

APPENDIX M

***I-710 Major Corridor Study Final Set of
Alternatives, Parsons Brinckerhoff, Inc.,
Revised January 2003***



FINAL SET OF ALTERNATIVES

REVISED

JANUARY 2003

Alternative A No Build Alternative

Purpose of Concept

The No Build Alternative consists of those transportation projects that are already planned and committed for 2025, the planning horizon year for the I-710 Major Corridor Study. Consequently, the No Build Alternative represents future travel conditions in the I-710 Study Area and it is the baseline against which candidate transportation alternatives proposed for the I-710 Study will be assessed.

Freeway System

- I-710, from Ocean Boulevard to I-10, pavement and median rehabilitation, selected bridge widenings (no additional capacity)
- I-710, at Atlantic Boulevard/Bandini Boulevard, interchange modifications
- I-710, at Firestone Boulevard, interchange modification (NB side)
- I-5, Orange County Line to I-605, add two HOV lanes and two mixed flow lanes
- I-605, Orange County Line to South Street, add two HOV lanes*
- I-605, Telegraph Road to I-10, add two HOV lanes*
- I-405, I-110 to I-710, add two HOV lanes*
- SR-60, I-605 to I-215, add two HOV lanes
- SR-47, at Ocean Boulevard, interchange improvement
- Deployment of Intelligent Transportation System Improvements on I-710 (approx. 7 Ramp Meter Sites, approx. 25 CCTV Sites)

Roadway System

- Alameda Street/Henry Ford Avenue, SR-47 ramps to SR-91 ramps, widen to six lanes*
- Alamitos Avenue, Ocean Boulevard to Pacific Coast Highway, widen from four to six lanes
- Gerald Desmond Bridge, widen from four lanes to five lanes (climbing lane)*
- New Four-Lane Connector Road to Del Amo Boulevard, Avalon Boulevard to Main Street (@ I-405 junction)
- Del Amo Boulevard, Main Street to Vermont Avenue, widen from two to six lanes
- Sepulveda Boulevard, Alameda Street eastward to the Carson City Limits, widen from two to four lanes
- Ocean Boulevard/Seaside Avenue, Gerald Desmond Bridge to Vincent Thomas Bridge, widen from four to six lanes*
- Atlantic Boulevard, Olympic Blvd. to Whittier Blvd., widen from four lanes to six lanes
- Phase I (approx. 31) and Phase II (approx. 45) intersection improvements for most truck-impacted intersections.
- Signal system upgrades and signal synchronization for several major arterials throughout the I-710 Study Area.

Rail / Transit

- Alameda Corridor, LA/LB Ports to approx. Washington Boulevard, construct double track freight rail expressway, grade separations*
- Pasadena Gold Line, Union Station to Sierra Madre Villa, new LRT line*
- Los Angeles Blue Line, downtown Long Beach to 7th Street/Metro Center in Downtown Los Angeles, platform and operational improvements to existing line*
- Eastside Transit Corridor, Union Station to Pomona/Atlantic in East Los Angeles (County of Los Angeles), new LRT line
- Green Line, miscellaneous capital and operational improvements to existing line
- Bus Service Improvements, miscellaneous operational improvements to existing systems (approx. 20% increase in service levels)

Note: (*) indicates projects that are currently under construction or that have recently been implemented.

Alternative B TSM/TDM Alternative

Purpose of Concept

The Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternative largely consists of operational investments, policies, and actions aimed at improving goods movement, passenger auto and transit travel, and reducing the environmental impacts of transportation facilities and operations in the Study Area.

Mainlines on I-710

- additional ramp metering (approx. 8 ramp meter sites)
- aesthetics (additional landscaping, hardscape design treatments)
- continuous high-mast illumination (at freeway-to-freeway interchanges: I-405/I-710, SR-91/I-710, I-105/I-710, I-5/I-710, SR-60/I-710)
- improved signage on I-710 (added overhead signs, advanced notification)

Interchanges/Arterials

- I-710 ramp terminus/arterial improvements
 - for example, curb and gutter, including aesthetics improvements
 - mostly in state right-of-way
- parking restrictions on major parallel arterials^a during peak periods

Goods Movement

- empty container management through policies and incentives
- expanded drayage truck emission reduction program
- extended gate hours at the ports
 - move toward 24 hour / 7 days a week operations
 - include all entities in the supply chain

Transit

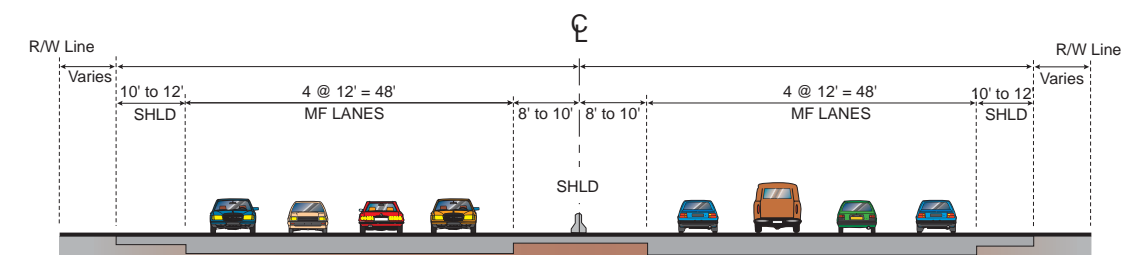
- additional Blue/Green line bus feeder shuttles
- enhanced community bus service (local circulators)

Intelligent Transportation Systems (ITS)

- expand ITS Corridors
 - expand depth of ITS coverage on two identified ITS corridors (I-710/Atlantic; I-105 Corridor)
 - emphasize system connectivity

Notes:

- Atlantic Blvd. (from PCH to SR-60); Cherry Ave./Garfield Ave. (from PCH to SR-60); Eastern Ave. (from Cherry Ave. to Atlantic Blvd.); Long Beach Blvd. (from San Antonio Dr. to Firestone Blvd.)



