Mobility. Environment. Community. Economy. Technology

I-710 Corridor Project EIR/EIS

metro.net

I-710 Initial Screening Results

Presented to I-710 CAC

February 18, 2009

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Caltrans

GATEWAY CITIES

The Port of LONG BEACH

THE PORT OF LOS ANGELES

ASSOCIATION of GOVERNMENTS

Presentation Overview

- Purpose of Alternatives Screening
- Review of Alternatives
- Findings by Goal/Objective
- CAC Discussion

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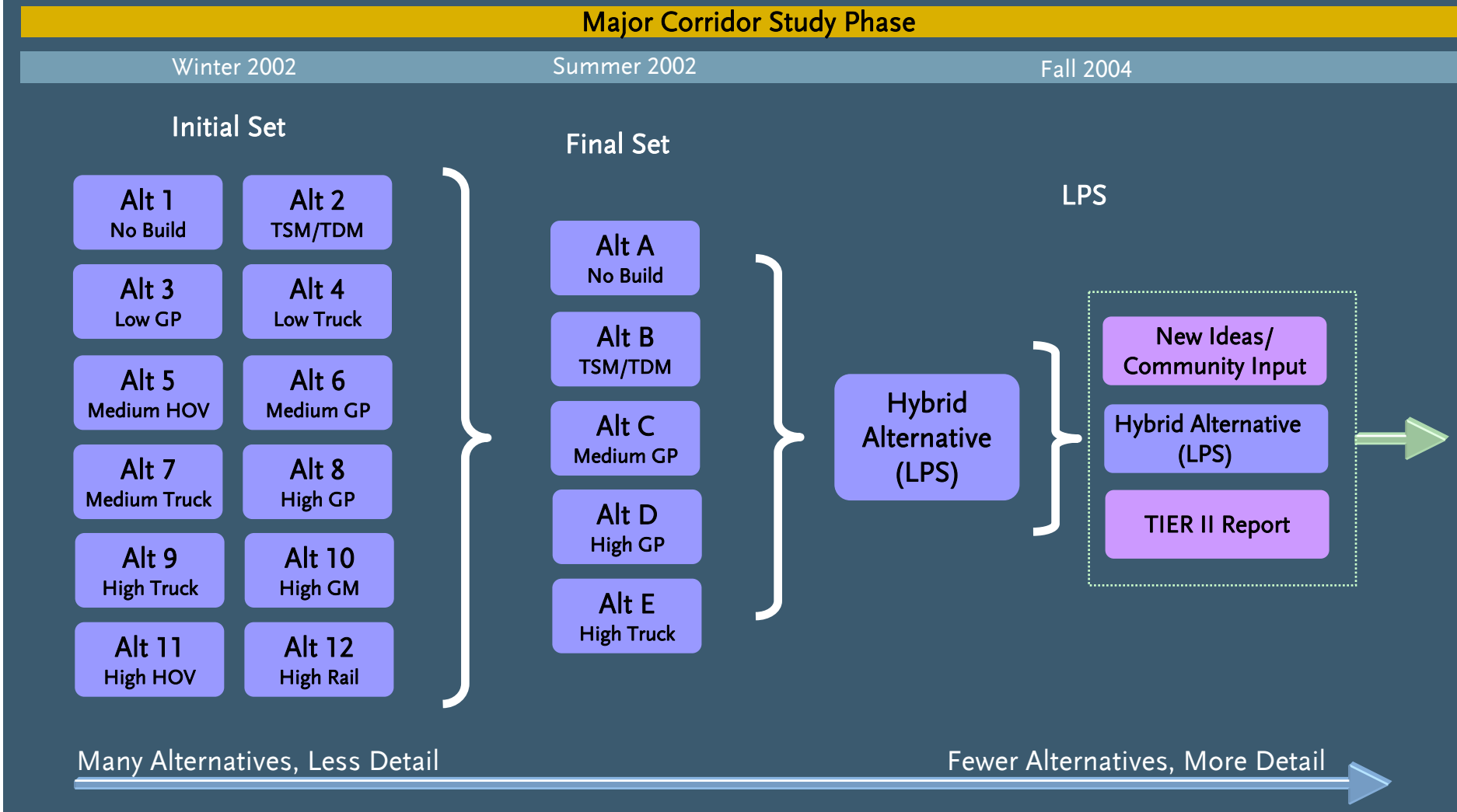
Alternatives Screening Process



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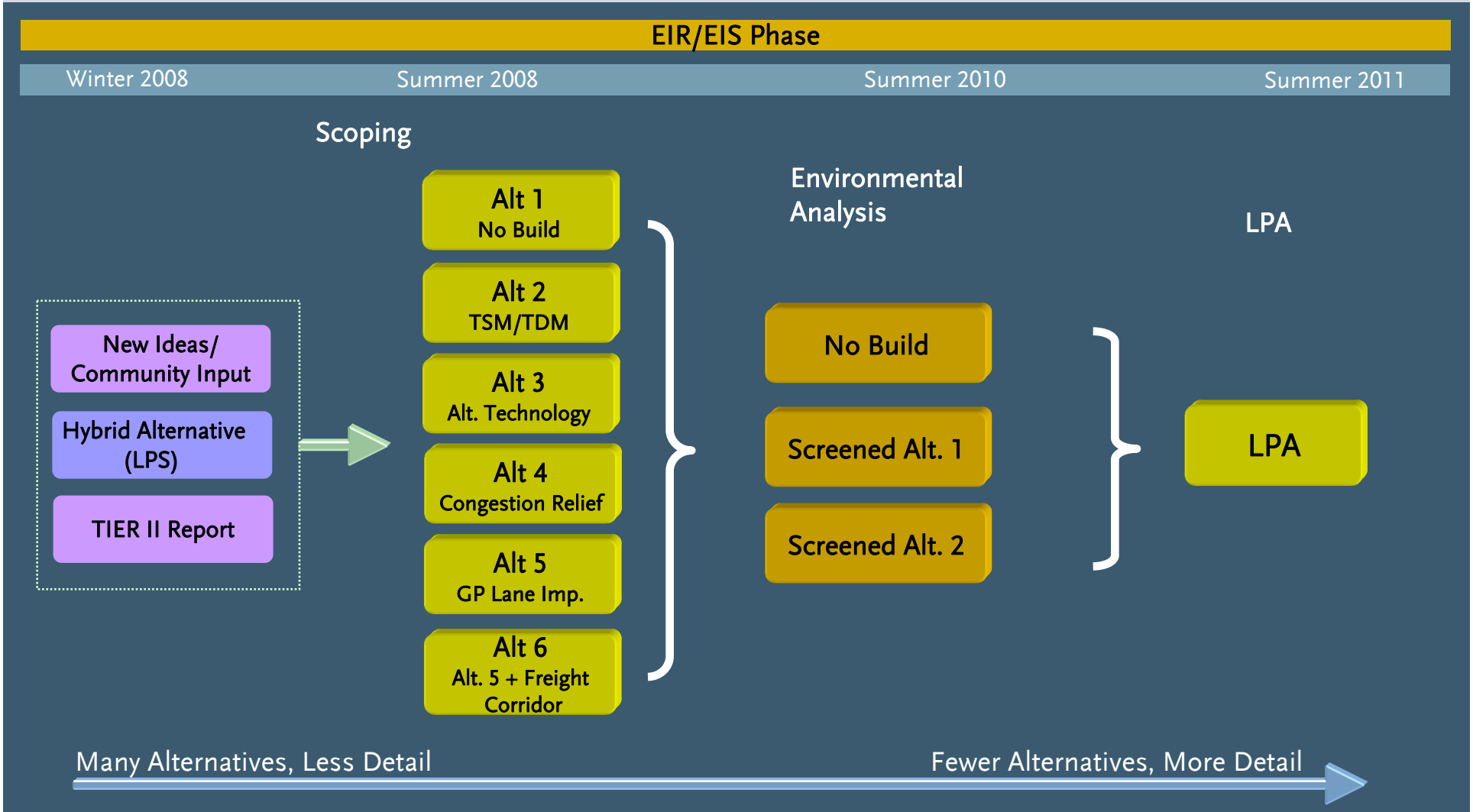
Alternatives Screening Process



