

Mainline Screening Matrix

QUANTITATIVE SCREENING ANALYSIS		Mainline Highway Alternatives including Santa Fe interchange impacts and I-25 interchange impacts			
		No Action	General Purpose Lanes	Express Lanes	Express Lanes
Goals/Objectives	Performance Measure(s)				
Congestion/Delay					
Minimize congestion on C-470 from Kipling to I-25.	PM peak hour LOS.	● pm peak hour LOS E/F	○ pm peak hour LOS D or better	○ pm peak hour LOS C or better in express lanes	● pm peak hour LOS E/F in general purpose lanes
Provide a reasonable balance between arterial interchange operations and freeway operations.	Intersection LOS.	○ see intersection LOS worksheet	○ see intersection LOS worksheet	○ composite	○ see intersection LOS worksheet
Minimize delay over a limited timeframe (peak period).	Corridor travel time in minutes.	● corridor travel time 30-35 minutes	○ corridor travel time 15-18 minutes	○ corridor travel time 12-14 minutes in express lanes (60% volume)	○ corridor travel time 29-36 minutes in general purpose lanes (40% volume)
				○ composite	
Reliability					
Provide predictable travel times.	LOS and whether lanes can be actively managed or not.	● poor LOS and no active management; no control over how GPLs are used	○ moderate LOS and no active management; no control over how GPLs are used	○ moderate LOS and high active management; express lanes can be actively managed	○ flexible capacity within EIs; fixed capacity within GPLs
Manage capacity.	Degree to which an alternative provides flexible vs. fixed capacity.	● fixed capacity	○ fixed capacity	○ more incident management elements available; better means to access incidents	○ provides most choices (express lanes) to most users (bus, SOVs, HOVs)
Manage incidents.	Degree to which an alternative provides incident management elements.	○ some incident management elements available	○ some incident management elements available	○ more ITS elements included within alternative	○ provides most choices (express lanes) to most users (bus, SOVs, HOVs)
Provide reliable choices to most users.	Number of choices and number of users.	● provides limited choices to limited users	○ provides moderate amount of choices (improved LOS on GPLs) to moderate amount of users (bus, SOVs)	○ more ITS elements included within alternative	
Inform users of system status.	Number of ITS elements included within alternative.	● no current means to deliver information	○ some ITS elements included within alternative		
Implementation					
Implement in a timely fashion.	Funding availability	○ no funding needed	● Santa Fe 35% funding identified GPL 0% funding identified	○ Santa Fe 35% funding identified EL 70-80% funding identified	○ Santa Fe 35% funding identified EL 70-80% funding identified
Minimize total project costs.	Total cost range (including Santa Fe)	○ \$0 M	○ \$240 M - \$250 M	● \$365 M - \$375 M	
Environment					
Minimize impacts to adjacent bicycle and pedestrian trail system.	Linear miles trail relocation necessary.	○ 0 miles	● 7.5 miles	○ 8.1 miles	
Minimize noise impacts to the built environment.	Number of receptors that exceed the threshold in the year 2025.	○ 16 receptors	○ 24 receptors	○ 24 receptors	
Minimize traffic diversion on to local road network.	Degree of traffic diversion on parallel facilities to C-470.	○ minimal diversion	○ minimal diversion	○ Colorado T-Ramp area increases 15-30%; County Line Road from Santa Fe to Lucent increases 10-30%	
Compatibility with local land use plans.	Does the alternative support land use patterns that are compatible with local land use plans?	○ yes	○ yes	○ yes	
Minimize visual impacts to neighboring communities.	Relative degree of visual impact.	○ none	○ minor impact - barrier median; wider typical section; flyover at Santa Fe	○ minor impact - additional overhead signage; barrier median; wider typical section; braided ramp at Quebec; T-Ramp at Colorado; flyover at Santa Fe	
Minimize acquisition of additional Right of Way.	Number of parcels impacted; acres of additional Right of Way needed.	○ 0 parcels; 0 acres	○ 56 partial parcels; 16.3 acres	○ 62 partial parcels; 19.7 acres	
Ensure conformity with regional air quality standards.	Number of intersections LOS D or worse.	○ 35 intersections	○ 36 intersections	○ 36 intersections	
Minimize floodplain impacts.	Is 100-year floodplain impacted? Location of impact.	○ meets FEMA floodplain regulations (no increase in 100 year flood elevation)	○ meets FEMA floodplain regulations (under 1 ft. increase in 100 year flood elevation)	○ meets FEMA floodplain regulations (under 1 ft. increase in 100 year flood elevation)	
Minimize impacts to wetlands and Waters of the U.S.	Acres of wetlands impacted.	○ 0 acres connected to Waters of U.S.; 0 acres not connected to Waters of the U.S.	○ 0.8 acres connected to Waters of the U.S.; 2.7 acres not connected to Waters of the U.S.	○ 0.7 acres connected to Waters of the U.S.; 2.4 acres not connected to Waters of the U.S.	
	Acres of Waters of the U.S. impacted.	○ 0 acres	○ 0.5 acres	○ 0.3 acres	
Minimize impacts to critical water sources that degrade surface and ground water quantity and quality.	Acres of impervious surface area of alternative.	○ 135 acres	○ 300 acres	○ 322 acres	
Minimize impact to potential Threatened or Endangered habitat.	Acres of Threatened or Endangered species habitat impacted, number of raptor nests impacted.	○ 0 acres; 0 nests	○ 0 acres; 0 nests	○ 0 acres; 0 nests	