Remain 4 Mixed Flow Lanes
(Same as Year 2025 Future No Build Conditions)

Alternative C

Medium General Purpose / Medium Truck Alternative

Purpose of Concept

Mid-range capital investment to I-710 focused on improving safety and eliminating operational bottlenecks on I-710 for all vehicle types as well as spot improvements to manage the flow of heavy-duty trucks within the corridor. Alternative C also emphasizes capacity improvements to the most deficient arterials serving as feeders or alternate routes to I-710.

Mainlines

- add one mixed flow lane in each direction for selected I-710 segments:
 - Shoemaker Bridge to just south of I-405 (I-710 becomes 4 lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes 5 lanes in each direction)
- 12' right shoulder where other mainline improvements are constructed
- add a collector-distributor lane system between Atlantic Blvd. and I-5
- add a truck inspection facility adjacent to NB I-710 between Del Amo Blvd. and Long Beach Blvd.
- add truck bypass facilities at freeway-to-freeway interchanges: I-405/I-710; and SR-91/I-710 in combination with I-105/I-710
- add separate truck ramps to two interchanges with high truck volumes: to and from Pacific Coast Highway west of I-710, and to and from Washington Blvd. west of I-710

Interchanges

- add a right-side freeway connector ramp from the collector-distributor lane (see Mainlines above) to NB I-5 at the I-5/I-710^a interchange to be used primarily by trucks and retain the left-side connector to be used primarily by autos (NB I-710 to NB I-5)
- eliminate some of the design deficiencies at the I-405/I-710 freeway-to-freeway interchange
- eliminate some of the design deficiencies at 8 local interchanges^b
- add one new interchange (Slauson Ave.)
- eliminate access at 5 ramp locations:
 - exit from I-710/SB I-405 connector to N. Pacific Pl. (1 ramp)
 - entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

Terminal Island Freeway (SR-47/SR-103)