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Alternatives for Screening

1. **No Build**
2. **Transportation System Management/Transportation Demand Management/Transit**
3. **Goods Movement Enhancement by Railroad and/or Advanced Technology** (fixed guideway)
4. **Arterial Highways and I-710 Congestion Relief Improvements** (includes Alternatives 2 and 3(Rail))
5. **Mainline I-710 Improvements** (includes Alternatives 2, 3(Rail) and 4)
   A. 10 General Purpose Lanes or,
   B. 8 General Purpose Lanes w/ 1 carpool lane in each direction (total of 10)
6. **Hybrid LPS** (includes Alternative 5 + freight corridor of 4 truck lanes)

Screening Criteria

- Mobility
- Air Quality
- Traffic Safety
- Right of Way Impacts
- Environmental Impacts
- Cost

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Mobility Measures

Overview of Mobility Screening Measures

- Screenline Volume/Capacity Ratios on I-710 General Purpose Lanes
- Total Screenline Volume/Capacity Ratios
- I-710 Travel Time

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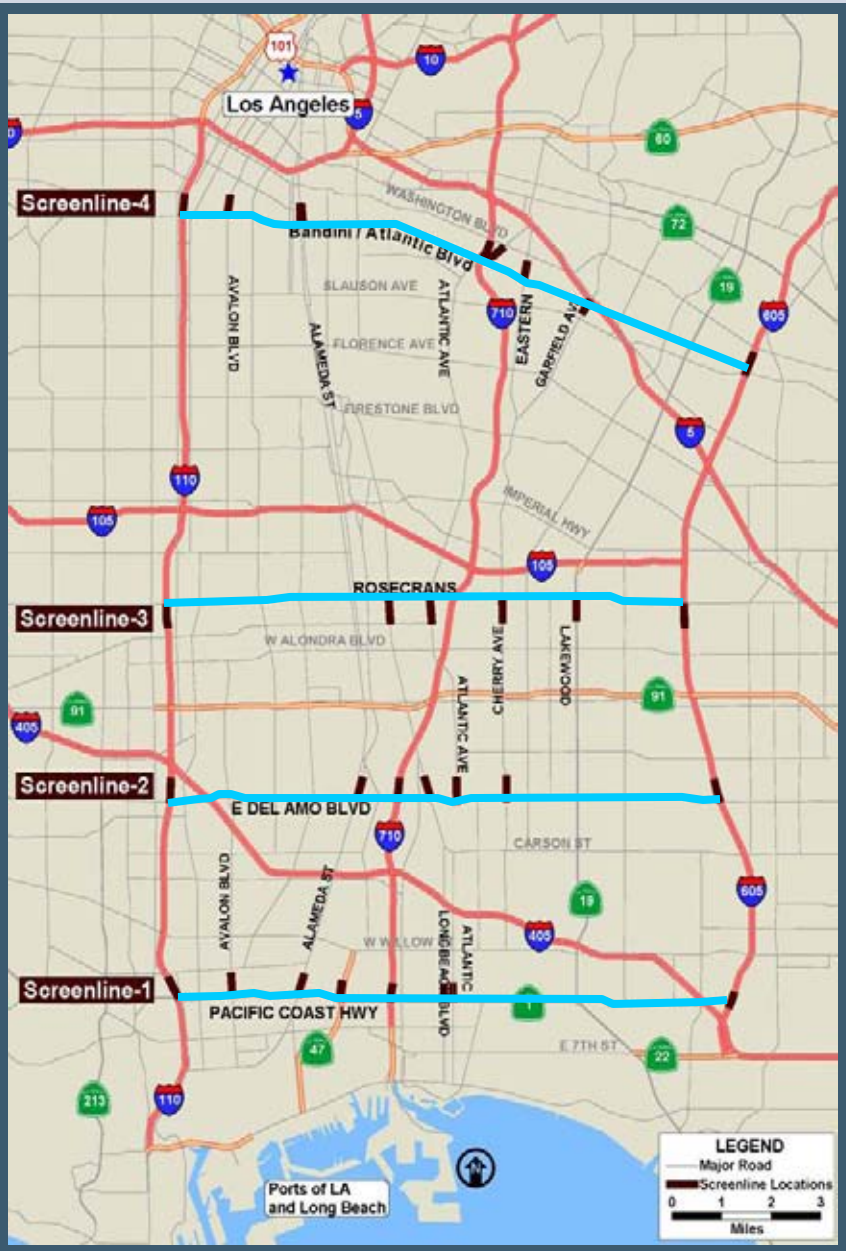
Screenline Locations



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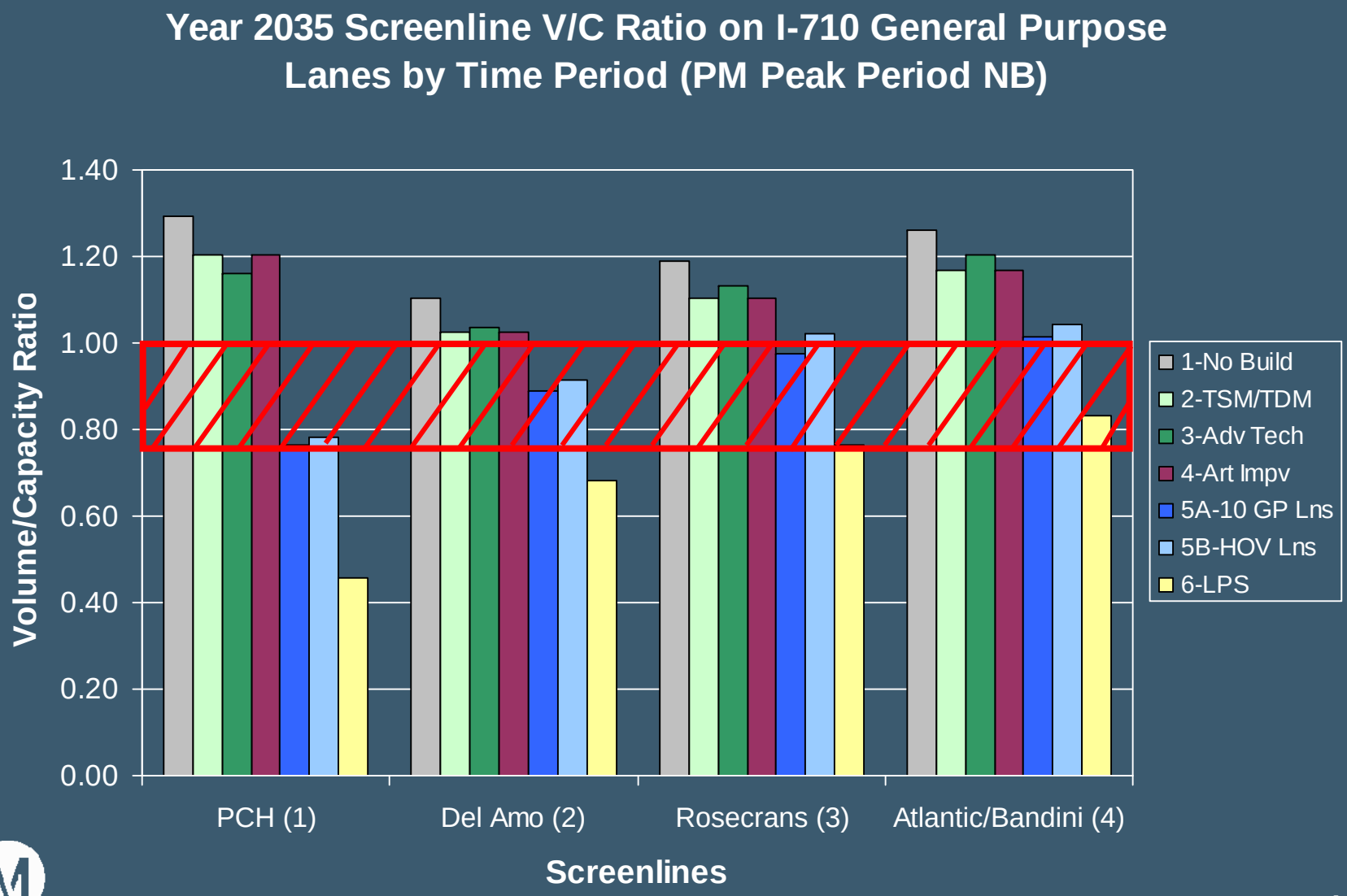
Mobility Screening Results