	Acres of Colorado Species of Special Concern habitat impacted.	○ 0 acres	○ 12.1 acres Black-tailed prairie dog	○ 12.3 acres Black-tailed prairie dog	
Minimize encroachment on hazardous material sites.	Number of haz-mat sites impacted, type, and severity of site impacts.	○ 0 sites	○ 4 sites (underground storage tanks, low potential for impact)	○ 4 sites (underground storage tanks, low potential for impact)	
Minimize impacts to cultural resources. (historical, archaeological, and paleontological)	Number, type and severity of cultural sites impacted.	○ no adverse impacts	○ no adverse impacts	○ no adverse impacts	
Minimize impacts to recreation and parkland resources.	Acres of recreation areas or parklands impacted.	○ 0 acres	○ 5.1 acres (all for water quality ponds)	○ 5.1 acres (all for water quality ponds)	
Minimize impacts to riparian habitat.	Acres of riparian habitat impacted.	○ 0 acres connected to Waters of U.S.; 0 acres not connected to Waters of the U.S.	○ 5.0 acres connected to Waters of the U.S.; 1.9 acres not connected to Waters of the U.S.	○ 5.0 acres connected to Waters of the U.S.; 1.9 acres not connected to Waters of the U.S.	
Enhance the opportunity for wildlife movement across the corridor.	Does the alternative provide additional opportunity for, or more restrictions to, wildlife movement.	○ no additional opportunity or restrictions	○ additional wildlife movement opportunity under new S. Platte River bridge	○ additional wildlife movement opportunity under new S. Platte River bridge	
Minimize impacts to minority and low-income populations.	Number and type of population impacted; type and quantity of impact.	○ 0 communities impacted	○ 1 community impacted (Wolhurst); visual and noise impacts	○ 1 community impacted (Wolhurst); visual and noise impacts	
Minimize economic impacts to local businesses and residences.	Net loss to businesses, relocation costs.	○ 0 impacts	○ 0 impacts	○ 0 impacts	
Ease of Movement					
Provide appropriate access to C-470.	Number of access points. Provides access for most users.	○ access to C-470 does not change	○ access to C-470 does not change	○ access to C-470 improves with access to Colorado Blvd.	
Provide appropriate access across C-470.	Number of crossings.	○ access across C-470 does not change	○ access across C-470 does not change	○ access across C-470 does not change	
Integrate multi-modal solutions.	Availability of Transit Service. Effective ridership potential. Coordination with supporting elements.	○ no corridor specific transit service; future improvement of adjacent arterial bus service only	○ bus service operates in general purpose lanes on C-470; ridership potential low to moderate; easy coordination of corridor service with arterial bus services possible from any park-n-ride location	○ commuter bus service operates in express lanes; one direct service from Kipling/Wadsworth, another direct service from Lucent; ridership moderate because limited by location; coordination with arterial bus services at Lucent	
Provide transportation choices to most users.	Mode choice from interchanges on the corridor.	○ no mode choice available on C-470 Corridor	○ mode choice available from park-n-ride locations at any interchange, as demand warrants	○ mode choice available from park-n-ride locations at interchanges with express lane access; Wadsworth, Kipling, Lucent	
Provide a transportation system that is consistent with regional transportation plans.	Conformity with regional transportation plans.	○ complete consistency with regional plans	○ additional service than defined in regional plans, but not inconsistent	○ additional service than defined in regional plans, but not inconsistent	
Safety					
Address pavement condition deficiencies.	Will the alternative reconstruct deficient pavement areas.	○ currently contains deficient pavement areas throughout entire project limits	○ will rehabilitate all deficient pavement areas	○ will rehabilitate all deficient pavement areas	
Address existing mainline safety issues.	Does the alternative meet all/desirable/minimum project design criteria at selected locations.	○ currently does not meet criteria some locations	○ will meet all project design criteria	○ will meet all project design criteria	
Summary of each alternative:		Poor levels of service and high travel times; poor reliability and poor active management; no costs and therefore no funding needed; no environmental issues; no change in access to or across C-470; no integration with multi-modal services; no increase in safety on the corridor.	Acceptable levels of service and average travel times; poor reliability and no active management; average costs but no funding available; some environmental impacts; improvement in access to C-470; some integration with multi-modal services; increase in safety on the corridor.	Acceptable levels of service and best travel times; best reliability and most active management; higher costs but funding is available; some environmental impacts; improvement in access to C-470; some integration with multi-modal services; increase in safety on the corridor.	
Disposition:					
GENERAL PURPOSE LANES: 6 lanes Kipling to Wadsworth; 8 lanes Wadsworth to Santa Fe; 8 lanes plus auxiliary lanes Santa Fe to I-25					
EXPRESS LANES: 2 lanes Kipling to Wadsworth; 4 lanes Wadsworth to I-25; access at Kipling, at Wadsworth, between Lucent and Broadway, between Broadway and University, at Colorado, at Quebec, at Yosemite, and at I-25					



C-470 CORRIDOR PROJECT