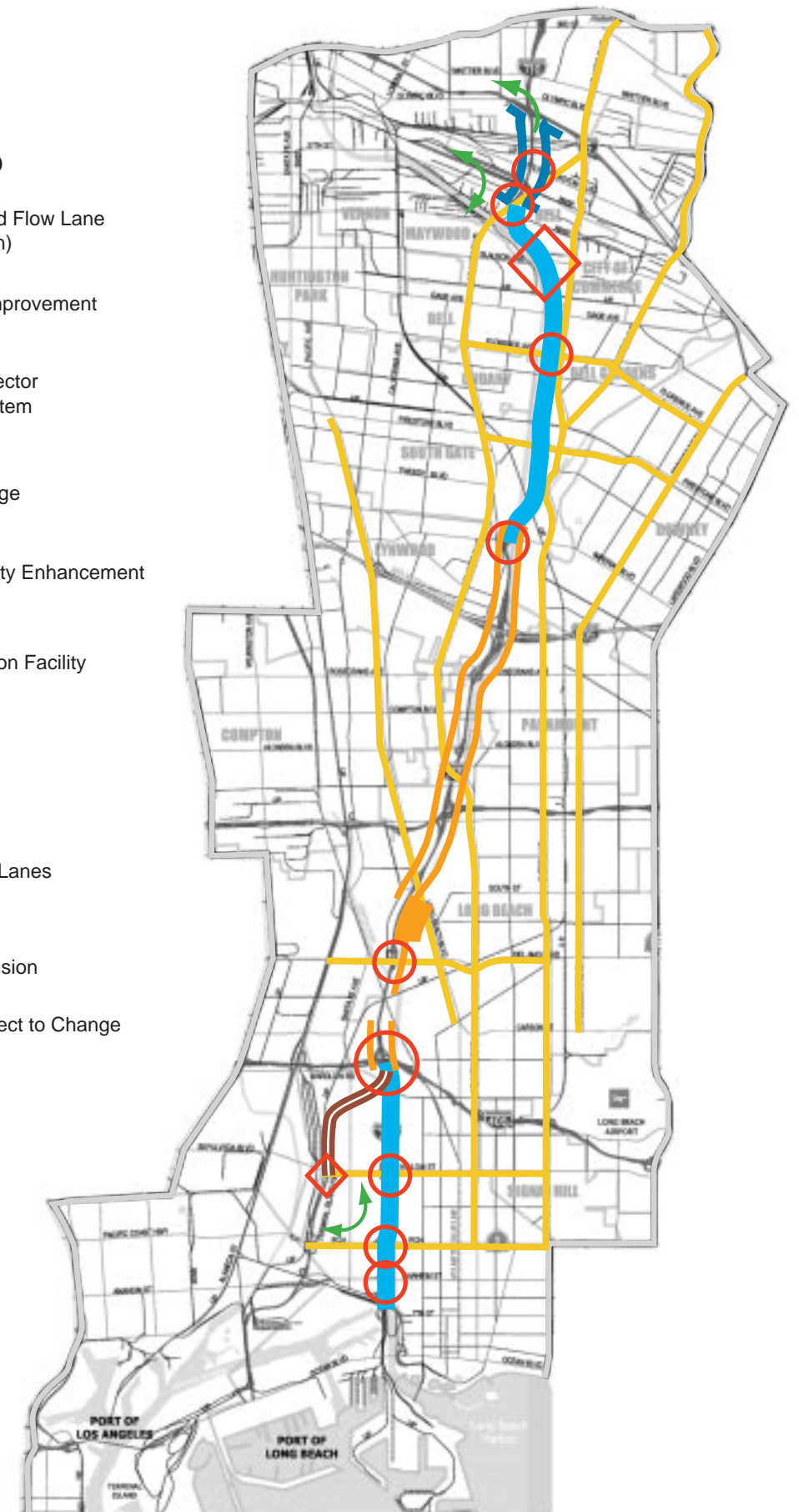
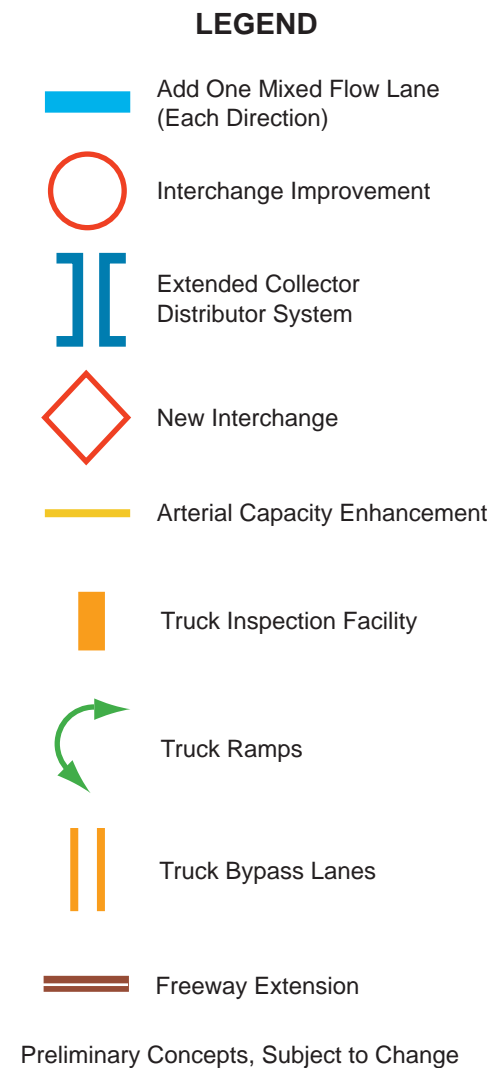
- extend Terminal Island Freeway (SR-103) to I-710 north of I-405, by adding an elevated, four-lane facility that would be used primarily by trucks

Arterials

- arterial capacity enhancements to 10 major arterials^c by adding one lane in each direction
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

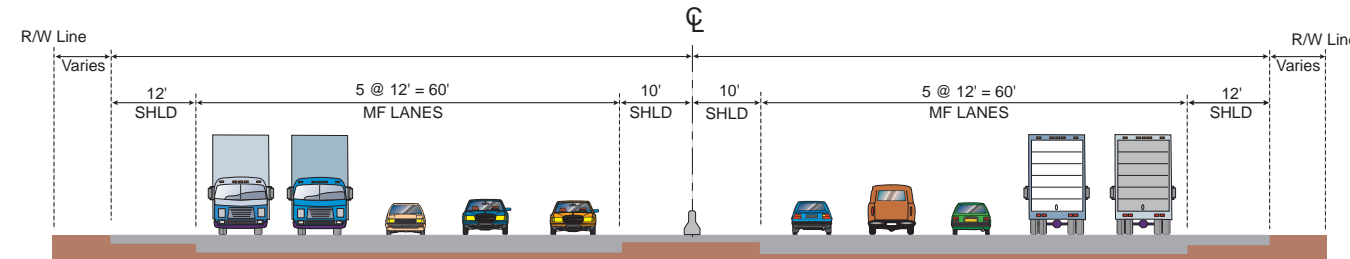
Notes

- requires coordination with I-5 Corridor Improvements
- Anaheim St.; Pacific Coast Highway; Willow St.; Del Amo Blvd.; Imperial Highway; Florence Ave.; Atlantic/Bandini Blvds.; Washington Blvd.
- Atlantic Blvd. (from PCH to SR-60); Cherry Ave./Garfield Ave. (from PCH to SR-60); Eastern Ave. (from Cherry Ave. to Atlantic Blvd.); Long Beach Blvd. (from San Antonio Dr. to Firestone Blvd.); Paramount Blvd. (from Carson St. to I-5); Pacific Coast Highway (from SR-103 to Cherry Ave.); Willow St. (from SR-103 to Cherry Ave.); Del Amo Blvd. (from Alameda St. to Cherry Ave.); Firestone Blvd. (from Atlantic Blvd. to Paramount Blvd.); Florence Ave. (from Atlantic Blvd. to Paramount Blvd.)

