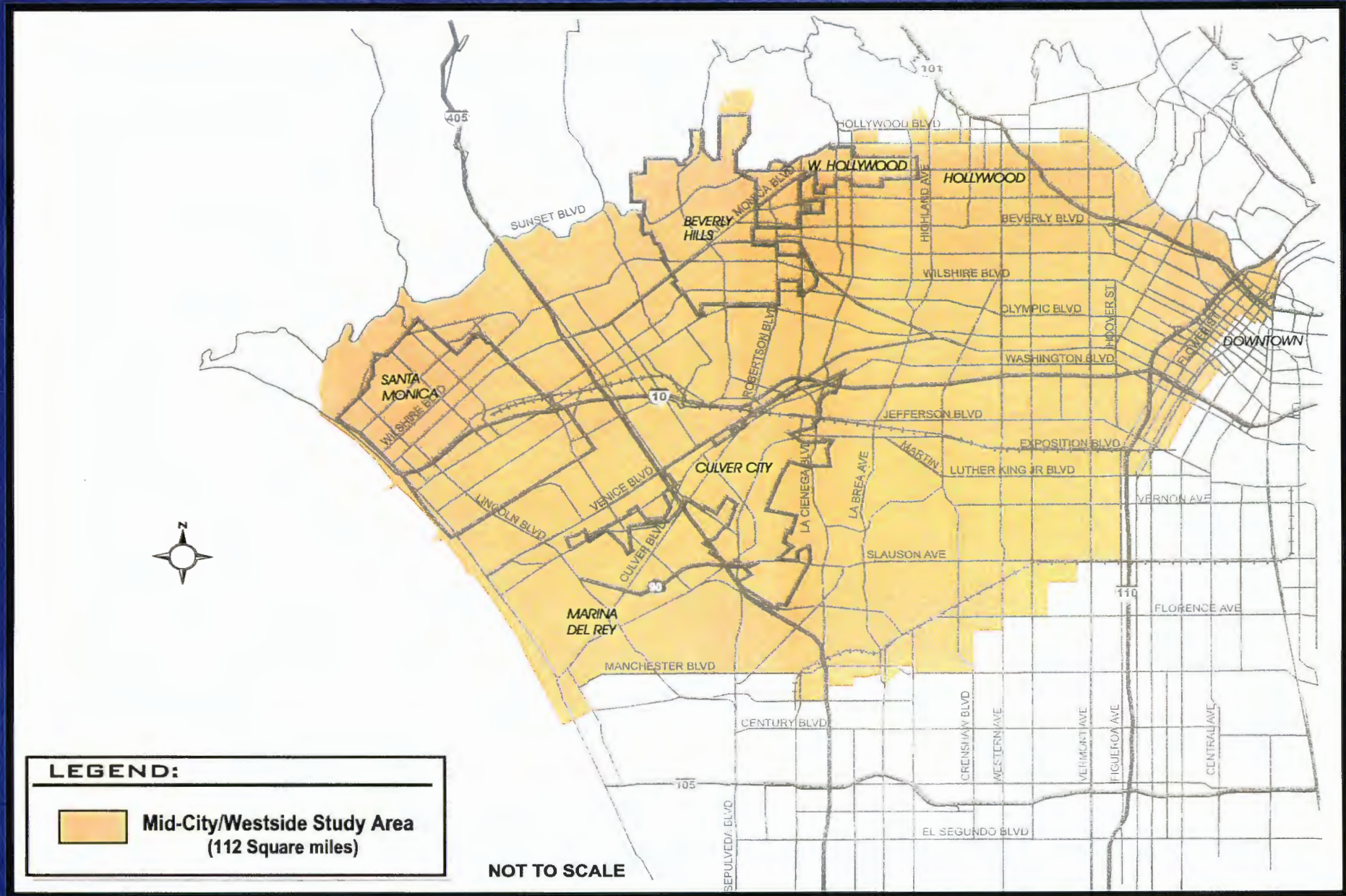
MID-CITY/WESTSIDE TRANSIT CORRIDOR RE-EVALUATION/MAJOR INVESTMENT STUDY SUMMARY OF RESULTS -

Prepared by Korve Engineering, Inc.

February 4, 2000







PURPOSE & NEED

1. Demographics (1998 & 2020)

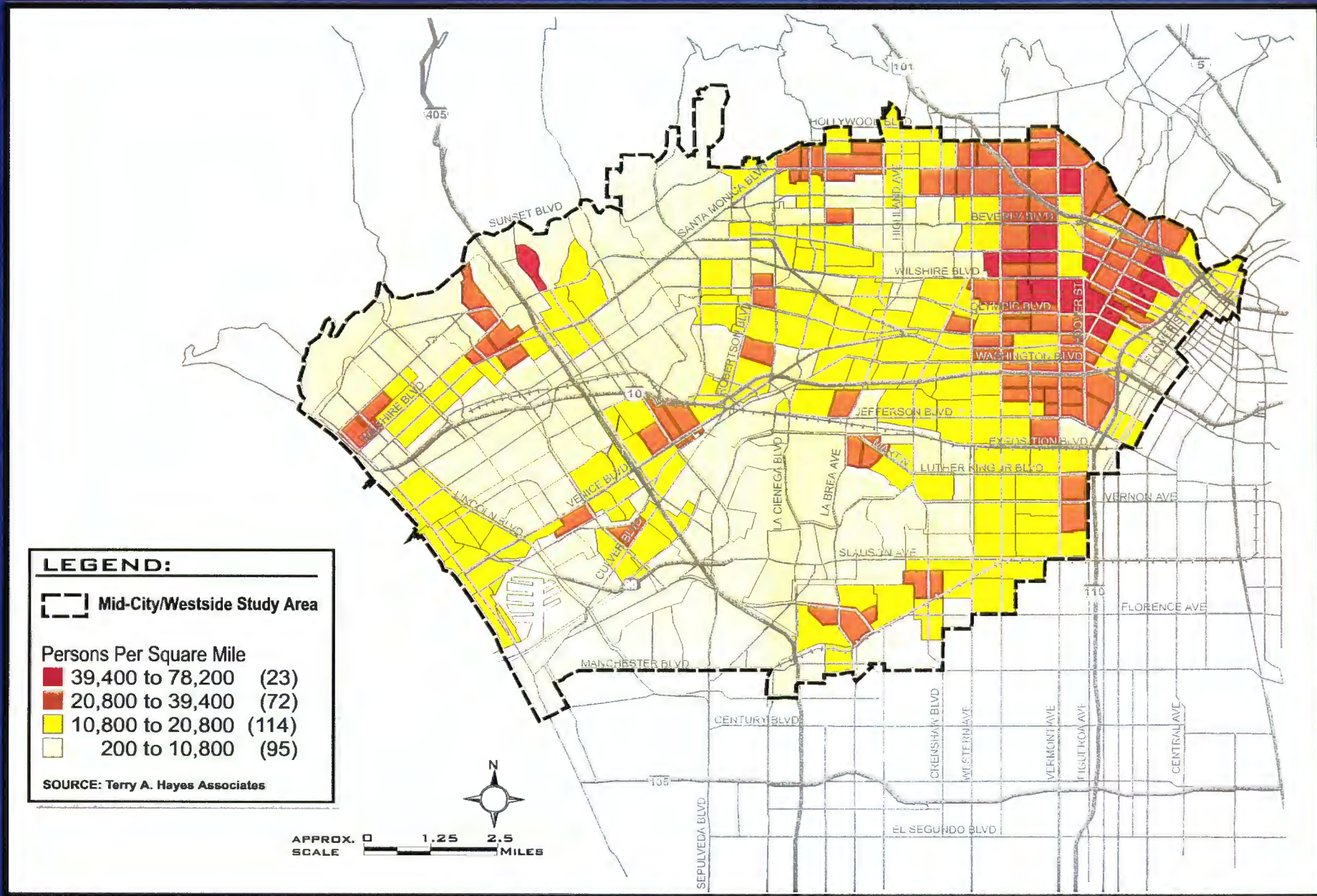
- Population Growth 1.5 to 1.9 million (27%)
- Employment Growth 1.0 to 1.2 million (20%)

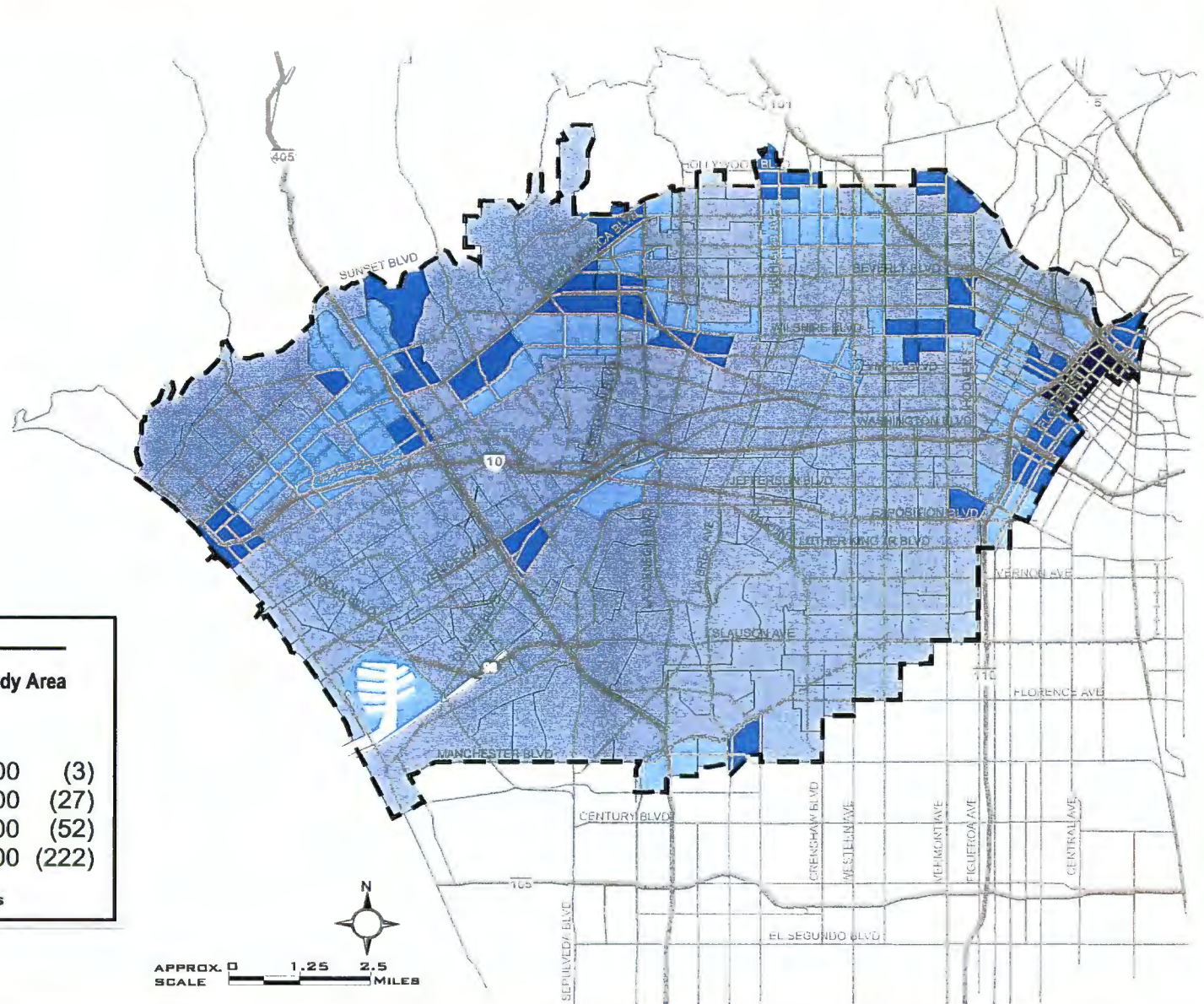
2. Transportation Characteristics

- Home-Work Trip growth (1998-2020) +41%
- Zero Auto Households (1990)
greater than county average: 18.3% vs. 10.9%
- Transit usage (1990)
greater than county average: 13.6% vs. 6.8%

3. Other Key Factors

- High concentration of region's designated centers
- No significant East-West transportation improvements committed
- Existing concentration of transit-supportive land use





LEGEND:

Mid-City/Westside Study Area

Jobs pe Square Mile

100,000 to 174,000	(3)
25,000 to 100,000	(27)
10,000 to 25,000	(52)
0 to 10,000	(222)

SOURCE: Terry A. Hayes Associates



LEGEND:

— Mid-City/Westside Transit Corridor Study Area

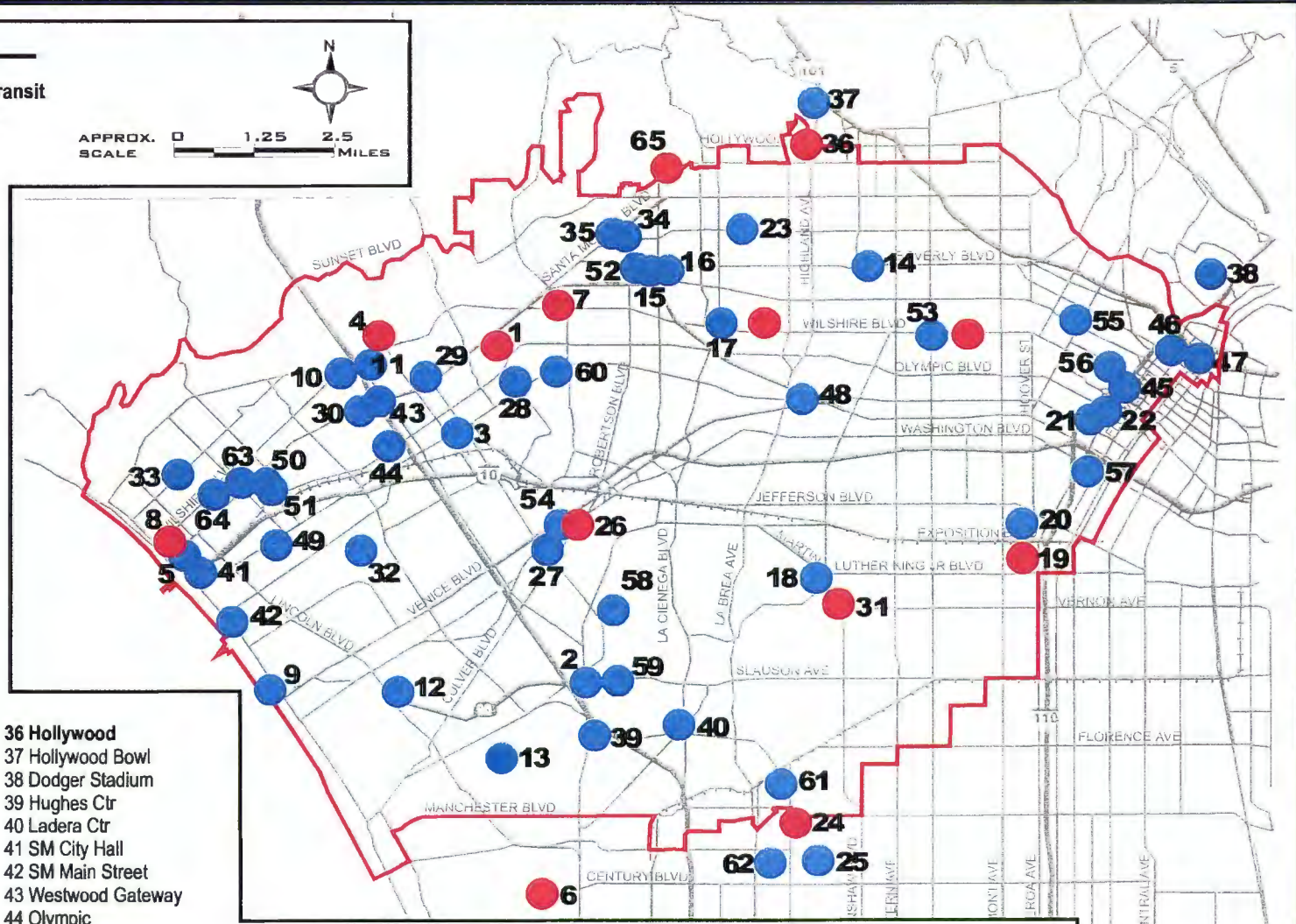
● Key Attractions

● Centers

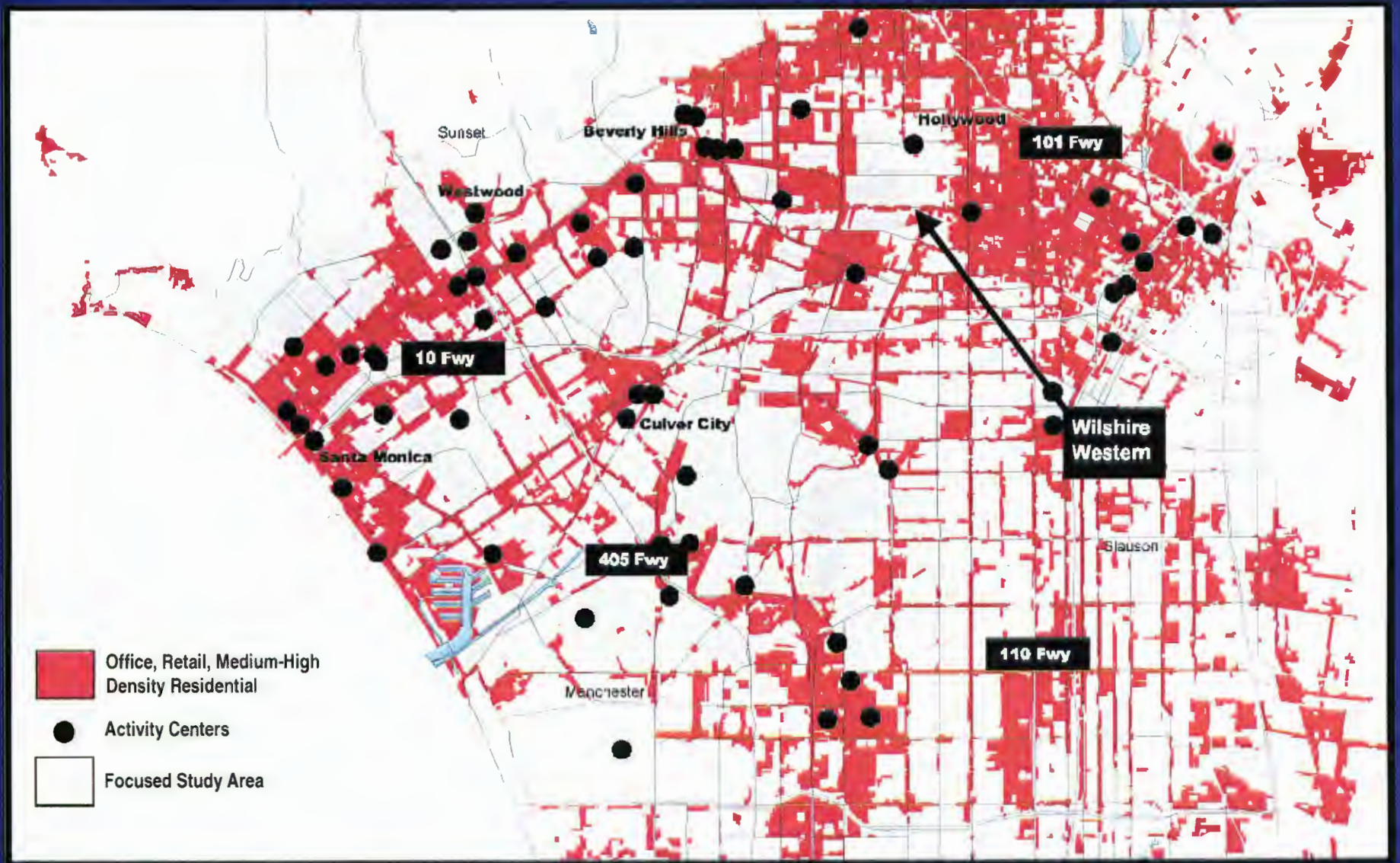
APPROX. SCALE 0 1.25 2.5 MILES

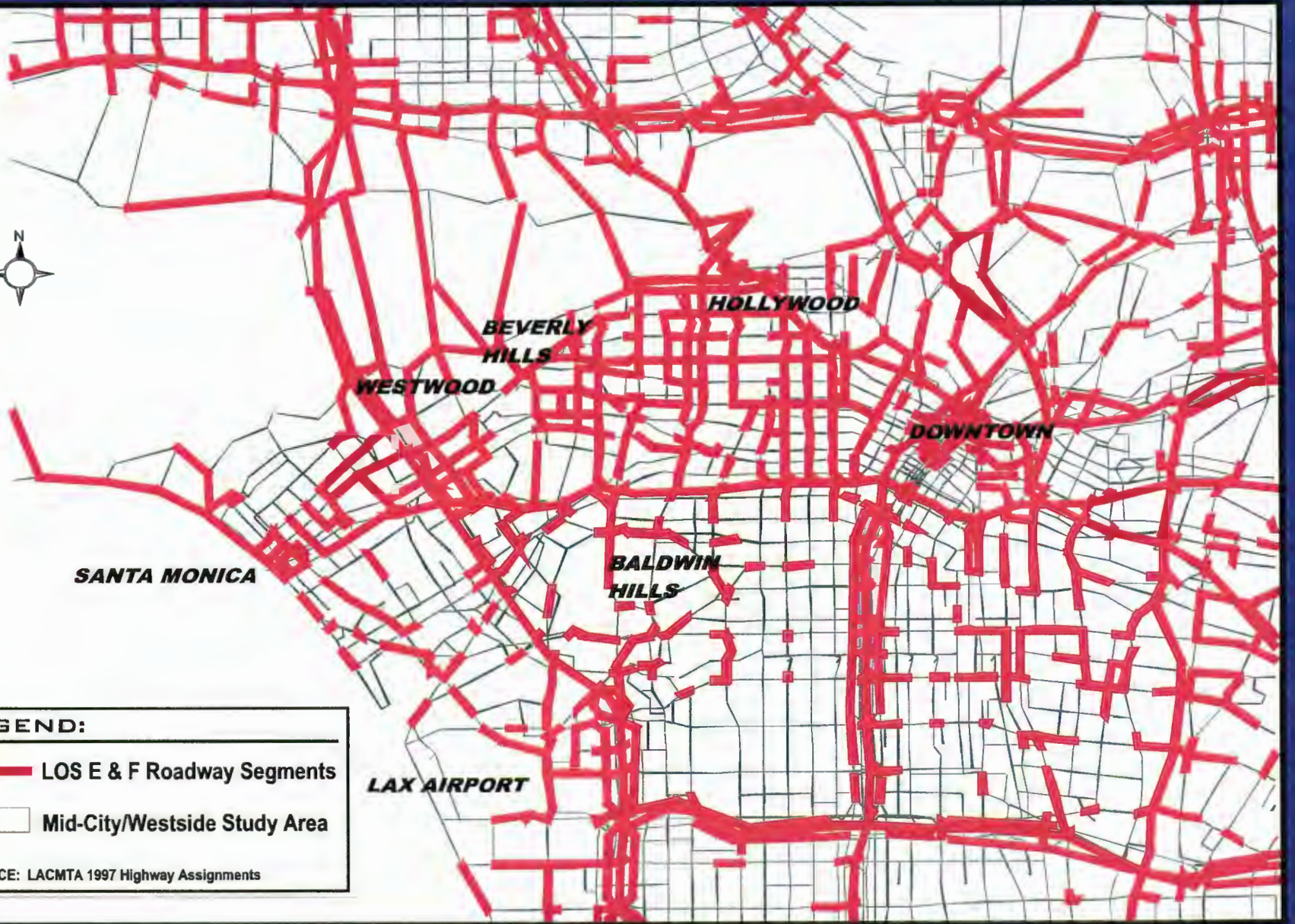


- 1 Century City
- 2 Foxhills
- 3 Westside Pavilion
- 4 Westwood
- 5 Santa Monica Pl
- 6 LAX/Westchester
- 7 Beverly Hills
- 8 SM 3rd Street/Santa Monica
- 9 Venice Beach
- 10 Sawtelle
- 11 Fed Bldg
- 12 Marina Del Rey
- 13 Loyola
- 14 Larchmont
- 15 Beverly Ctr
- 16 Dart Square
- 17 Museum Row/Miracle Mile
- 18 Baldwin Hills
- 19 Exposition Park
- 20 USC
- 21 Convention Ctr
- 22 Staples Ctr
- 23 Melrose
- 24 Forum / Inglewood
- 25 Hollywood Pk
- 26 Culver City
- 27 Sony Pictures
- 28 Fox Studios
- 29 Mormon Temple
- 30 West LA City Hall
- 31 Crenshaw
- 32 SM Airport
- 33 Montana
- 34 Blue Whale PDC
- 35 West Hollywood
- 36 Hollywood
- 37 Hollywood Bowl
- 38 Dodger Stadium
- 39 Hughes Ctr
- 40 Ladera Ctr
- 41 SM City Hall
- 42 SM Main Street
- 43 Westwood Gateway
- 44 Olympic
- 45 7th Street Mkt Pl
- 46 Bunker Hill
- 47 LA Civic Ctr
- 48 Midtown Sc
- 49 Santa Monica College
- 50 Colorado Place
- 51 Watergarden
- 52 Cedars
- 53 Wilern Theater/Wilshire Ctr
- 54 Brotman Med Ctr
- 55 St Vinc
- 56 Good Samaritan
- 57 LA Trade Tec
- 58 West LA Univ
- 59 Peperdine Univ
- 60 Museum of Tolerance
- 61 Daniel Freeman Hosp
- 62 Cinela Hosp
- 63 St Johns Hosp
- 64 Santa Monica Hosp
- 65 Sunset Strip