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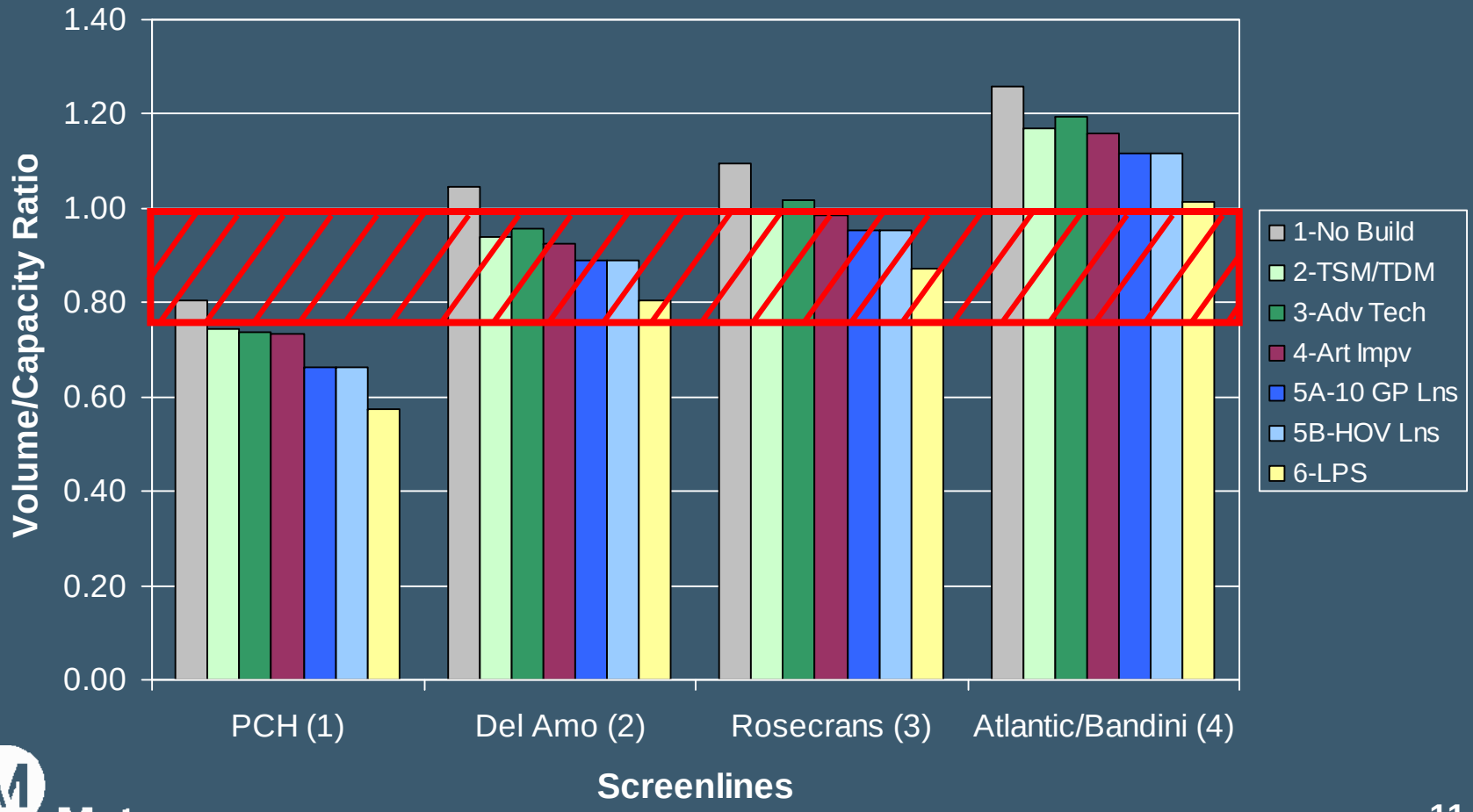
Mobility Screening Results