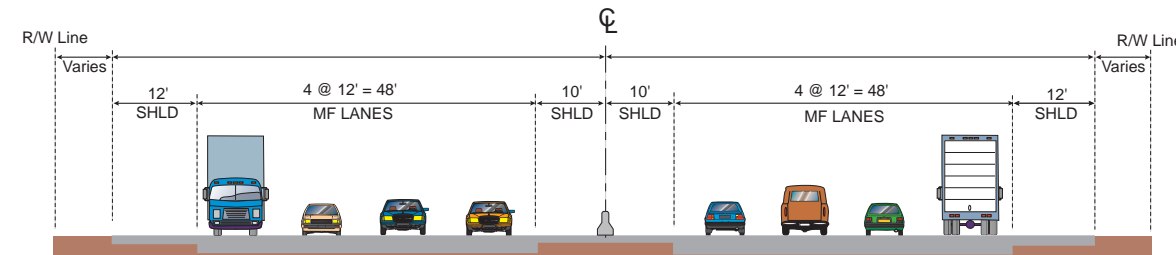


Alternative C
Medium General Purpose / Medium Truck Alternative

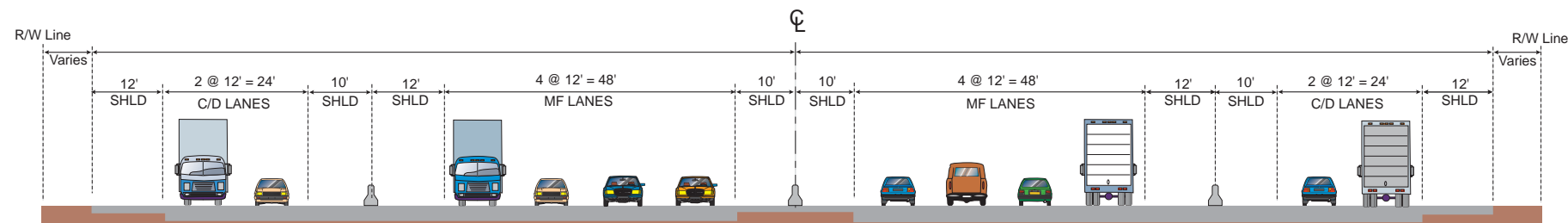
Typical Section - Alternative C
Sample Applications of the Design Concept & Scope



Add 1 MF Lane in Each Direction, between Imperial Blvd. & Atlantic Blvd.



Add 1 MF Lane in Each Direction, between the Shoemaker Bridge Complex & I-405



Collector-Distributor Lane System, between Atlantic Blvd. & I-5

Alternative D

High General Purpose / High HOV Alternative

Purpose of Concept

High level of capital investment focused on improving safety and increasing roadway capacity to address the high traffic volumes along the full length of the I-710 Corridor for all vehicle types as well as improving the travel time and attractiveness of carpools to increase the person-carrying capacity of the regional transportation system.

Mainlines

- add 2 mixed flow lanes in each direction for selected I-710 segments:
 - Pacific Coast Highway to I-405 (I-710 becomes 5 mixed flow lanes in each direction)
 - Imperial Hwy. to Atlantic Blvd. (I-710 becomes 6 mixed flow lanes in each direction)
- add 1 mixed flow lane in each direction for selected I-710 segments:
 - I-405 to Imperial Highway (I-710 becomes 5 mixed flow lanes in each direction)
 - Atlantic Boulevard to I-5 (I-710 becomes 6 mixed flow lanes in each direction)
 - I-5 to SR-60 (I-710 becomes 5 lanes in each direction)
- add an exclusive HOV facility^a for carpools and buses to I-710
 - 2 lanes (1 HOV lane in each direction), generally at grade, from Pacific Coast Highway to I-405 and from Slauson Ave. to Whittier Blvd.
 - 4 lanes (2 HOV lanes in each direction), generally elevated in the median of I-710, from I-405 to Slauson Ave.
 - dedicated ingress/egress points to and from I-710 mainlines for high occupancy vehicles at selected locations^b
 - HOV lanes would operate 24 hours/7 days per week and maintain a 2+ occupancy requirement
- 12i right shoulder where other mainline improvements are constructed

Interchanges

- eliminate some of the design deficiencies at three freeway-to-freeway interchanges: I-405/I-710, SR-91/I-710; I-5/I-710^c.
- add missing NB to SB movements at I-5/I-710 interchange^c
- eliminate some of the design deficiencies at 7 local interchanges^d
- include direct HOV connectors at the I-405/I-710 interchange (NB I-405 to NB I-710; SB I-710 to SB I-405)
- eliminate access at 8 ramp locations:
 - exit from I-710/SB I-405 connector to N. Pacific Pl. (1 ramp)
 - entrance/exit SR-91 at Atlantic Blvd. (2 ramps)
 - exit from NB I-5 to Telegraph Rd. (1 ramp)
 - entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

Terminal Island Freeway (SR-47/SR-103)

- add four-lane Alameda Corridor Truck Expressway, between SR-47 and Alameda Street