SOURCE: Terry A. Hayes Associates

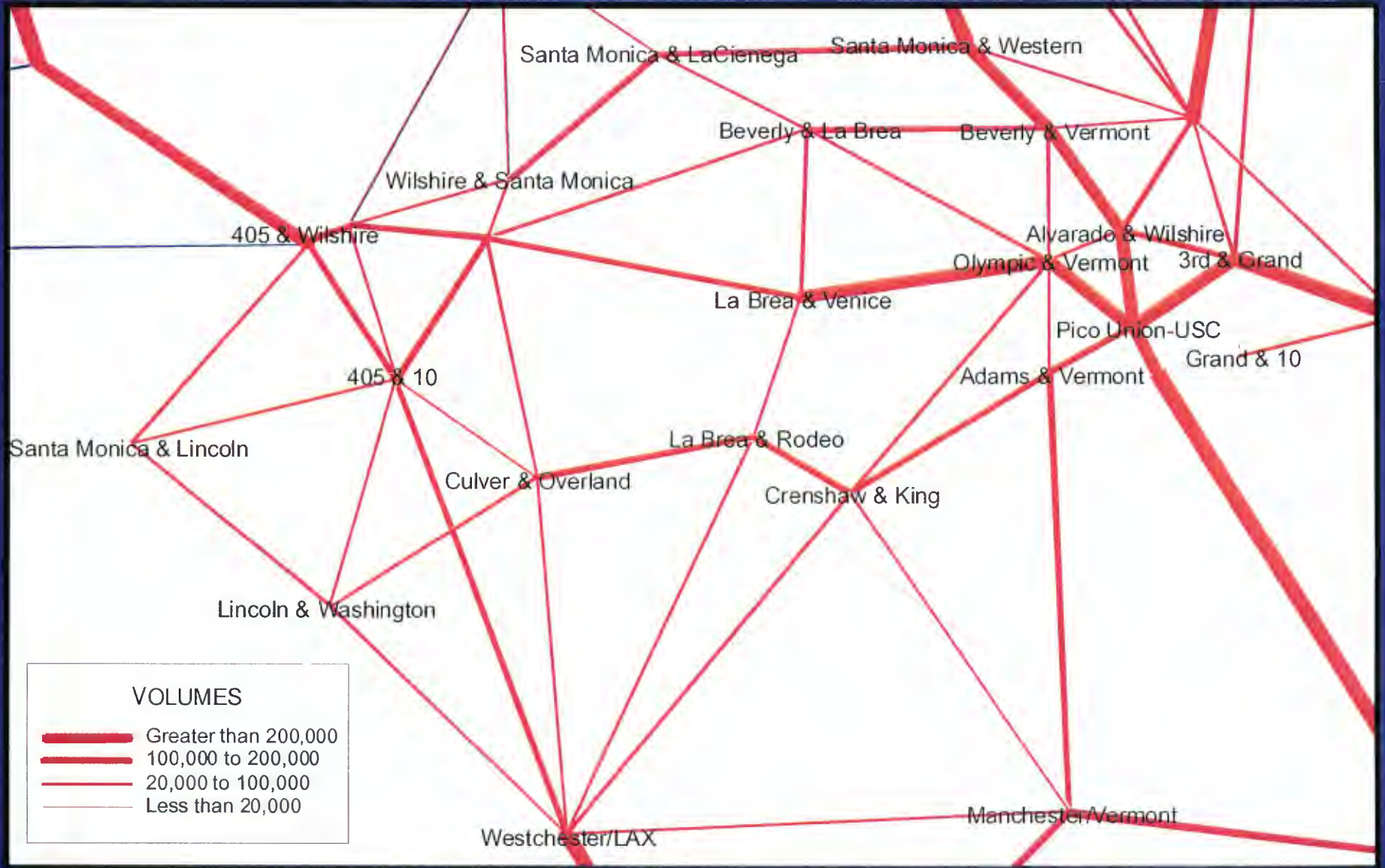




LEGEND:

-  LOS E & F Roadway Segments
-  Mid-City/Westside Study Area

SOURCE: LACMTA 1997 Highway Assignments



**2020 DAILY WORK TRIP VOLUMES
ON "SPIDER" NETWORK**

2/4/2000

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Candidate Alternatives



- 1) Wilshire BRT
- 2) Exposition BRT



- 3) Exposition LRT



- 4) Wilshire-Pico/ San Vicente HRT Subway
- 5) Wilshire HRT Subway

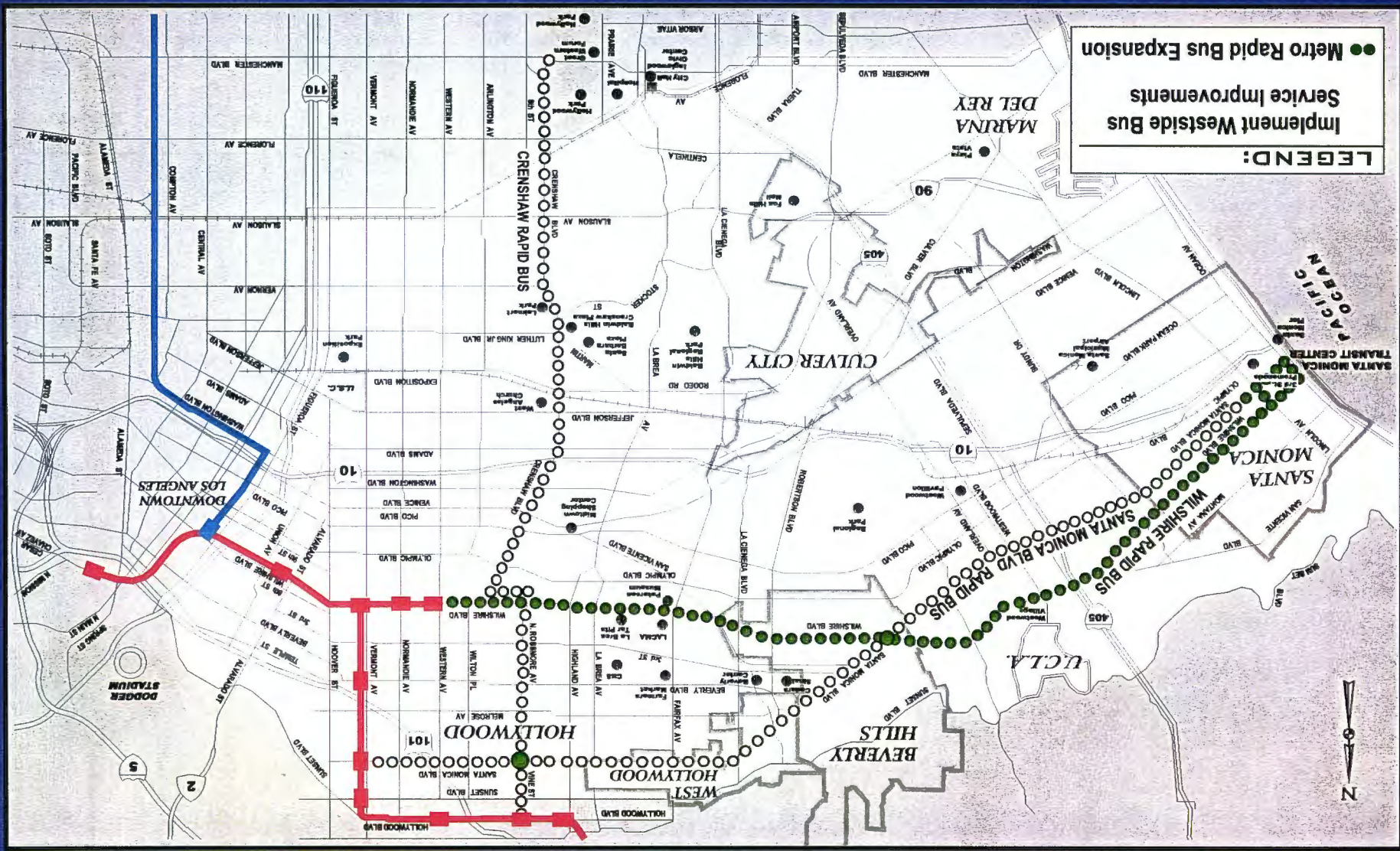


- 6) Wilshire HRT Aerial Rail

Transportation System Management (TSM) Alternative

Improvement to bus system throughout Study Area

- **Complete implementation of Westside Bus Service Improvement Study recommendations**
- **Three Rapid Bus lines assumed for 2020:**
 - **Wilshire/Whittier**
 - **Santa Monica Boulevard**
 - **Crenshaw Boulevard**



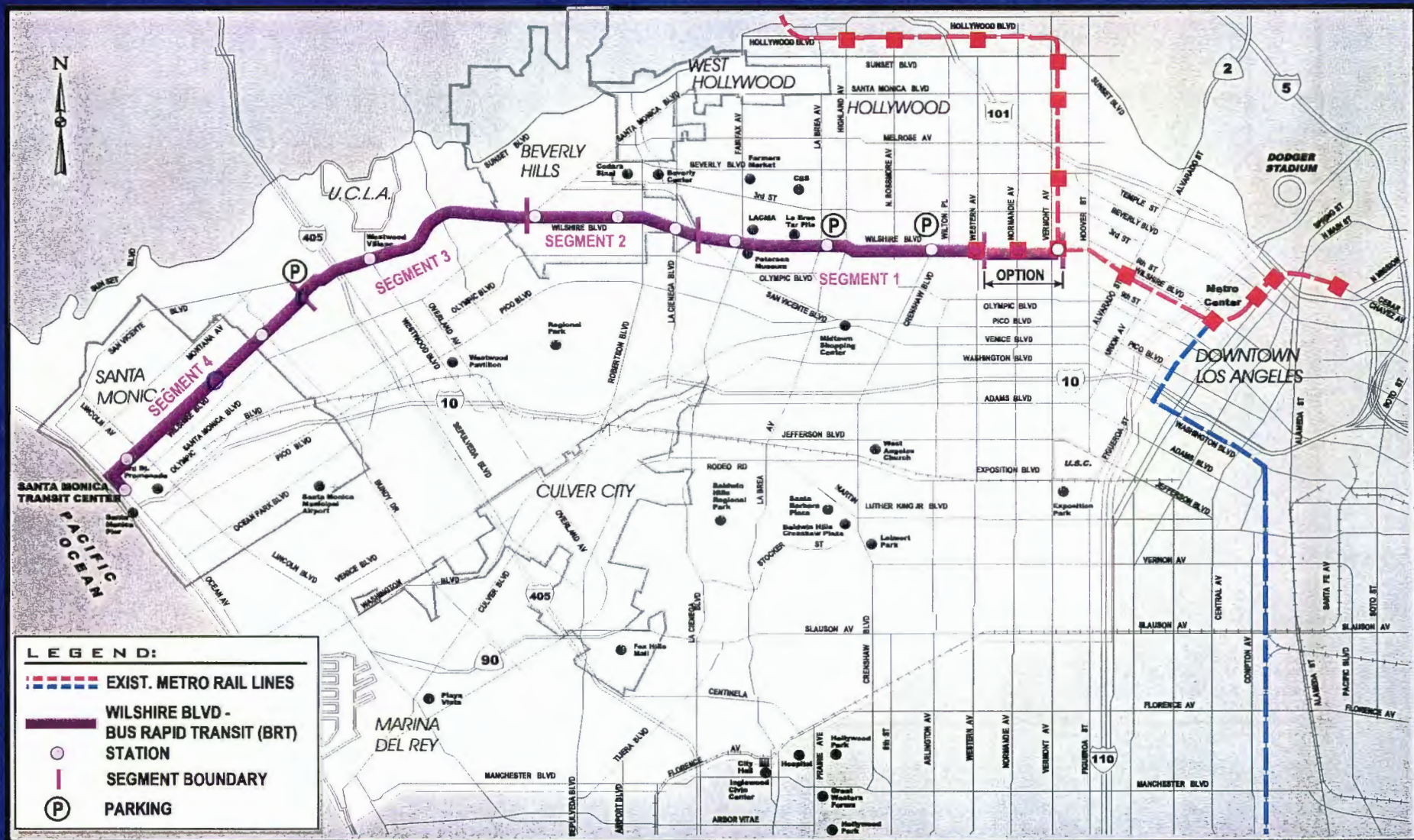
LEGEND:
● Metro Rapid Bus Expansion
■ Service Improvements



Alternative 1: Wilshire Boulevard Bus Rapid Transit (BRT)

Exclusive bus lane on Wilshire Boulevard (curb or center lane)

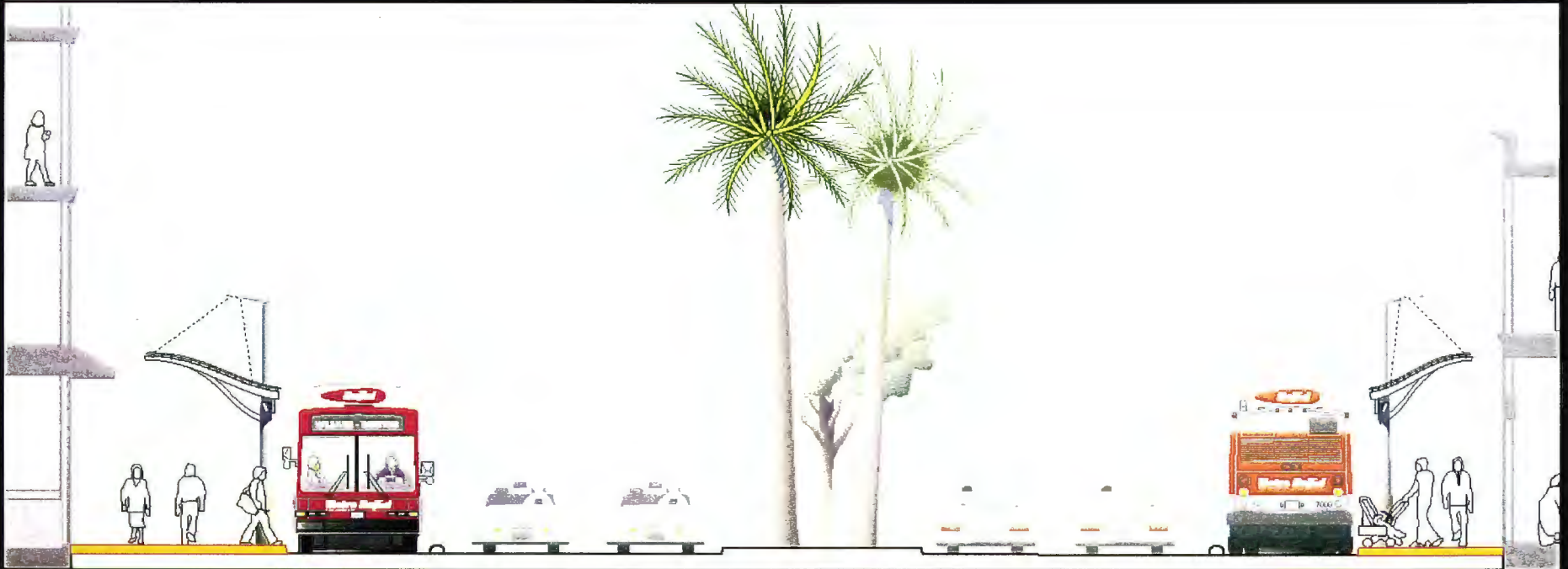
- **Full length project from Wilshire/Vermont Metro Red Line subway station to downtown Santa Monica (14.0 miles)**
- **Alternative length to Wilshire/San Vicente (4.9 miles)**