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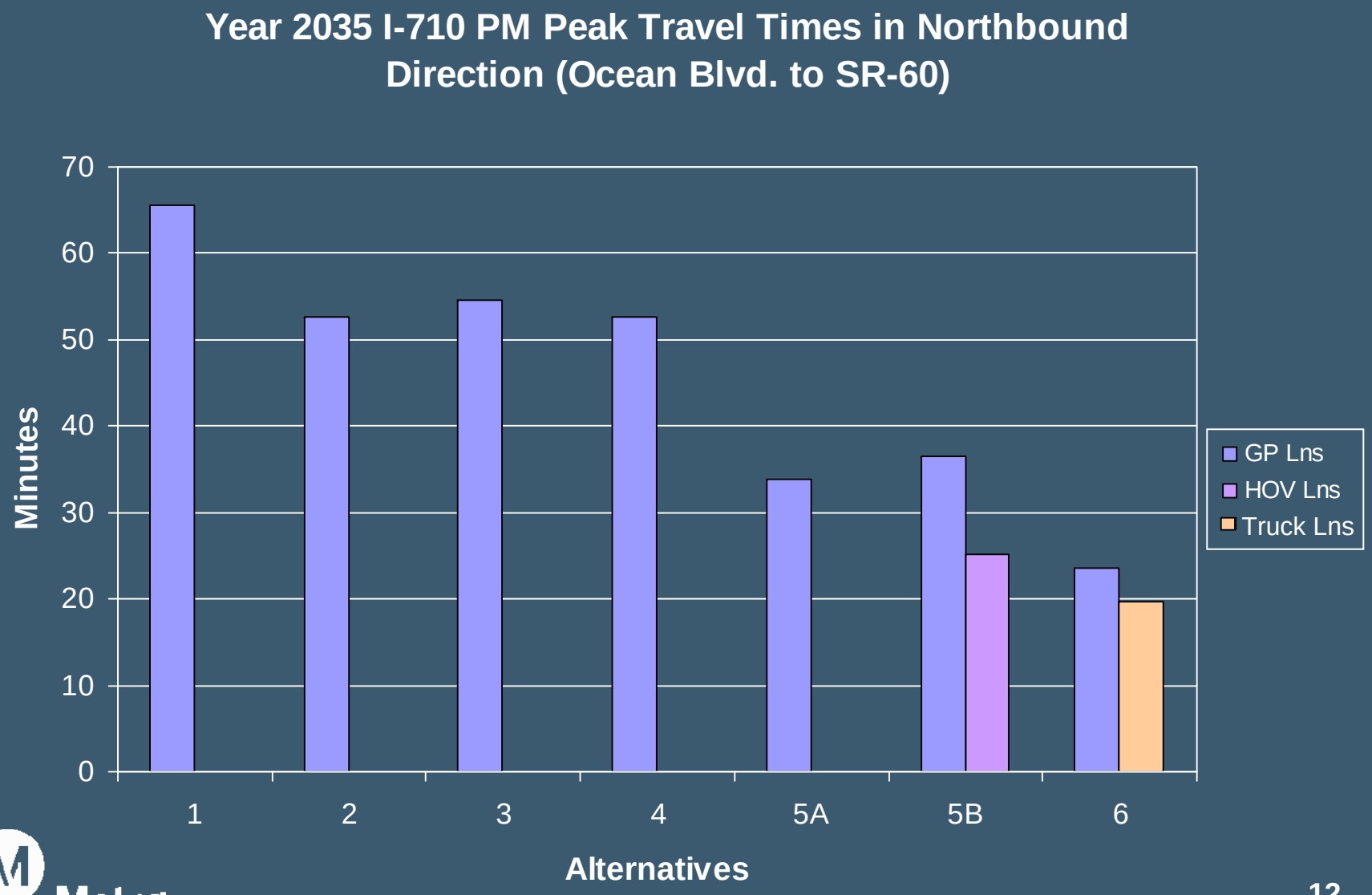
Mobility Screening Results



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Mobility Screening Findings

- Substantial need for new capacity in corridor demonstrated by No-Build V/C
  - Only Alternative 6 provides sufficient capacity to reduce peak period I-710 V/C's below 1.0
  - Reduction in Alternative 6 total screenline V/C suggests potential for significant positive impacts on arterials as compared to other alternatives

Mobility Screening Findings

- Results at Screenline 1 (PCH) suggest Alternative 6 may have more capacity south of I-405(14 lanes) on I-710 than needed
  - Alternatives 5A and 5B (10 lanes) also provide peak period speeds of 50 mph or higher at south end
- Only Alternative 6 has average end-to-end speed on I-710 GP lanes higher than 35 mph
- Top performing alternatives:
  - Alternative 6 (1st), Alternative 5A (2nd), Alternative 5B (3rd)

Air Quality Measures

Overview of Air Quality Screening Measures

- Screening analysis metrics:
  - Criteria pollutants (ozone, PM, NO_2): Daytime Freeway Oxides of Nitrogen (NOx) Emissions
  - Air toxics: Daytime Freeway Diesel Particulate Matter (DPM) Emissions
- Emissions estimated using screenline information (vehicle volumes and average speed)
- Screening analysis: Year 2035 freeway (I-710, I-110, I-605) emissions *only*
  - 2035 per-vehicle emissions are 80 to 90% lower than 2008

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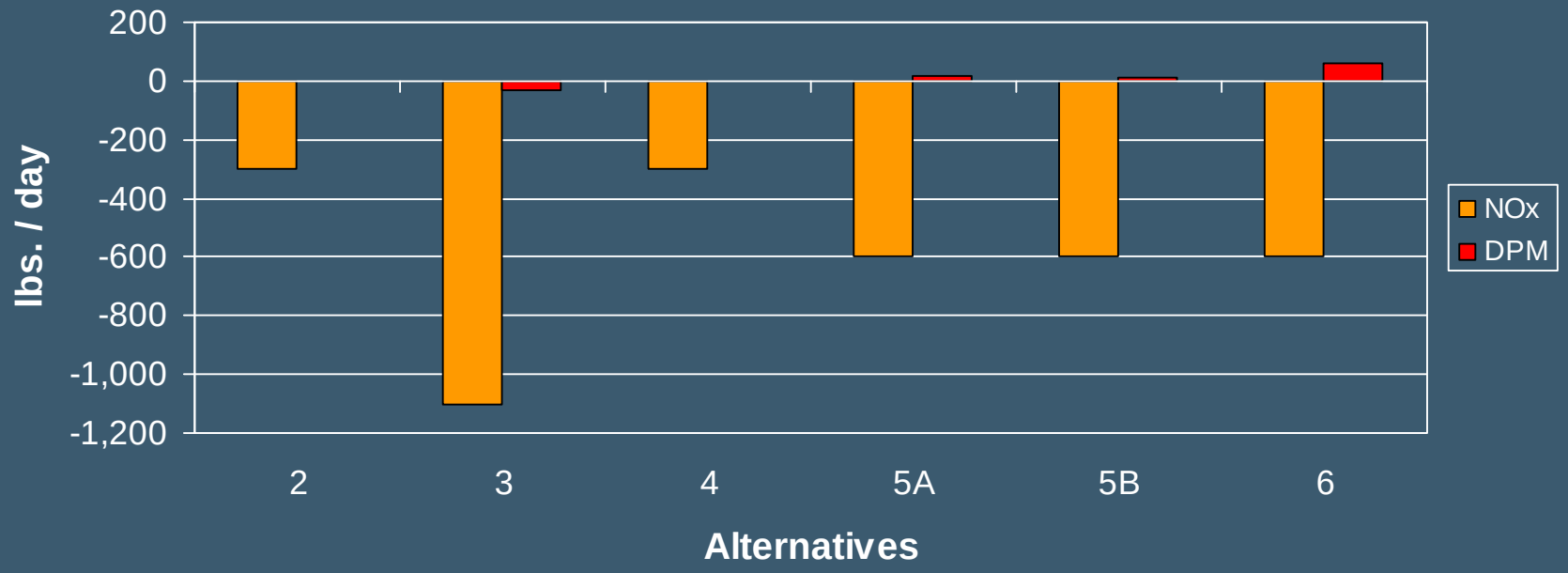
Air Quality Screening Results

Daytime Freeway-only (I-710, I-110, I-605) Emissions Compared to 2035 No Build (lbs)



- Screening level analysis does not account for future truck / car emission regulations beyond existing federal regulations
- Screening level analysis does not account for emission reductions if the alternative improves mobility on arterials
- Alternative 3 (fixed guideway) is estimated to reduce daily port truck trips by 20%

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Air Quality Screening Results