Arterials

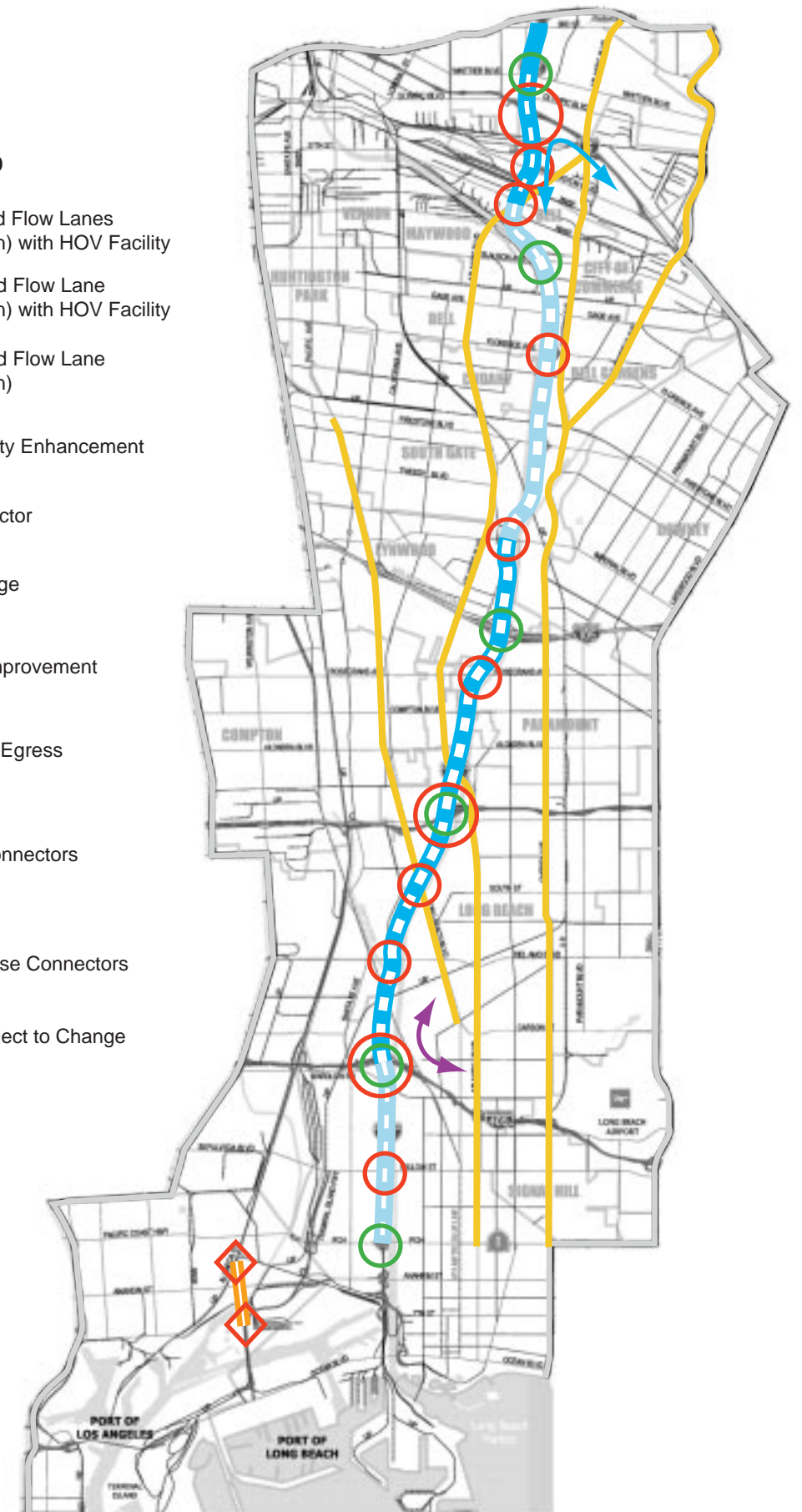
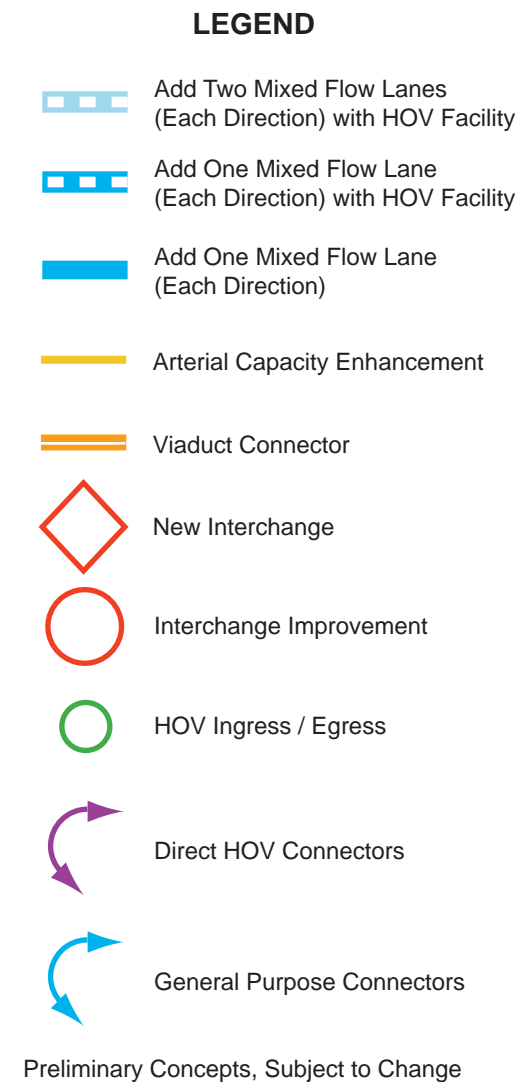
- arterial capacity enhancements to 4 major parallel arterials^e close to I-710 by adding one lane in each direction
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