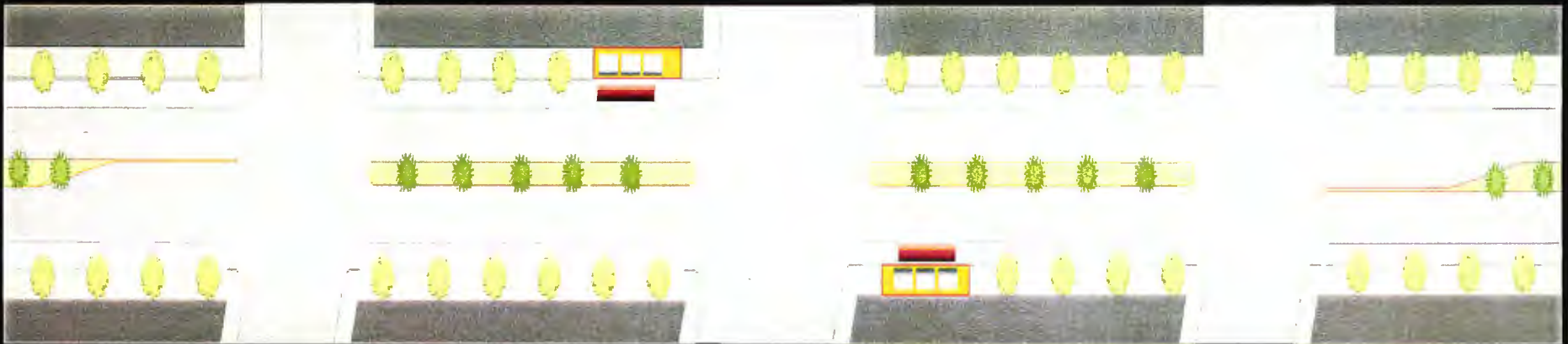
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ALTERNATIVE 1
WILSHIRE BOULEVARD (BRT)

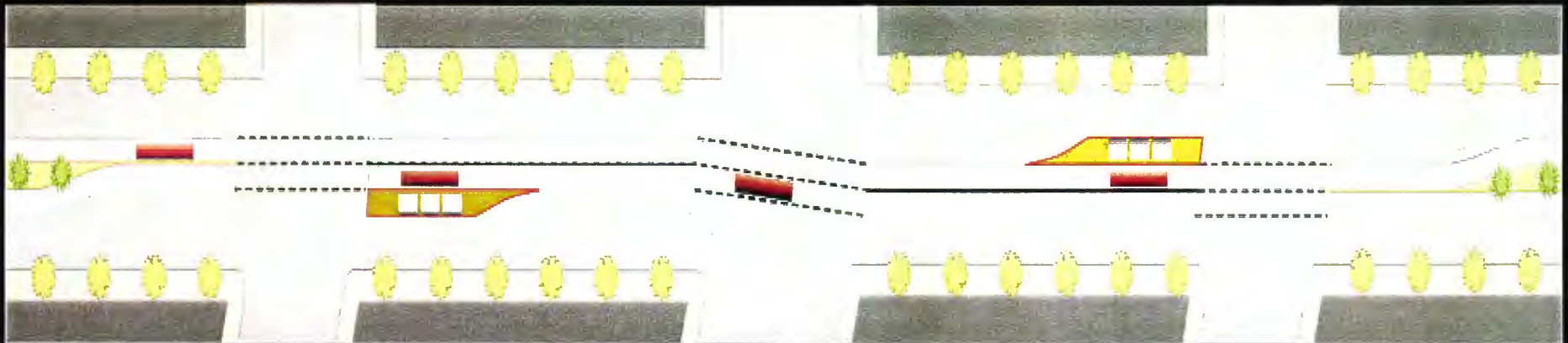


Wilshire Boulevard • BUS STOP ON SIDEWALK (typical)





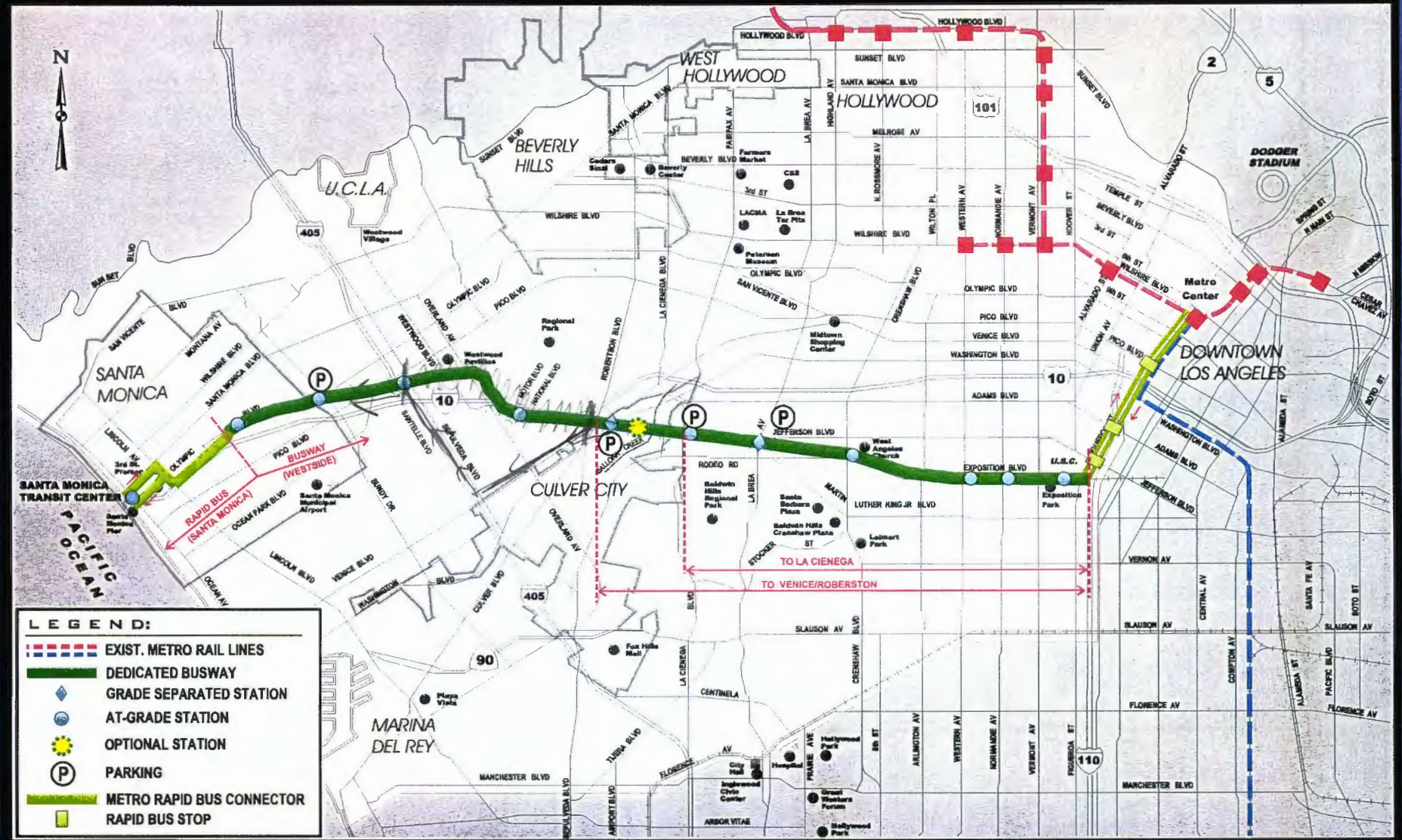
Wilshire Boulevard • BUS STOP ON MEDIAN (typical)



Alternative 2: Exposition ROW Bus Rapid Transit (BRT)

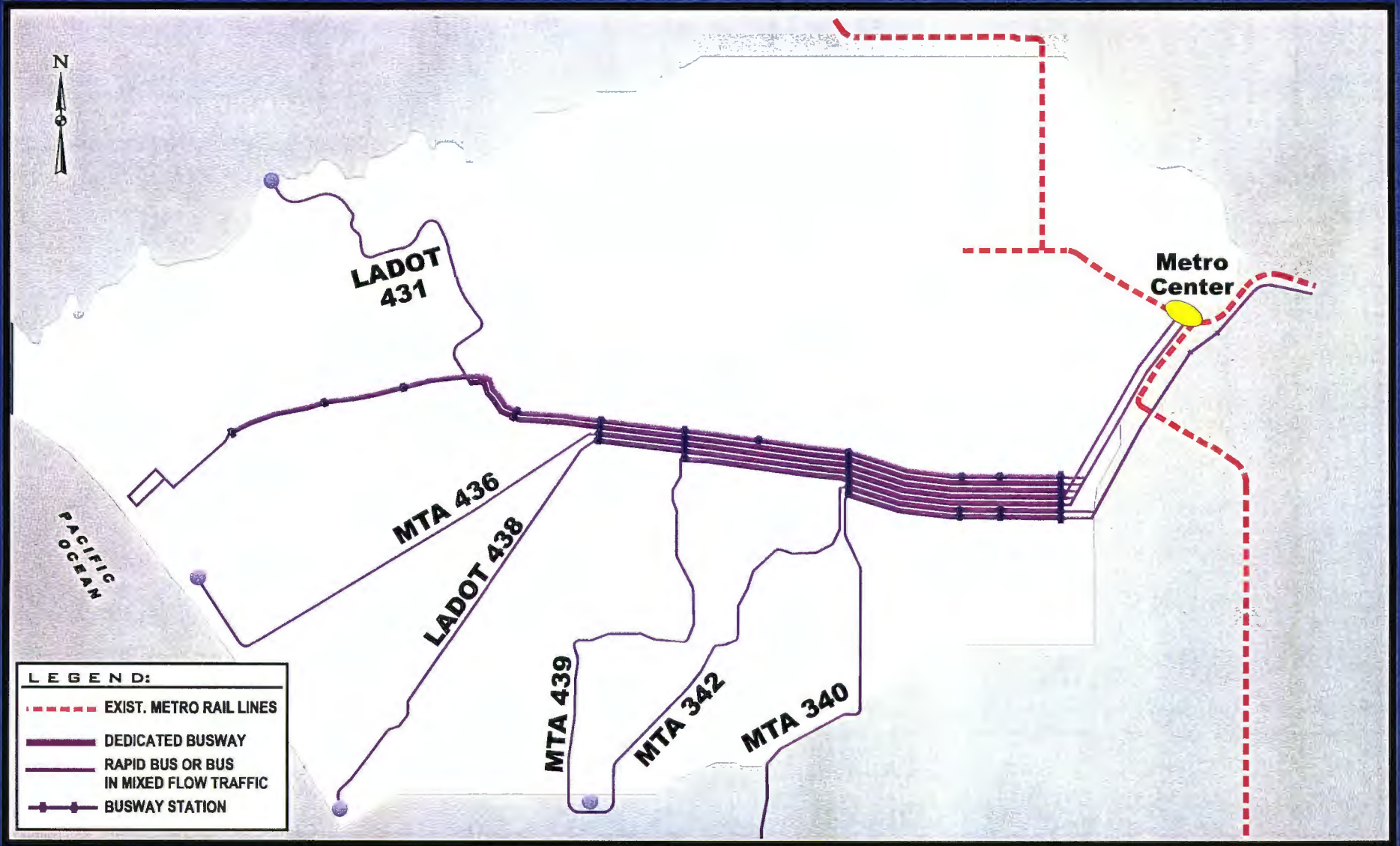
Exclusive bus lane on Exposition right-of-way with Metro Rapid Bus connections to downtown Los Angeles and Santa Monica

- **Full length project from downtown Los Angeles (7th/Flower to Santa Monica (15.6 miles)**
- **Alternative length to La Cienega Boulevard (7.7 miles)**
- **Alternative length to Venice Boulevard (8.5 miles)**