- NOx (regional ozone, PM and NO_2 metric)
  - Alternative 3 shows greatest reductions compared to No Build alternative (-1,100 lbs)
  - Alternatives 5A, 5B, and 6 show appreciable reductions (~ 640 lbs)
  - Lower emissions at higher speeds (greater mobility)
- DPM (air toxic metric)
  - Alt 3 shows small reductions compared to No Build (-26 lbs)
  - All others show minor increases
    - Up to ~60 lbs for Alternative 6
    - Emissions less affected by speed, increase at > 30 mph
  - 2035 DPM emission factors are very low (control technologies, new engine standards and fleet turnover)

Air Quality Screening Findings

- All 2035 alternatives may show emission decreases compared to 2008 baseline (new standards/controls vs. VMT increases)
- Compared to the 2035 No Build Alternative:
  - Alternative 3 (fixed guideway) shows greatest reductions in NOx, DPM
    - 22,400 daily truck trips (~20% of Port trucks) eliminated by fixed guideway container transport technology
  - Alternatives 5A, 5B, and 6 show appreciable reductions in NOx with slight increases in DPM
    - DPM emissions could be reduced with alternative (zero-emission) technologies

Air Quality Screening Findings

- Screening analysis does not include effect of improved mobility on arterials (not feasible to include in screening analysis)
  - NOx and DPM emissions would be reduced for alternatives that improve mobility on arterials
- Greenhouse gases (CO_2 – qualitative):
  - Expect similar response among alternatives as NOx

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Traffic Safety Measures

Overview of Traffic Safety Measures

- Percentage of PM Peak Period Traffic on I-710 General Purpose Lanes Consisting of Heavy Duty Trucks
  - Reflects the significant mix of trucks and passenger vehicles
- Number of Existing Highway Design Deficiencies Eliminated

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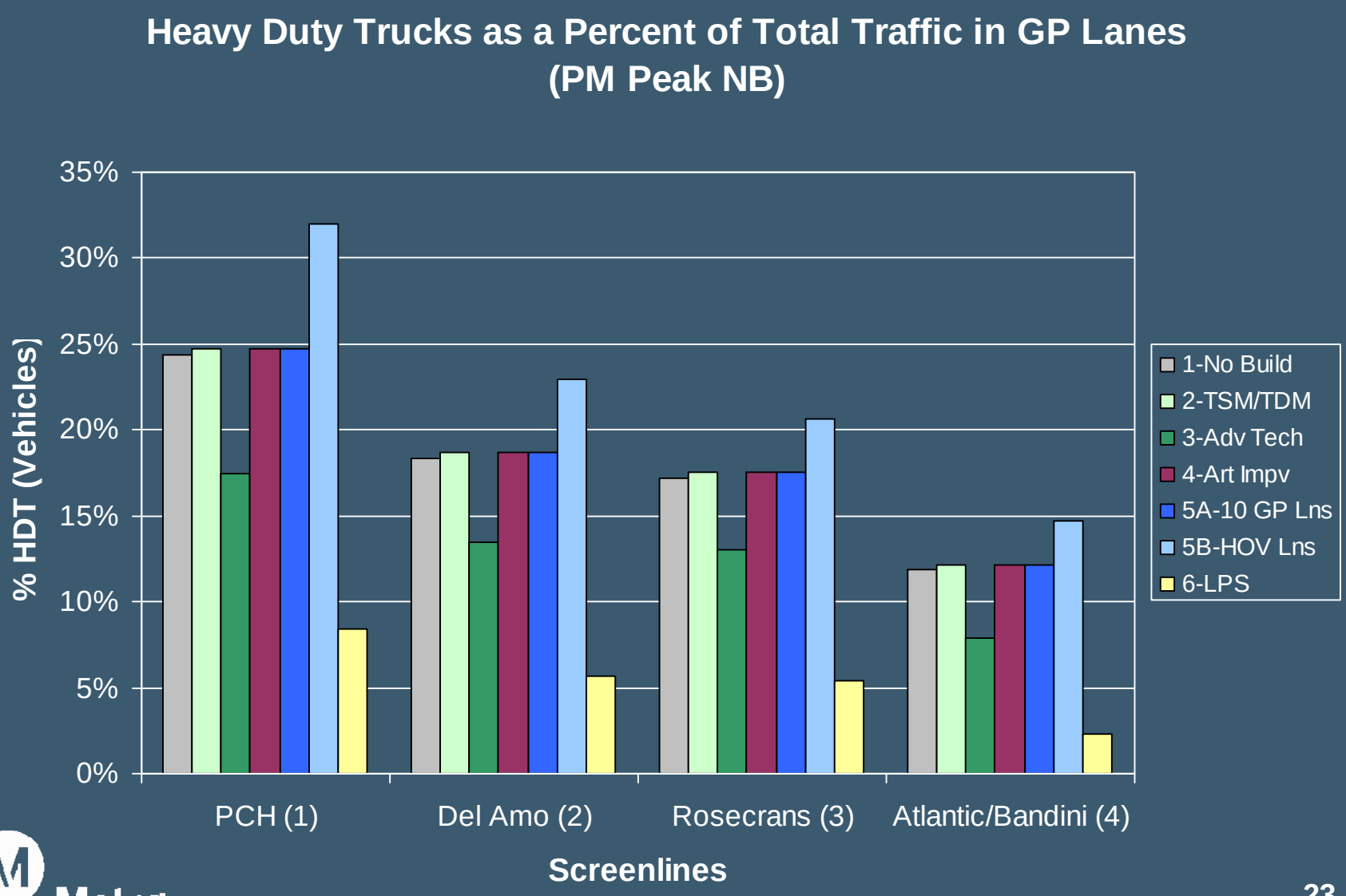
Traffic Safety Screening Results



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Traffic Safety Screening Results

Number of Existing Physical Design Deficiencies Eliminated

- Examples of design deficiencies are:
  - Poor weaving and merging conditions
  - Poor sight distance
  - Sharp curvature of ramp alignments

Alternatives						
1	2	3	4	5A	5B	6
0	0	0	135	420	420	420

Over 500 existing deficiencies throughout the corridor

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Traffic Safety Screening Findings

- Proposed design improvements and Heavy Duty Truck reductions should substantially reduce accident rates
- Alternative 6 has the lowest percentage of HDT on the GP lanes as it separates cars and trucks
  - This percentage could be reduced further through the inclusion of alternative technology
- Alternative 6 plus Alternative 3 are best for traffic safety
- Alternatives 5A and 5B provide safety benefits

Right of Way Measures

Overview of Right of Way Measures

- Number of Impacted Residential Properties
- Number of Impacted Non-Residential Buildings
- Potential Relocations of Regionally Significant Utilities – Power Transmission