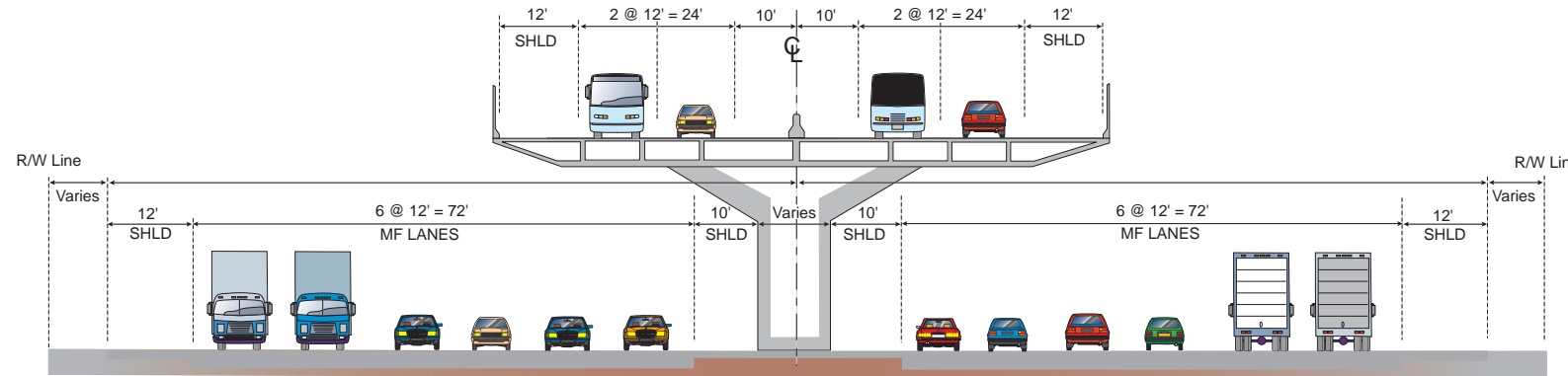
Transit

- add express bus service on I-710 using the HOV lanes

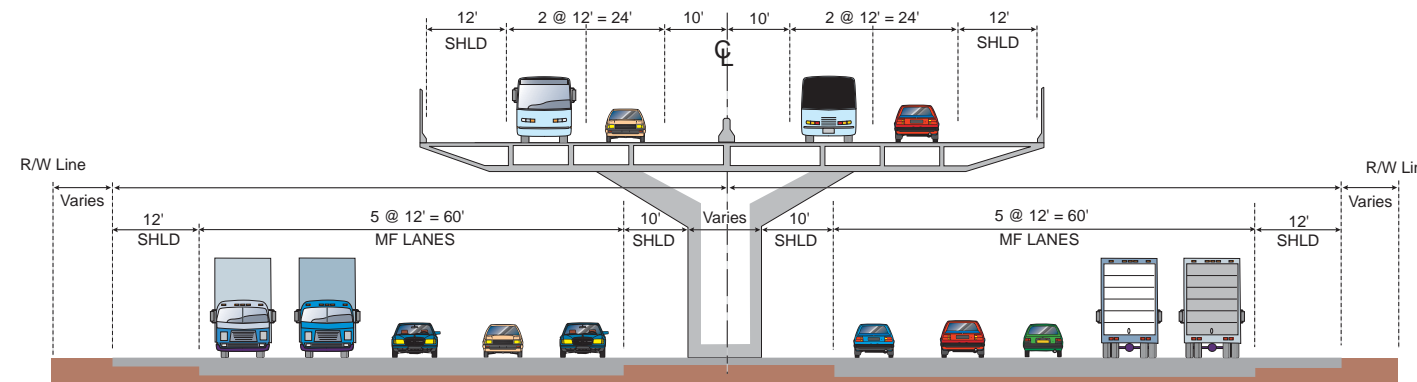
Notes

- exclusive HOV facility would be designed and constructed so as to not preclude its future development as a high speed rail line between Long Beach and downtown Los Angeles
- between Pacific Coast Highway and Willow St.; within the I-405/I-710 interchange; within the SR-91/I-710 interchange; within the I-105/I-710 interchange; near Slauson Ave.; near Whittier Blvd.
- requires coordination with I-5 Corridor Improvements
- Willow St.; Del Amo Blvd.; Long Beach Blvd.; Imperial Hwy.; Florence Ave.; Atlantic/Bandini Blvds.; Washington Blvd.
- Atlantic Blvd. (from PCH to SR-60); Cherry Ave./Garfield Ave. (from PCH to SR-60); Eastern Ave. (from Cherry Ave. to Atlantic Blvd.); Long Beach Blvd. (from San Antonio Dr. to Firestone Blvd.)