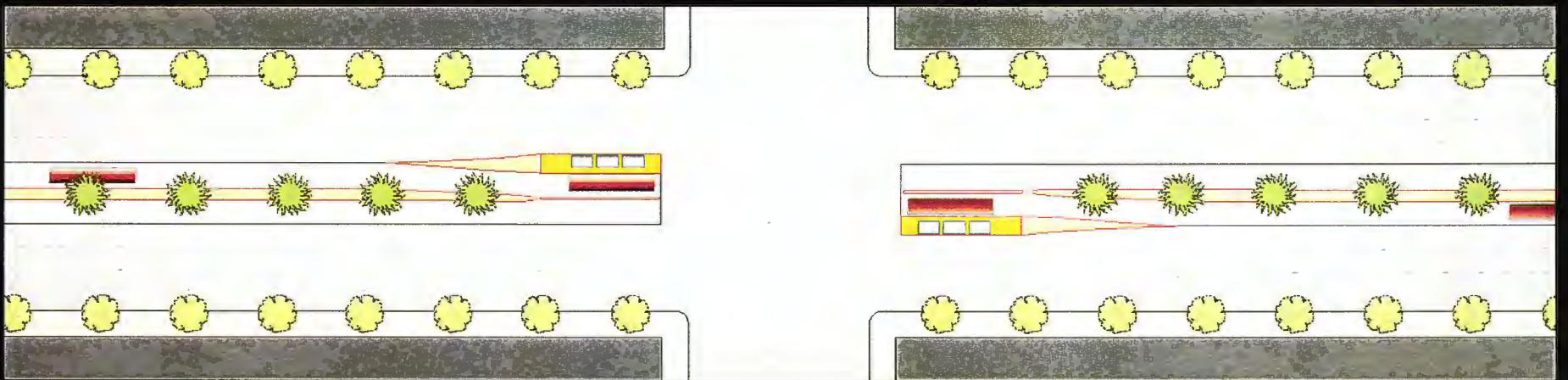
2/4/2000

ALTERNATIVE 2
 19 EXPOSITION BUS RAPID TRANSIT (BRT)





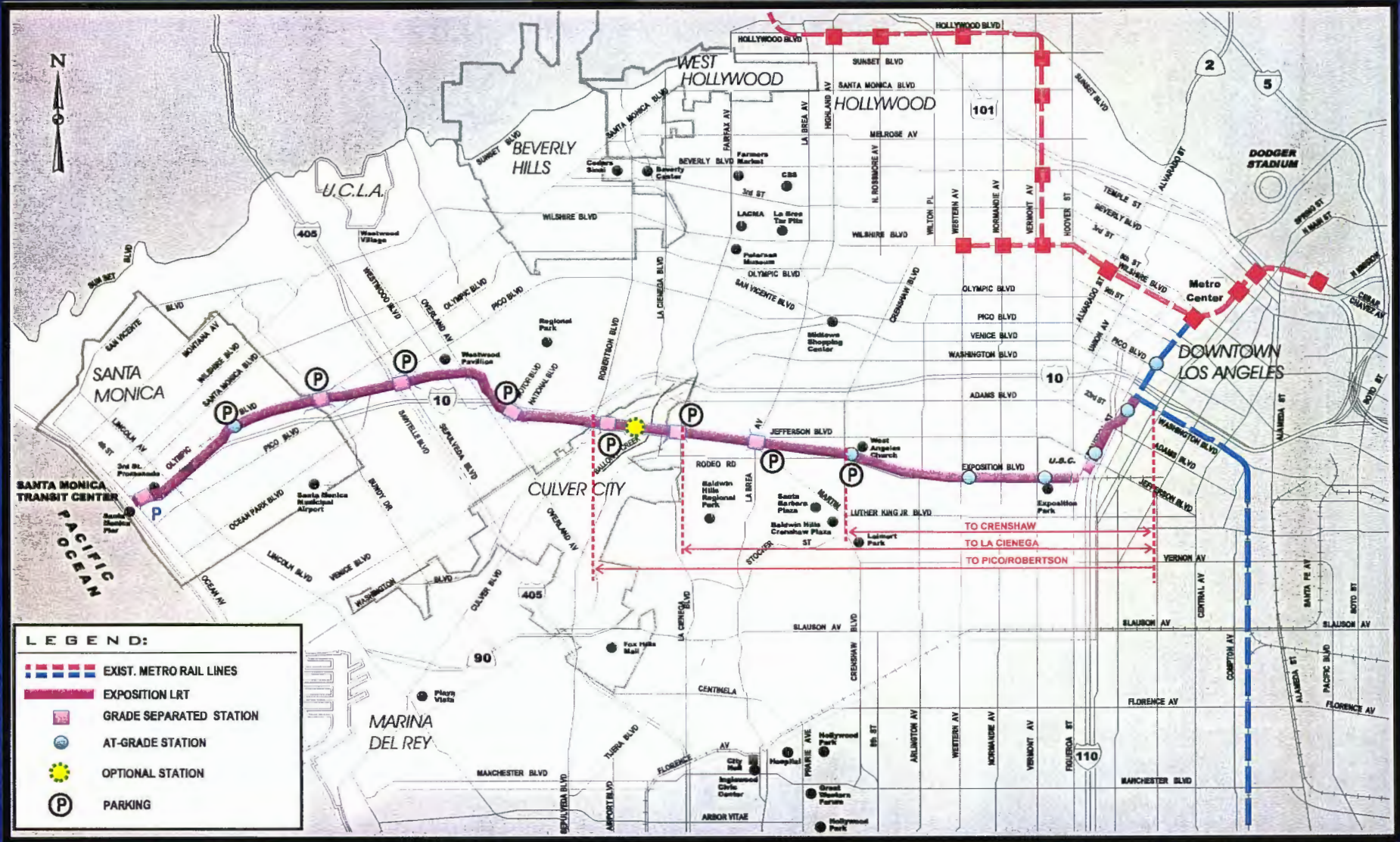
Exposition Boulevard • BUS STOP ON MEDIAN (typical)



Alternative 3a: Exposition ROW Light Rail Transit (LRT) (BASELINE)

Blue Line extension on Exposition ROW (with grade separation at 12 major crossings).

- **Full length project from downtown Los Angeles (7th/Flower to Santa Monica (15.1 miles)**
- **Alternative length to Crenshaw Boulevard (5.3 miles)**
- **Alternative length to La Cienega Boulevard (7.7 miles)**
- **Alternative length to Venice Boulevard (8.5 miles)**



LEGEND:

- EXIST. METRO RAIL LINES
- EXPOSITION LRT
- GRADE SEPARATED STATION
- AT-GRADE STATION
- OPTIONAL STATION
- PARKING

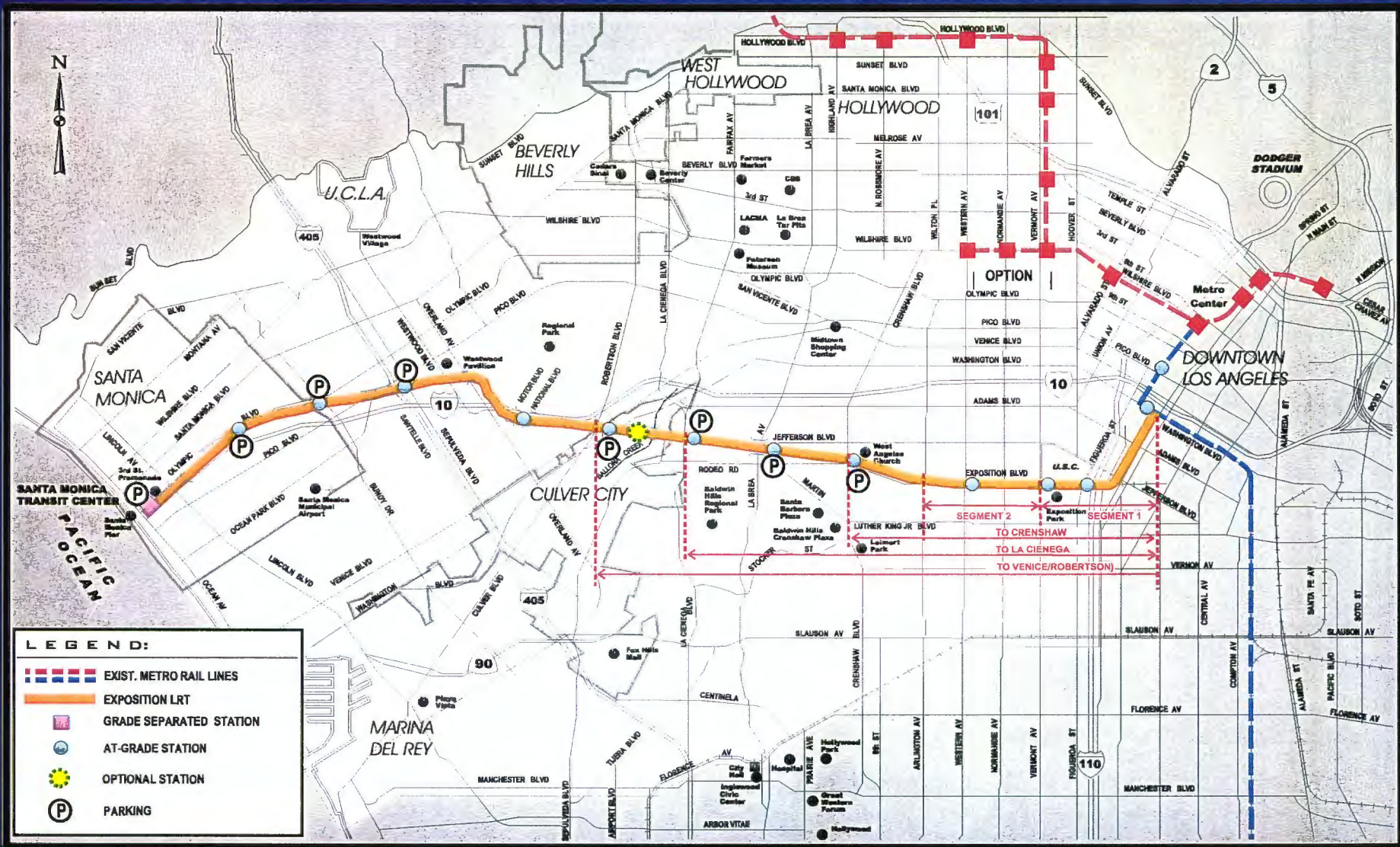
2/4/2000

23 ALTERNATIVE 3a
EXPOSITION LIGHT RAIL-TRANSIT (LRT)

Alternative 3b: Exposition ROW Light Trail Transit (LRT) (MINIMUM GRADE SEPARATIONS)

Blue Line extension on Exposition ROW (with grade separation at 4 major crossings).

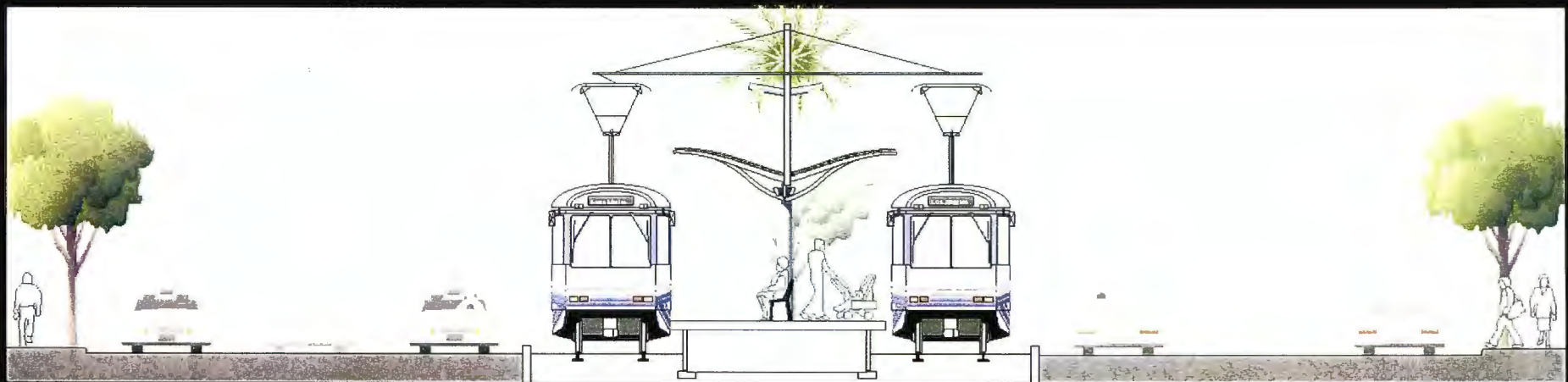
- **Full length project from downtown Los Angeles (7th/Flower to Santa Monica (15.5 miles)**
- **Alternative length to Crenshaw Boulevard (5.6 miles)**
- **Alternative length to La Cienega Boulevard (8.0 miles)**
- **Alternative length to Venice Boulevard (8.8 miles)**