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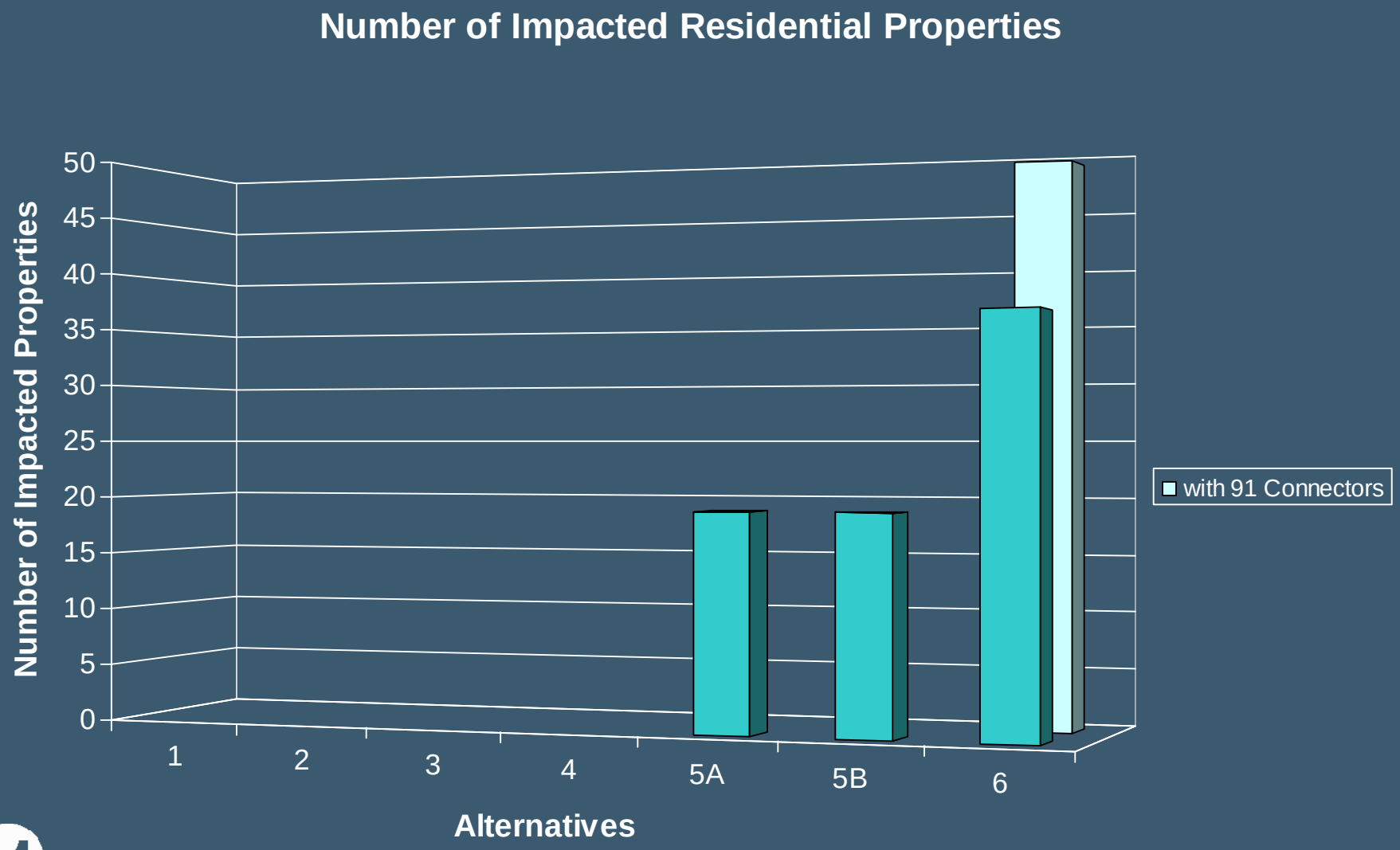
Overview of Right of Way Measures

Right of Way Requirement Assumptions

- LPS from Major Corridor Study required approval of some non-standard designs to avoid residential impacts
- Designs of current alternatives have been updated
- Requirements are based upon standard designs and protocols

Right of Way Screening Results



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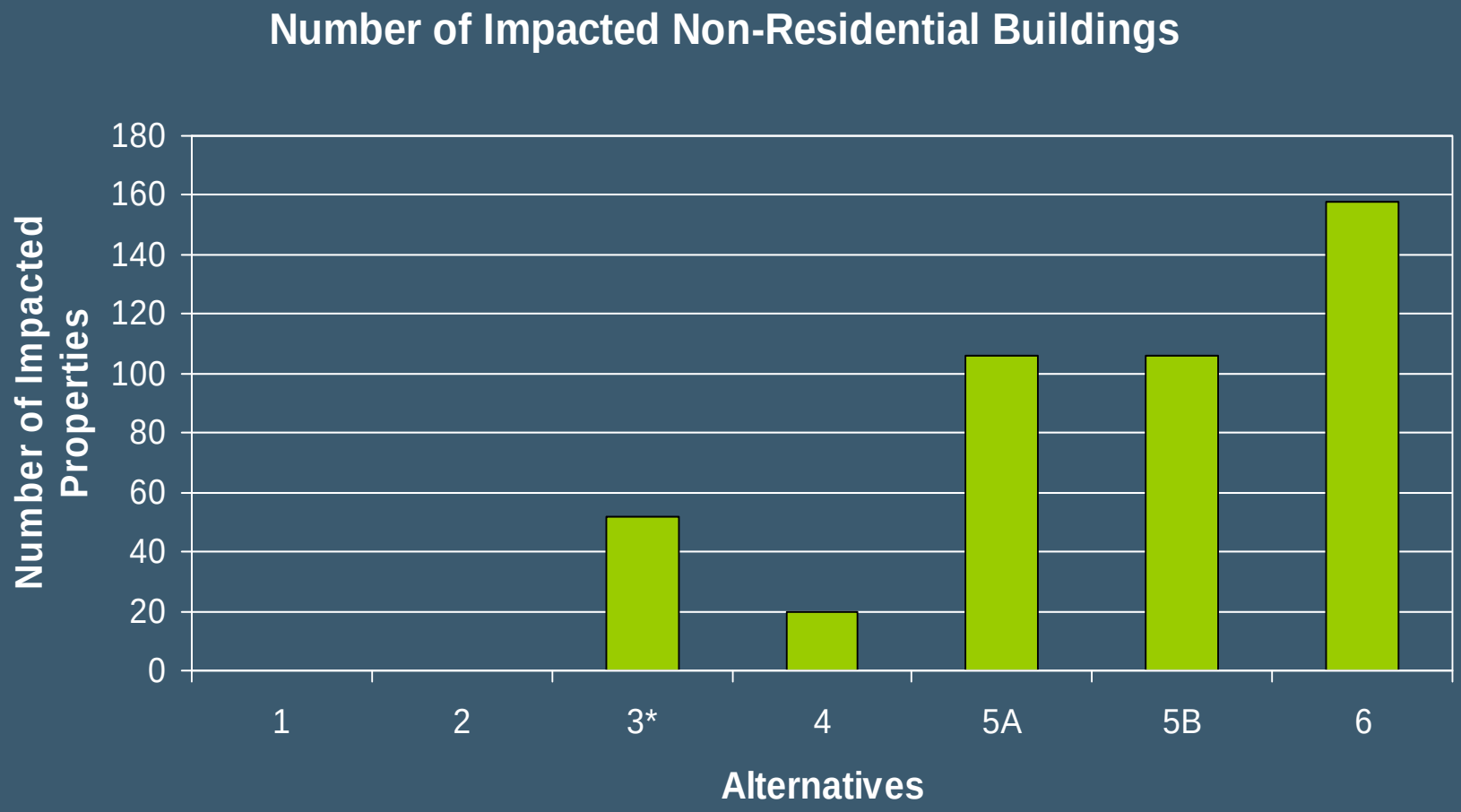
Right of Way Screening Results



*Alternative 3 results do not include land required for fixed guideway terminals and terminal connectors (approx. 3 acres/marine terminal)