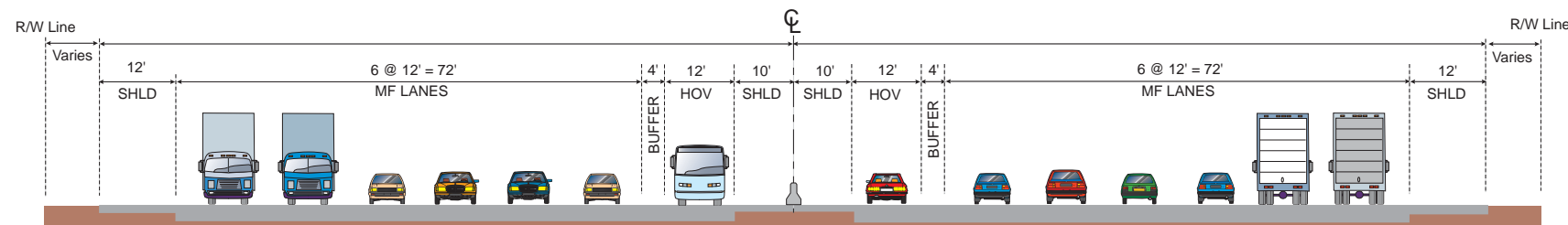




Add 2 MF Lanes in Each Direction and
Add 2 Carpool (HOV) Lanes in Each Direction on Elevated Structure



Add 1 MF Lane in Each Direction and
Add 2 Carpool (HOV) Lanes in Each Direction on Elevated Structure



Add 2 MF Lanes in Each Direction and
Add 1 Carpool (HOV) Lanes in Each Direction

Alternative E

High Truck Alternative

Purpose of Concept

High level of capital investment focused on: improving safety; increasing capacity for growing heavy duty truck demand; improving reliability of travel times; and reducing points of conflict between autos and trucks to the greatest extent possible.

Mainline Facility

- exclusive truck facility
 - 4 lanes (2 in each direction) between Willow St. and Whittier Blvd.
 - generally elevated, however, profile was determined based on need to minimize grades and best fit to minimize need for additional right-of-way
 - dedicated ingress/egress points for trucks at selected locations: north of Willow St.; north of I-405; SR-91 interchange (fully directional truck connectors); south of Firestone Blvd. (to and from the north only); Atlantic Blvd. Viaduct (see Interchanges below); south of Whittier Blvd. (to and from the south only)
 - horizontal alignment is in the median or adjacent to I-710 in new, existing state, or Southern California Edison right-of-way depending upon best fit
 - consider tolling option
- exclusive auto facility
 - 4 lanes (2 in each direction) between Shoemaker Bridge and Willow St. in Long Beach
 - generally elevated in the median, however, profile was determined based on need to minimize grades and best fit to minimize need for additional right-of-way
 - ingress/egress points at the termini only
- 12¹ right shoulder where other mainline improvements are constructed

Interchanges

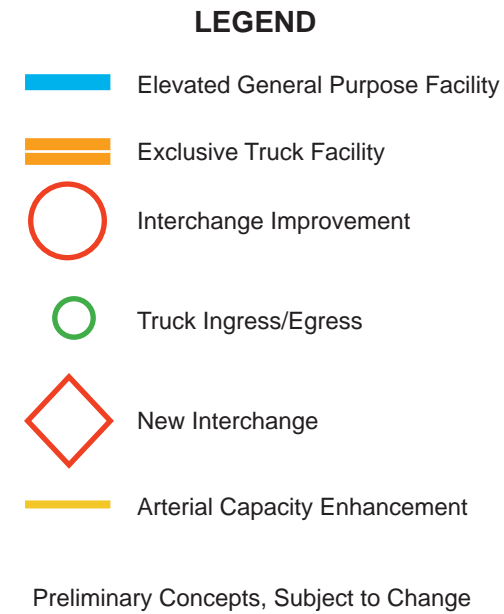
- eliminate some of the design deficiencies at I-5/I-710^a; SR-91/I-710; and I-405/I-710
- add missing NB to SB movements at I-5/I-710 interchange via Atlantic Blvd. Viaduct^a
- add one new interchange (Slauson Ave.)
- eliminate access at 16 ramp locations:
 - exit from I-710/SB I-405 connector to N. Pacific Pl. (1 ramp)
 - entrance/exit I-405 at Santa Fe Rd. (2 ramps)
 - entrance/exit SR-91 at Long Beach Blvd. (2 ramps)
 - entrance/exit SR-91 at Atlantic Blvd. (2 ramps)
 - entrance/exit I-710 at Martin Luther King Jr. Blvd. SB (2 ramps)
 - entrance/exit I-5 at Downey Rd. (2 ramps)
 - exit from NB I-5 to Telegraph Rd. (1 ramp)
 - entrance/exit I-710 at Olympic Blvd./Eastern Ave. NB and SB (4 ramps)

Arterials

- arterial capacity enhancements to 5 major arterials^b that lead to I-710 and that carry very high truck volumes by adding one lane in each direction
 - consists of either spot widenings to eliminate chokepoints/bottlenecks, restriping, and removal of on-street parking or roadway widening
 - provision of off-street parking, as needed, to replace loss of on-street parking due to restriping
 - includes access management improvements (raised medians, elimination/consolidation of driveways and smaller streets)