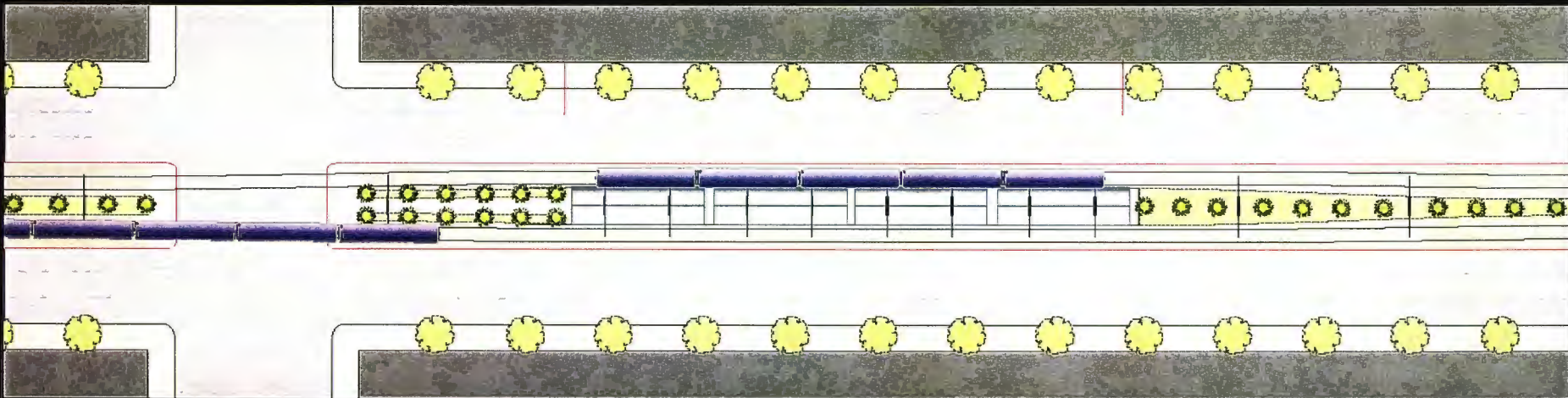
LEGEND:

- EXIST. METRO RAIL LINES
- EXPOSITION LRT
- GRADE SEPARATED STATION
- AT-GRADE STATION
- OPTIONAL STATION
- PARKING

2/4/2000



Exposition Boulevard • LIGHT RAIL STATION (typical)

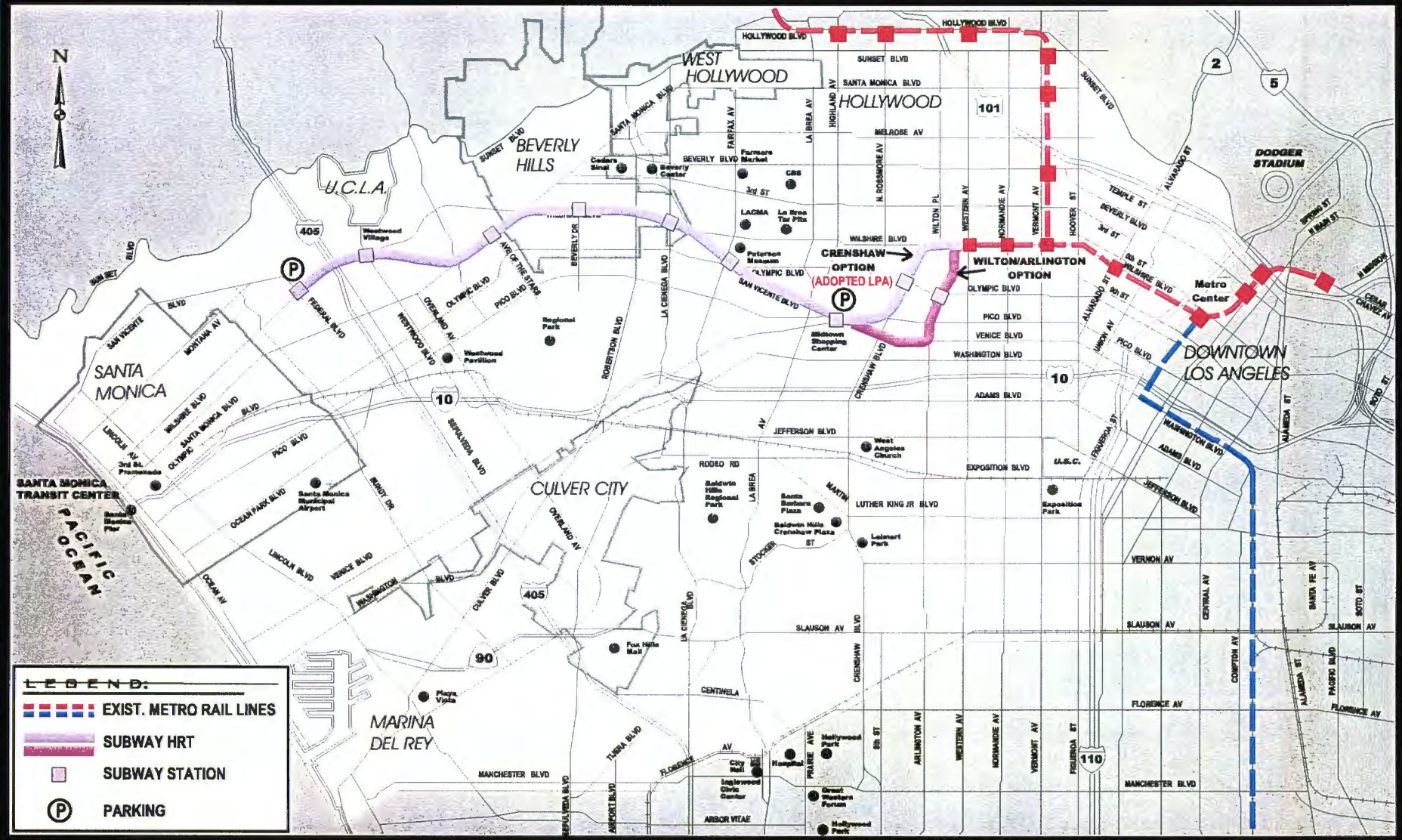


Alternative 4: Wilshire Boulevard Subway Heavy Rail Transit via Pico/San Vicente

Metro Red Line subway extension on Wilshire Boulevard via Pico/San Vicente (Wilton/Arlington alignment).

- **Full length project from Metro Red Line Wilshire/Western station to Wilshire/Federal (10.1 miles).**
- **Alternative length Pico/San Vicente (2.6 miles). Adopted LPA.**

NOTE: This alternative would not be eligible for local sales tax (Proposition A).



2/4/2000

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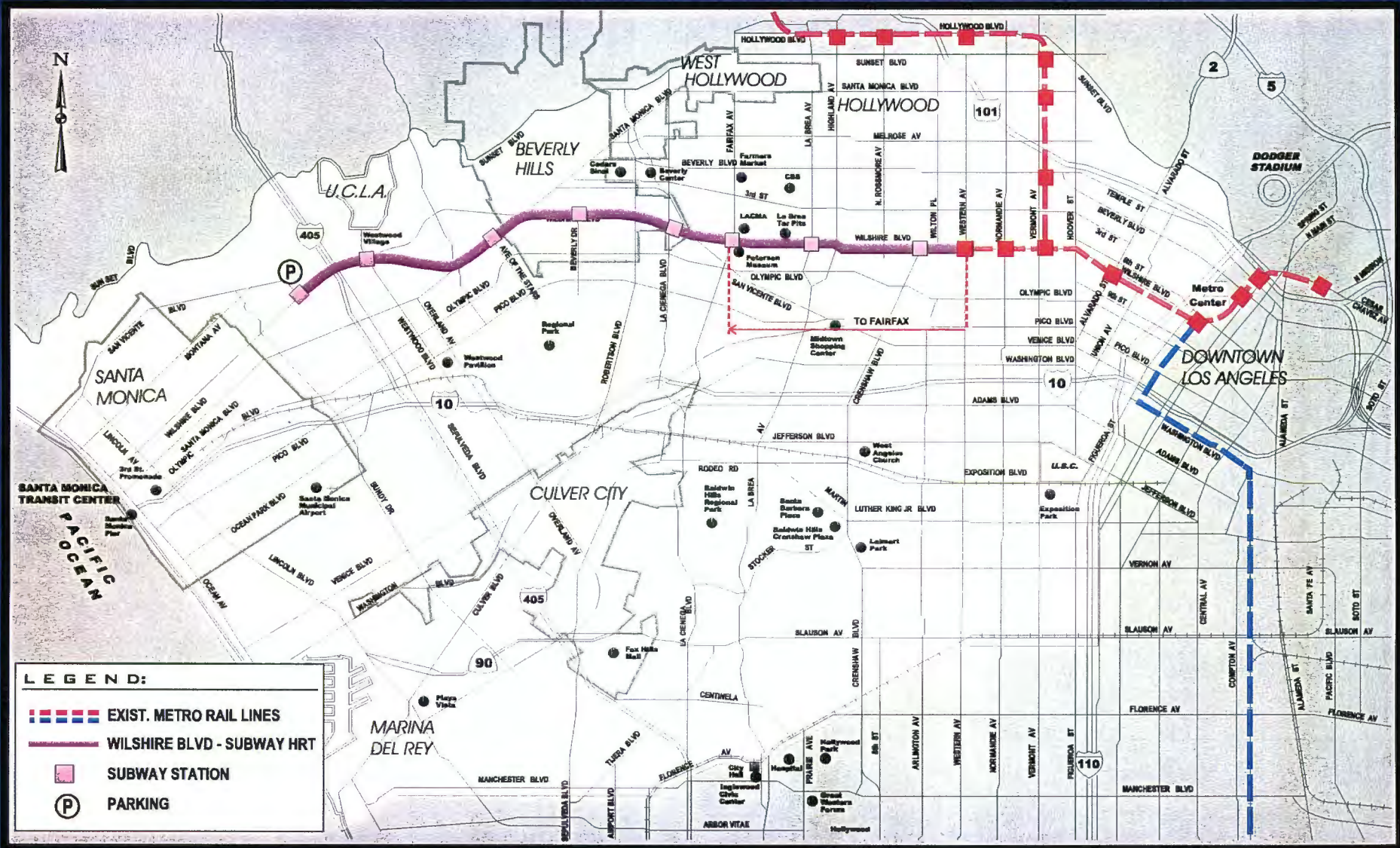
ALTERNATIVE 4
 PICO/SAN VICENTE - SUBWAY (HRT)

Alternative 5: Wilshire Boulevard Subway Heavy Rail Transit via Wilshire

Metro Red Line subway extension on Wilshire Boulevard

- Full length project from Metro Red Line Wilshire/Western station to Wilshire/Federal (9.0 miles).
- Alternative length Wilshire/Fairfax (3.2 miles).

NOTE: This alternative would not be eligible for local sales tax (Proposition A) or federal funding (Methane Zone).



2/4/2000

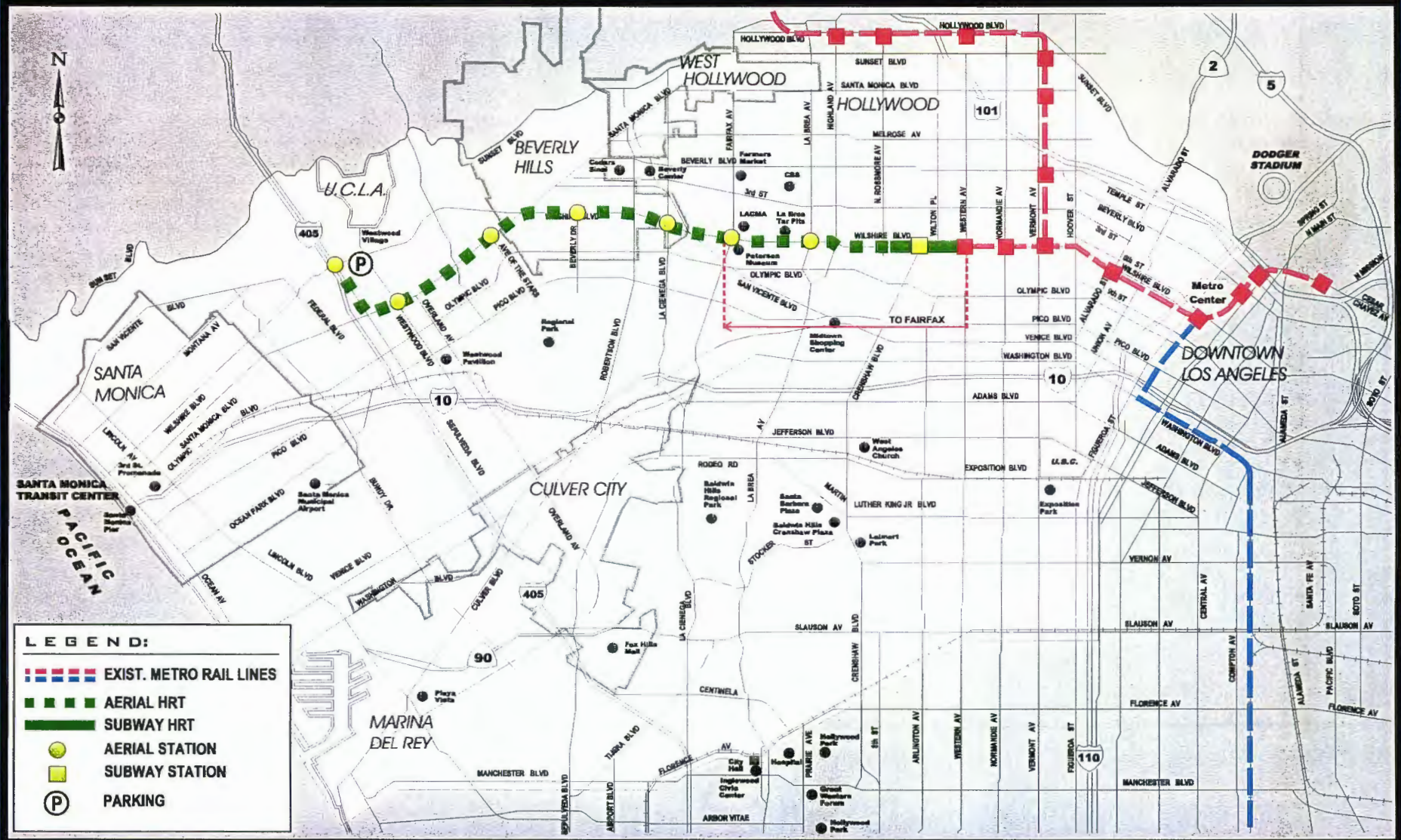
ALTERNATIVE 5
30 WILSHIRE BOULEVARD-SUBWAY (HRT)