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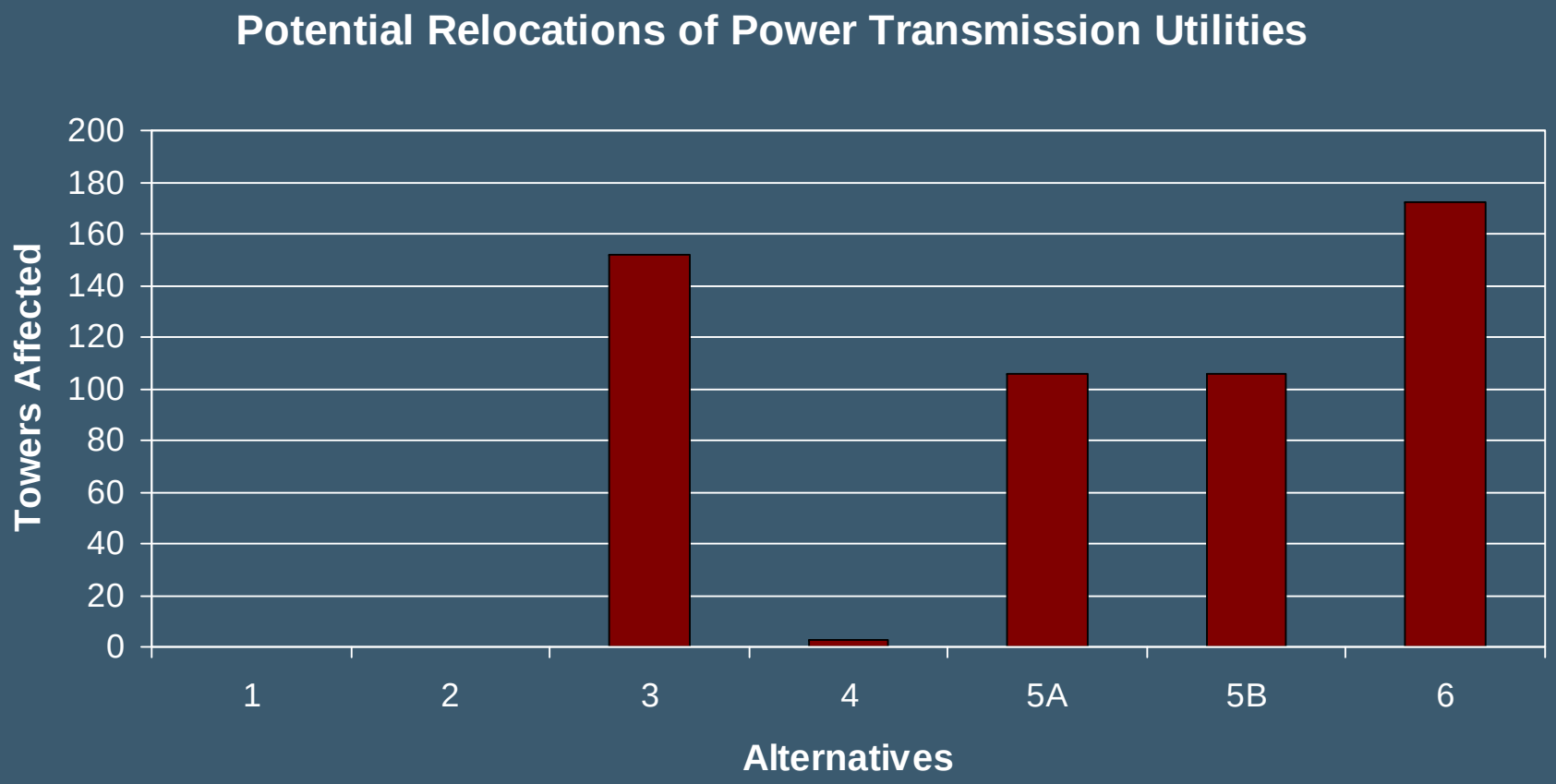
Right of Way Screening Results



- Electric facility relocation may require acquisition of replacement rights-of-way
- The utility acquisition process may include condemnation, or purchases
- The existing affected Edison right-of-way involves 233 acres, and replacement right-of-way may involve more acreage depending on the relocation

- Southern California Edison

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Right of Way Screening Findings

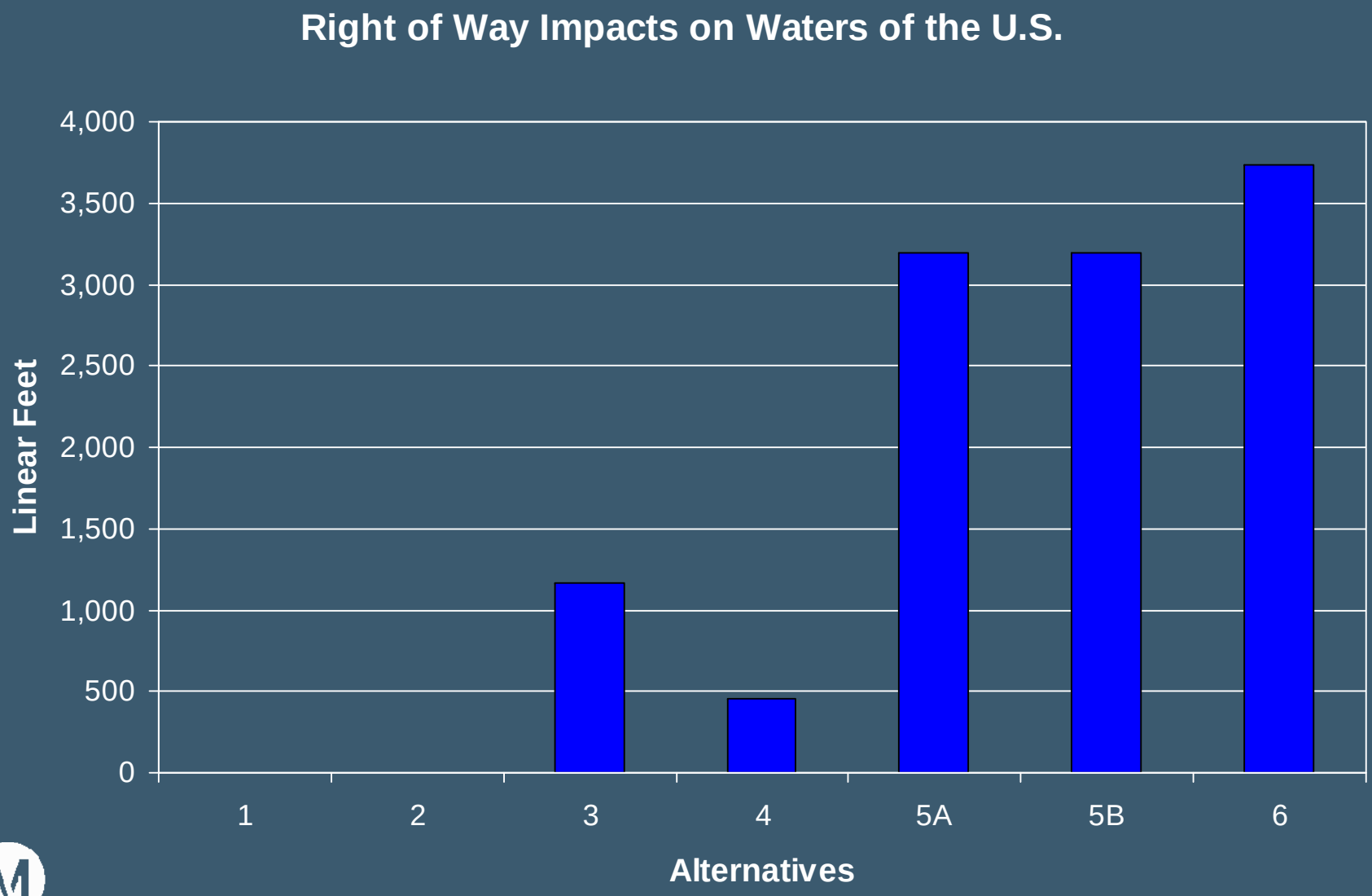
- All alternatives are consistent with the project objective of minimizing right of way impacts, notably residential acquisitions
- Mobility and traffic safety benefits are trade-offs to residential impacts
- Alternatives 3, 5 and 6 have a substantially greater impact to regional transmission utilities
- Alternatives 1, 2 and 4 have the least impacts