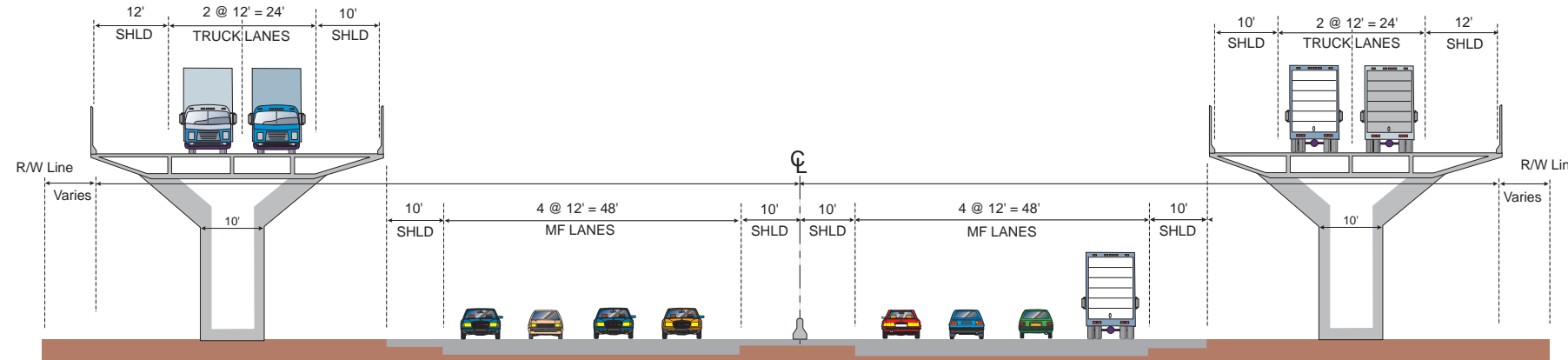
Notes

- requires coordination with I-5 Corridor Improvements
- Ocean Blvd. (from SR-47 to I-710 connectors, exclusive of the Gerald Desmond Bridge project); Pacific Coast Highway (from SR-103 to I-710); Florence Ave. (from I-710 to Garfield Ave.); 37th St./38th St./Bandini Blvd. (from Alameda St. to I-5); Washington Blvd. (from Alameda St. to I-5)

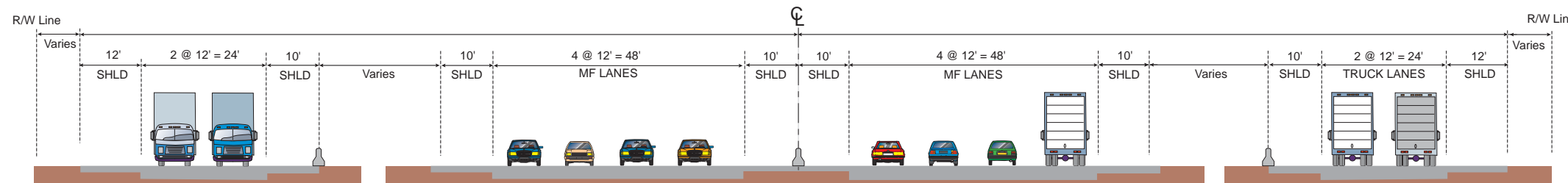


**Alternative E
High Truck Alternative**

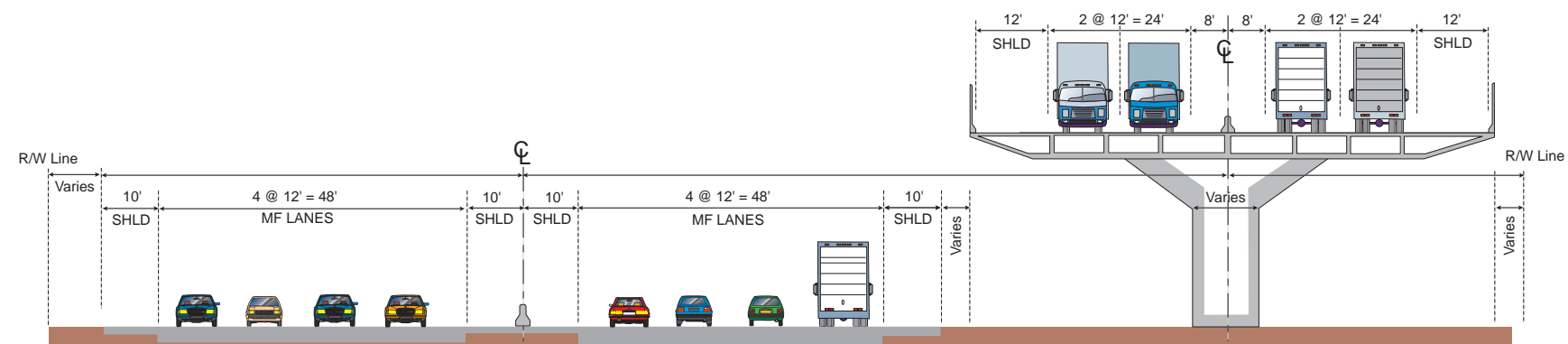
**Typical Section - Alternative E
Sample Applications of the Design Concept & Scope**



Add 2 Truck Lanes in Each Direction on Elevated Structures



Add 2 Truck Lanes in Each Direction



Add 2 Truck Lanes in Each Direction on Elevated Structure