Alternative 6: Wilshire Boulevard Aerial Heavy Rail Transit via Wilshire

Metro Red Line extension on Wilshire Boulevard with aerial guideway

- **Full length project from Metro Red Line Wilshire/Western station to Wilshire/Sepulveda (8.9 miles)**
- **Alternative length Wilshire/Fairfax (3.2 miles)**

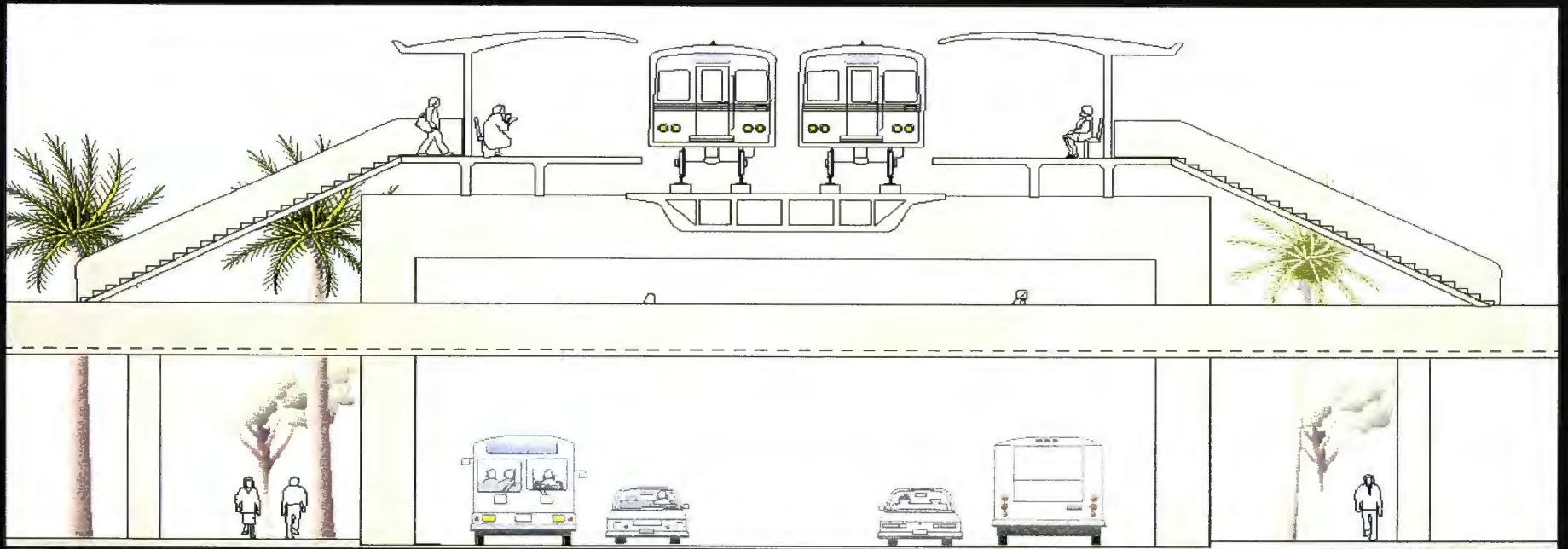
NOTE: Due to federal and local restrictions on subway, aerial rail would represent the only current Metro Red Line extension that is possible to construct on Wilshire Boulevard without changes to existing law or funding restrictions.



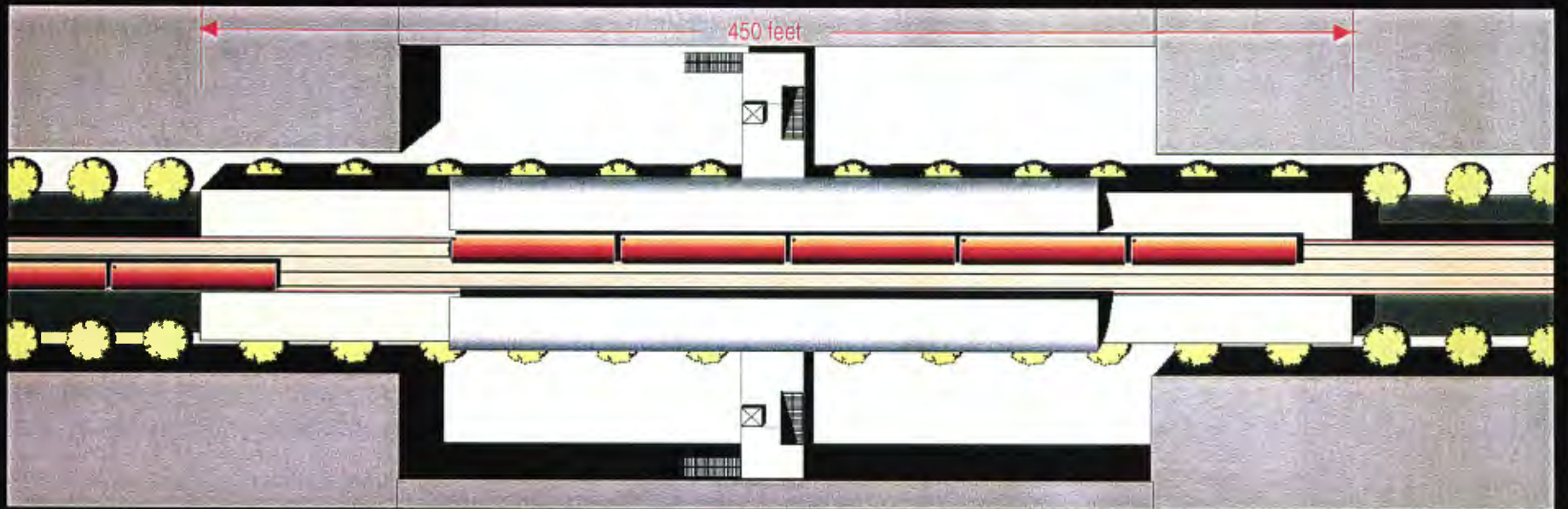
2/4/2000

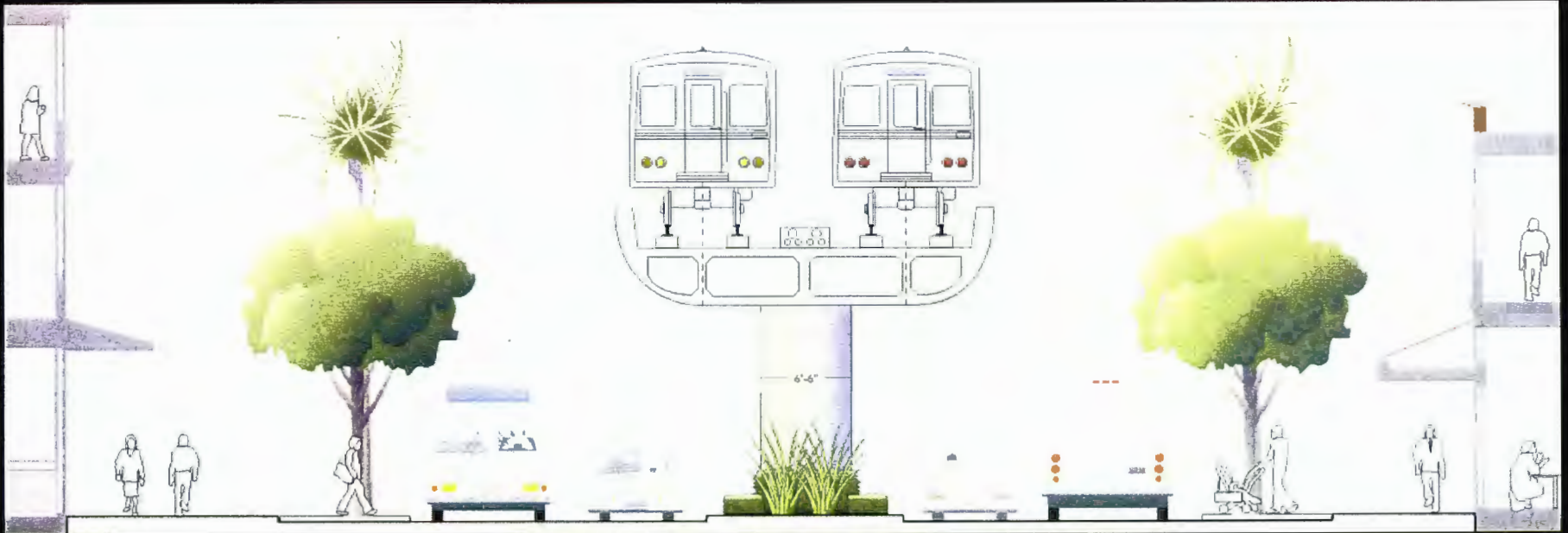
32

ALTERNATIVE 6
WILSHIRE BOULEVARD - AERIAL (HRT)

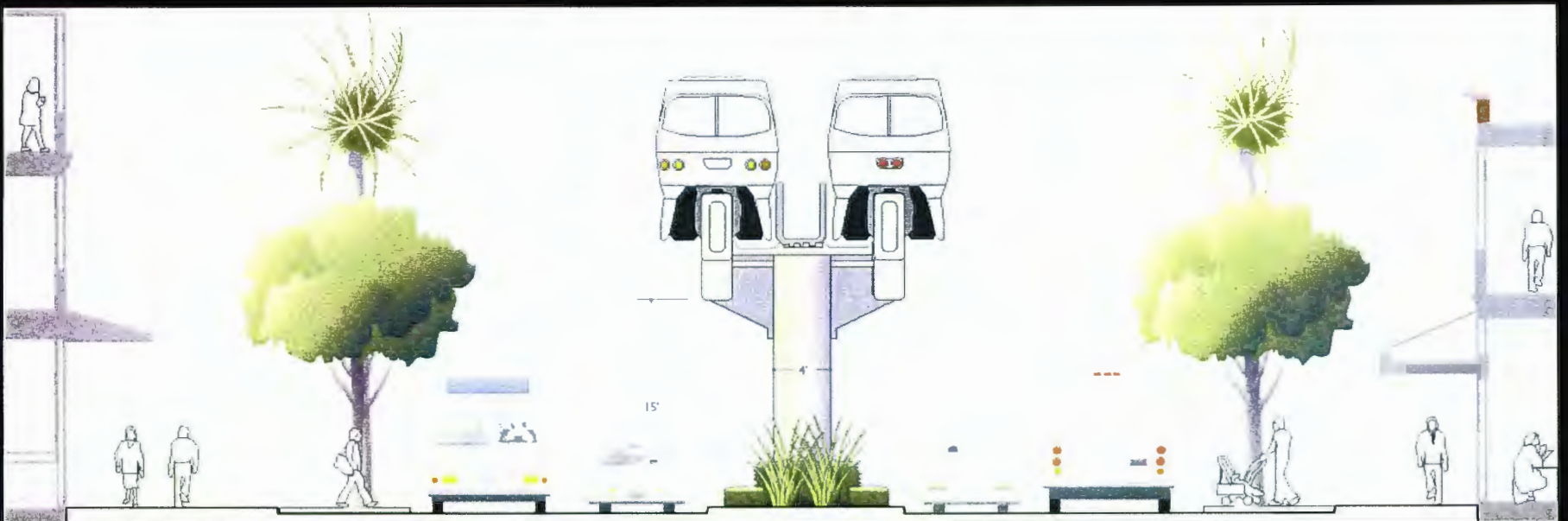


Wilshire Boulevard • AERIAL STATION (typical)





Wilshire Boulevard • AERIAL



Wilshire Boulevard • MONORAIL

Evaluation Criteria

- **Costs**
- **Ridership**
- **Cost-Effectiveness**
- **Travel Time Savings**
- **Environmental Issues**
- **Community Acceptability**

CAPITAL COST

(Millions in 1999 Dollars)

ALTERNATIVE	FULL LENGTH	ALTERNATIVE	LENGTH	OPTION
TSM	\$92	N/A	N/A	N/A
1 Wilshire BRT	\$169 To Santa Monica	\$62 To San Vicente	N/A	N/A
2 Exposition BRT	\$188 To Santa Monica	\$76 To La Cienega	\$87 To Venice Blvd	N/A
3a Exposition LRT (Baseline)	\$589 To Santa Monica	\$178 To Crenshaw	\$312 To La Cienega	\$398 To Venice Blvd
3b Exposition LRT (Minimum Grade Separations)	\$431 To Santa Monica	\$135 To Crenshaw	\$209 To La Cienega	\$227 To Venice Blvd
4 Wilshire Blvd HRT Subway (via Pico/San Vicente)	\$2,640 To Federal	\$673 To Pico/ San Vicente	N/A	N/A
5 Wilshire Blvd HRT Subway (via Wilshire)	\$2,469 To Federal	\$891 To Fairfax	N/A	N/A
6 Wilshire Blvd HRT Aerial (via Wilshire)	\$1,269 To Sepulveda	\$543 To Fairfax	N/A	N/A