Environmental Impact Measures

Overview of Environmental Impact Screening Measures

- Right of Way Impacts on Waters of the U.S.
- Right of Way Impacts on Section 4(f) Properties
  - Examples of Section 4(f) properties are publicly owned parks, recreational areas, wildlife refuges, or public and private historical sites
- Environmental Justice Assessment

Environmental Impact Screening Results



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Environmental Impact Screening Results

Right of Way Impacts on Section 4(f) Properties

- Cesar Chavez Park
  - Full acquisition is not necessary (would be impacted by Alternatives 4, 5 and 6; possibly Alternative 3)
  - Benefits of Proposed Project:
    - Increase park size by 40%
    - Improved public access to park
- No other 4(f) properties impacted

Environmental Impact Screening Results

Environmental Justice Assessment

- Analysis performed using demographic data
  - Did not distinguish meaningfully between alternatives at the screening level of analysis
  - Did not account for potential benefits as a result of project implementation at the screening level

Environmental Impact Screening Findings

- Alternative 6 has the highest impact to Waters of the U.S.
  - May be the only practicable alternative as it meets the Purpose and Need of the project
- Only 1 Section 4(f) property affected by Alternatives 3, 4, 5A, 5B, and 6
  - May experience benefits from project implementation
- Environmental Justice measure as defined did not distinguish differences among the alternatives

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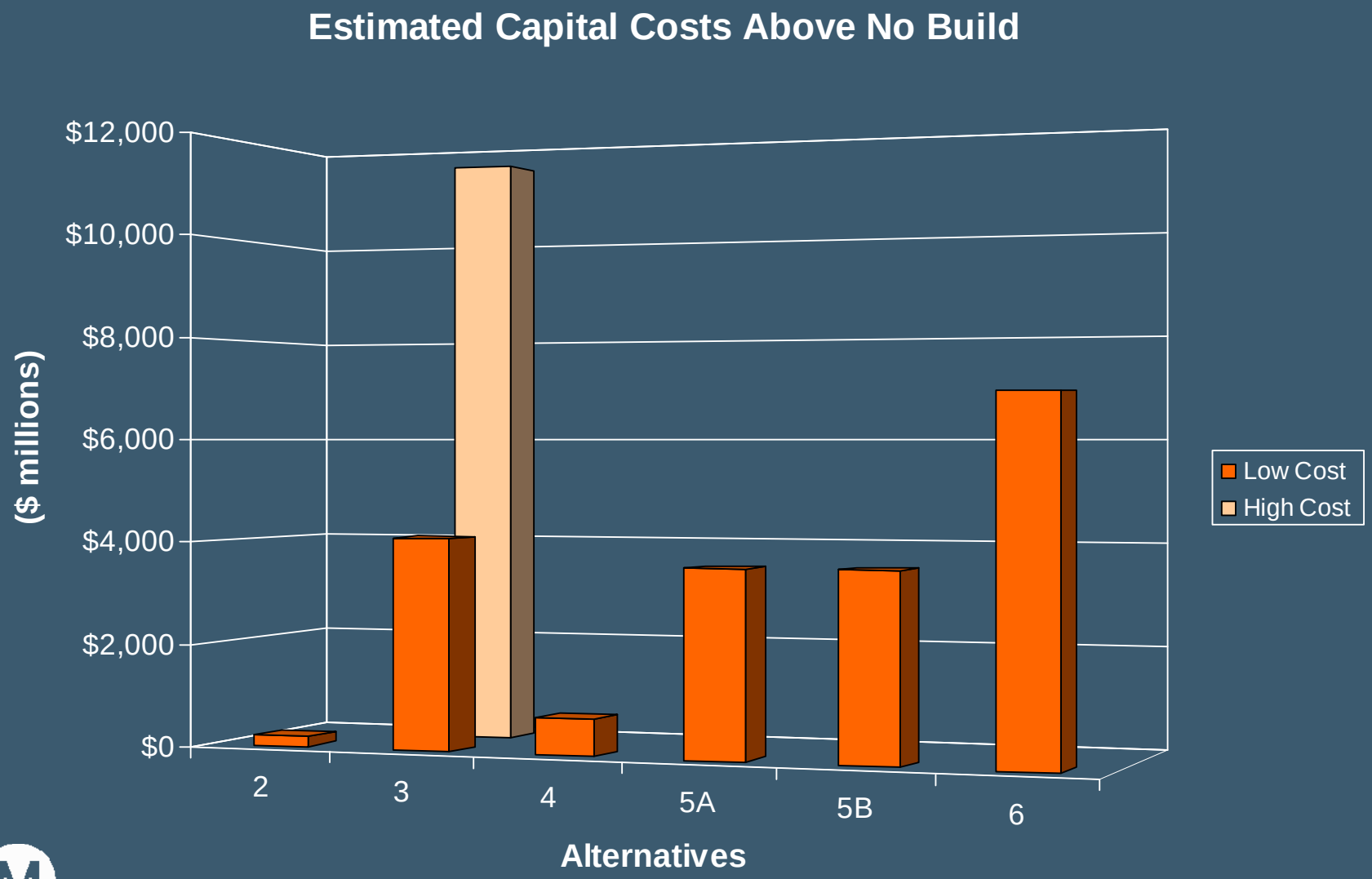
Capital Cost Measure

Overview of Capital Cost Screening Measure

- Total Capital Cost
  - Freeway Improvements
  - Interchanges
  - Arterials
  - ITS
  - Transit
  - Alternative Technology

Capital Cost Screening Results



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Capital Cost Screening Findings

- Alternatives 3 and 6 have the highest cost
  - Alternative 6 and Alternative 3 provide the greatest benefits

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Screening Results Summary

- Alternative 6 (Updated Hybrid LPS) is only one to meet Mobility element of Purpose and Need
- Alternative 5A (10 General Purpose Lanes) is second best performer on Mobility element of Purpose and Need
- Alternative 6 is best performer on Traffic Safety
- Alternative 6 reduces NOx but slightly increases freeway daytime DPM compared to No Build
  - Additional emission reductions could be achieved by combining Alt. 6 with Alt. 3 alternative (zero-emission) technologies
- Alternative 6 impacts (affected properties, waters of the US, cost) are highest compared to other alternatives
  - Directly related to mobility and safety improvement features
- Alternative 3 (Alternative Technology) is highest capital cost followed by Alternative 6

CAC Screening Recommendations

Discussion