ANNUAL OPERATING COST

(Millions in 1999 Dollars)

ALTERNATIVE	COMPARED TO NO BUILD (in millions)	COMPARED TO TSM (in millions)
TSM	\$24	N/A
1 Wilshire BRT	\$41	\$17
2 Exposition BRT	\$32	\$7
3a Exposition LRT (Baseline)	\$45	\$21
3b Exposition LRT (Minimum Grade Separations)	\$45	\$20
4 Wilshire Blvd HRT Subway (via Pico/San Vicente)	\$29 To Pico/ San Vicente	\$5 To Pico/ San Vicente
5 Wilshire Blvd HRT Subway (via Wilshire)	\$41 Full Length \$31 To Fairfax	\$17 Full Length \$7 To Fairfax
6 Wilshire Blvd HRT Aerial (via Wilshire)	\$41 Full Length \$31 To Fairfax	\$17 Full Length \$7 To Fairfax

DAILY FIXED GUIDEWAY BOARDINGS

ALTERNATIVE	FULL ALIGNMENT LENGTH
TSM	29,300 (Wilshire Rapid Bus Only)
1 Wilshire BRT	11,000 [34,000]
2 Exposition BRT	23,000
3a Exposition LRT (Baseline)	38,600
3b Exposition LRT (Minimum Grade Separations)	38,600
4 Wilshire Blvd HRT Subway via Pico/San Vicente)	11,400 (Pico/ San Vicente)
5 Wilshire Blvd HRT Subway (via Wilshire)	33,500 (Full Length) 15,800 (Fairfax)
6 Wilshire Blvd HRT Aerial (via Wilshire)	33,500 [Est] (Full Length) 15,800 (Fairfax)

NOTE : Brackets [] indicate sensitivity model run results assuming full signal preemption

NEW DAILY TRANSIT TRIPS

ALTERNATIVE	COMPARED TO NO BUILD	COMPARED TO TSM
TSM	6,600	N/A
1 Wilshire BRT	8,300	1,700 [10,600]
2 Exposition BRT	12,400	5,800
3a Exposition LRT (Baseline)	15,300	8,700
3b Exposition LRT (Minimum Grade Separations)	15,300	8,700
4 Wilshire Blvd HRT Subway (via Pico/San Vicente)	10,400 (Pico/ San Vicente)	3,700 (Pico/ San Vicente)
5 Wilshire Blvd HRT Subway (via Wilshire)	15,300 (Full Length) 8,800 (Fairfax)	9,200 (Full Length) 2,200 (Fairfax)
6 Wilshire Blvd HRT Aerial (via Wilshire)	5,300 [Est] (Full Length) 8,800 (Fairfax)	9,200 [Est] (Full Length) 2,200 (Fairfax)

NOTE : Brackets [] indicate sensitivity model run results assuming full signal preemption.

ANNUALIZED COST PER NEW DAILY TRANSIT TRIP

(1999 Dollars)

ALTERNATIVE	COMPARED TO NO BUILD	COMPARED TO TSM
TSM	\$16	N/A
1 Wilshire BRT	\$24	\$60
2 Exposition BRT	\$14	\$13
3a Exposition LRT (Baseline)	\$21	\$25
3b Exposition LRT (Minimum Grade Separations)	\$18	\$20
4 Wilshire Blvd HRT Subway (via Pico/San Vicente)	\$28 (Pico/ San Vicente)	\$50 (Pico/ San Vicente)
5 Wilshire Blvd HRT Subway (via Wilshire)	\$50 (Full Length) \$40 (Fairfax)	\$75 (Full Length) \$114 To Fairfax
6 Wilshire Blvd HRT Aerial (via Wilshire)	\$30 Full Length \$29 (Fairfax)	\$41 (Full Length) \$72 (Fairfax)

Key Environmental Issues

1. Wilshire BRT

- Traffic Diversion - loss of two lanes (one lane each direction)
- Access & Circulation - significant loss of left-turn lanes (minimum of 43 out of 101 to San Vicente)
- Parking - loss of on-street parking (280 spaces to San Vicente)
- Impact to North / South traffic
- Impaired access to local businesses

Key Environmental Issues

(continued)

2. Exposition BRT

- **Safety at grade - crossings (27)**
- **Impact to North / South traffic**
- **Noise**
- **Aesthetics**

3. Exposition LRT

- **At-grade crossing safety concerns (25-35)**
- **Impacts on North / South traffic flow**
- **Noise (especially nighttime due to warning bells/horn)**
- **Aesthetics**

Key Environmental Issues

(continued)

4. Mid-City Subway HRT

- **Gas-related safety and odor concerns**
- **Construction impacts**
- **Interim terminus-related impacts; especially traffic**

5. Wilshire Subway HRT

- **Gas-related safety and odor concerns**
- **Construction Impacts**

6. Wilshire Aerial HRT

- **Permanent and unavoidable alteration of visual environment**
- **Significant impact on historic properties**
- **Construction Impacts**

SUMMARY OF COMMUNITY SUPPORT

Alternative 1: Wilshire BRT

- Limited support
- Community not familiar with alternative
- Some business opposition

Alternative 2: Exposition BRT

- Viewed as creating less impacts than LRT
- Limited support
- Opposition still significant in adjacent neighborhoods, unless detours considered

SUMMARY OF COMMUNITY SUPPORT

(continued)

Alternative 3: Exposition LRT

- **Several support/advocacy groups**
- **Perceived as more attractive to riders than BRT**
- **Still significant community opposition in adjacent neighborhoods**

Alternative 4: Mid-City HRT Subway

- **No Support evident**

SUMMARY OF COMMUNITY SUPPORT

(continued)

Alternative 5: Wilshire HRT Subway

- **No strong support for near term**
- **Support as long-term goal if cost, safety and financing impediments removed**

Alternative 6: Wilshire HRT Aerial

- **Strong opposition to HRT**
- **Wilshire Center Advocacy Group supports**
- **monorail; other groups oppose**

BASIS FOR RECOMMENDATIONS

Alternative 1. Wilshire BRT

- **Has potential as interim solution to feed Metro Red Line & serve high volume Wilshire corridor at low cost**
- **Allows faster speeds than Metro Rapid Bus in future as congestion grows**
- **Further detailed analysis warranted to see how impacts can be mitigated**

BASIS FOR RECOMMENDATIONS

(continued)

Alternative 2. Exposition BRT

- **Offers significant long term transportation benefits if community impacts can be resolved**
- **Connection to Downtown L.A., USC, Exposition Park and Harbor Frwy Transitway from key centers in Santa Monica, West L.A. & Culver City.**
- **Achieves similar ridership to LRT at less cost**

BASIS FOR RECOMMENDATIONS

(continued)

Alternative 3. Exposition LRT

- **Offers significant long term transportation benefits if community impacts can be resolved**
- **Direct connection via Blue Line to Downtown L.A., USC, Exposition Park and Harbor Frwy Transitway from key centers in Santa Monica, West L.A. & Culver City.**
- **Less frequent disruption of intersections and adjacent properties than BRT**
- **Has capacity to serve post-2020 demand.**

BASIS FOR RECOMMENDATIONS

(continued)

Alternative 4. Pico/San Vicente HRT

- **Not currently feasible due to funding restrictions.**
- **Longer route to Westside than Wilshire Corridor.**
- **Lower density and fewer activity centers served than Wilshire Corridor.**

BASIS FOR RECOMMENDATIONS

(continued)

Alternative 5. Wilshire HRT Subway

- **Not currently feasible due to funding restrictions and Methane Gas Prohibition Zone.**
- **Underground gas issue may have technical solutions that would permit construction of a subway.**
- **Further Analysis of this alternative should be undertaken in Long Range Plan due to high densities and transit use.**

BASIS FOR RECOMMENDATIONS

(continued)

Alternative 6. Wilshire Aerial Rail

- **Achieves same ridership at lower cost than subway alternative, but would alter the character of Wilshire Boulevard in a permanent and unacceptable manner.**
- **Considered in 1987 and deleted from further consideration due to visual impacts and intense community opposition.**
- **Monorail option would have similar negative environmental consequences and would attract fewer riders than HRT. No acceptable site has been identified for the necessary storage and maintenance yard.**

Recommendations

1. Wilshire Corridor

- Carry Forward BRT into environmental clearance to San Vicente
- Further consideration of Wilshire subway in Long Range Plan

2. Exposition Corridor

- Carry Forward both BRT and LRT into environmental clearance to Santa Monica, with consideration of phased lengths to Crenshaw, La Cienega and Venice/Robertson

MID-CITY / WESTSIDE TRANSIT CORRIDOR STUDY
Alternatives Summary Evaluation Matrix

ALTERNATIVE	CAPITAL COST (MILLIONS IN 1999 DOLLARS)				ANNUAL OPERATING COST (MILLIONS IN 1999 DOLLARS)		NEW DAILY TRANSIT TRIPS		DAILY FIXED GUIDEWAY BOARDINGS	ANNUALIZED COST PER NEW DAILY TRANSIT TRIP		OPERATING COST PER SYSTEM BOARDING COMPARED TO NO BUILD *	AVERAGE SPEED AND MAXIMUM SPEED	TRAVEL TIME (MINUTES) (4th/Colo to 7th/Flower)	ENVIRON- MENTAL ISSUES	COMMUNITY CONCERNS
	FULL LENGTH	ALTERNATIVE LENGTH OPTION			COMPARED TO NO BUILD	COMPARED TO TSM	COMPARED TO NO BUILD	COMPARED TO TSM		COMPARED TO NO BUILD	COMPARED TO TSM					
TSM	\$92	N/A	N/A	N/A	\$24	N/A	6,600	0	N/A	\$16	0		N/A	N/A	Existing Conditions	LOW
1 Wilshire BRT	\$169 To Santa Monica	\$62 To San Vicente	N/A	N/A	\$41	\$17	8,300	1,700 [10,600]	11,000 [34,000]	\$24	\$60		15 mph [26 mph] 35 mph BRT 70 mph HRT	65 (16.1 MI)	MEDIUM	MEDIUM
2 Exposition BRT	\$188 To Santa Monica	\$76 To La Cienega	\$87 To Venice Blvd	N/A	\$32	\$7	12,400	5,800	23,000	\$14	\$13		21 mph 55 mph	44 (15.6 MI)	MEDIUM	MEDIUM
3a Exposition LRT (Baseline)	\$589 To Santa Monica	\$178 To Crenshaw	\$312 To La Cienega	\$398 To Venice Blvd	\$45	\$21	15,300	8,700	38,600	\$21	\$25		24 mph 55 mph	38 (15.1 MI)	MEDIUM	MEDIUM
3b Exposition LRT (Minimum Grade Separations)	\$431 To Santa Monica	\$135 To Crenshaw	\$209 To La Cienega	\$227 To Venice Blvd	\$45	\$20	15,300	8,700	38,600	\$18	\$20		24 mph 55 mph	39 (15.5 MI)	MEDIUM	MEDIUM
4 Wilshire Blvd HRT Subway (Via Pico/ San Vicente)	\$2,643 To Federal	\$673 To Pico / San Vicente	N/A	N/A	\$29 (Pico/ San Vicente)	\$5 (Pico/ San Vicente)	10,400 (Pico/ San Vicente)	3,700 (Pico/ San Vicente)	11,400 (Pico/ San Vicente)	\$28 (Pico/ San Vicente)	\$50 (Pico/ San Vicente)		25 mph 35 mph BRT 70 mph HRT	38 (16.1 MI)	LOW	MEDIUM
5 Wilshire Blvd HRT Subway (Via Wilshire Blvd)	\$2,469 To Federal	\$891 To Fairfax	N/A	N/A	\$41	\$17	15,300	9,200	33,500	\$50	\$75		26 mph 35 mph BRT 70 mph HRT	36 (15.5 MI)	LOW	MEDIUM
					\$31 (Fairfax)	\$7 (Fairfax)	8,800 (Fairfax)	2,200 (Fairfax)	15,800 (Fairfax)	\$40 (Fairfax)	\$114 (Fairfax)					
6 Wilshire Blvd HRT Aerial (Via Wilshire Blvd)	\$1,269 To Sepulveda	\$543 To Fairfax	N/A	N/A	\$41	\$17	15,300 (Est)	9,200 (Est)	33,500 (Est)	\$30	\$41		26 mph 35 mph BRT 70 mph HRT	38 (16.4 MI)	HIGH	HIGH (Some support for Monorail)
					\$31 (Fairfax)	\$7 (Fairfax)	8,800 (Fairfax)	2,200 (Fairfax)	15,800 (Fairfax)	\$29 (Fairfax)	\$72 (Fairfax)					

* This measure not reported since several alternatives reduced the number of systemwide boardings, resulting in a "negative" incremental cost. Reduction in systemwide boardings suggests a significant reduction in the amount of transfers required to take a single trip.

NOTE: Brackets [] indicate Sensitivity Model Run results assuming full signal preemption.