



REFINEMENT OF THE PREFERRED ALTERNATIVE

Alternative 9 was refined further as the Preferred Alternative through a two-phased screening process. The Phase I Screening (3A) provided evaluations of different alternatives in six parts, or issue areas, of the study area, including:

- ▶ I-70 section from E-470 to Harvest Road
- ▶ I-70/Harvest Road interchange
- ▶ Colfax Avenue (US 40)/Picadilly Road intersection
- ▶ I-70 section from Picadilly Road to E-470
- ▶ Picadilly Road interchange
- ▶ I-70/E-470 interchange

A total of 9 different alternatives with 24 different geometric configurations were identified as potential solutions in these issue areas. Each alternative element was evaluated based on factors such as traffic operations, land use impacts, and cost.

The elements that passed through Phase I Screening were combined to create four packages that were evaluated in the Phase II Screening (3B). This screening was based on traffic operations, cost/right-of-way, and social/environmental effects for the four packages. Based on the Phase II Screening, Package III was selected as the Preferred Alternative. Details of the screening can be found in the *I-70/E-470 Interchange Complex Interstate Access Request Report, 2005*. This package was selected because it provides the best balance between traffic operations, construction cost, right-of-way requirements, and social/environmental effects.

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Issue Area	Alternative Solutions	Conclusion
1. Weaving – E-470 to Harvest Rd.	<ul style="list-style-type: none"> a. Mainline weaving section – 2000' minimum b. Braided ramps 	<p>Preferred - Include in all Level 3b Packages Relocation of Harvest to allow for adequate weaving section is not constrained by development or environmental impacts</p> <p>Eliminate Alternative Higher cost & r.o.w. compared with alternative 1a not justified</p>
2. Harvest /I-70 Interchange Capacity	<ul style="list-style-type: none"> a. Diamond b. 1 loop – NB to WB c. 2 loops – NB to WB and SB to EB 	<p>Eliminate Alternative 1370 vpd NB left-turn is very high for a diamond ramp terminal, possibly requiring triple lefts</p> <p>Preferred - Include in all Level 3b Packages Would accommodate 2030 traffic forecasts</p> <p>Eliminate Alternative Southwest quadrant loop ramp not warranted to accommodate low SB-to-EB traffic volume</p>
3. US 40 – I-70 Connectivity & Colfax/Picadilly Intersection	<ul style="list-style-type: none"> a. At-grade, 4-legged Colfax/Picadilly intersection b. Offset "T" intersections at Colfax/Picadilly c. Grade-separated EB Colfax to NB Picadilly movement d. Direct Colfax ramp to EB I-70 e. Direct Colfax ramps to EB and WB I-70 f. Realign for Colfax-Picadilly North as the predominant movement, with Picadilly south "T" ing into road g. Shift US 40 designation to Tower Road h. Trumpet interchange at Colfax/Picadilly i. Buttonhook interchange on Colfax east of Picadilly 	<p>Eliminate Alternative Would result in marginal operations, while better operating alternatives are available</p> <p>Retain for Level 3b Packaging Provides significant operational improvement with relatively low cost and impacts</p> <p>Eliminate Alternative Lower cost/lower impact alternatives with acceptable traffic operations are available</p> <p>Retain for Level 3b Packaging Significant operational improvement by eliminating EB Colfax to EB I-70 "Z" movement</p> <p>Eliminate Alternative Added cost and complexity outweigh marginal operational benefits compared with Alternative 3d</p> <p>Eliminate Alternative Primary north-south demand on Picadilly makes this alternative undesirable for traffic operations</p> <p>Eliminate Alternative Does not adequately address project purpose and need in study area Unlikely to divert local drivers</p> <p>Eliminate Alternative High cost and r.o.w. not justified since lower cost/lower impact alternatives are available</p> <p>Eliminate Alternative More standard alternatives with similar traffic benefits are available.</p>
4. Weaving – Picadilly to E-470	<ul style="list-style-type: none"> a. Mainline weaving section – 2000' minimum b. Braided ramps c. Collector-distributor roads d. Split diamond between Picadilly and Harvest Mile 	<p>Retain for Level 3b Packaging Low cost alternative with adequate mainline I-70 operations</p> <p>Retain for Level 3b Packaging Elimination of mainline weaving merits further evaluation</p> <p>Eliminate Alternative More costly and poorer operations compared with Alternative 4b, which also removes weaving from I-70 mainline</p> <p>Eliminate Alternative More costly and would not provide suitable access or operational characteristics</p>
5. Picadilly Interchange Capacity	<ul style="list-style-type: none"> a. Diamond b. Single point urban c. 1 loop – WB to SB d. 2 loops – WB to SB and EB to NB 	<p>Eliminate Alternative Volume forecasts warrant higher capacity interchange</p> <p>Eliminate Alternative Volume forecasts warrant higher capacity, more expandable interchange</p> <p>Retain for Level 3b Packaging Would accommodate 2030 traffic forecasts</p> <p>Retain for Level 3b Packaging Would accommodate 2030 and potential additional travel demand</p>
6. E-470/I-70 Interchange – EB to NB Ramp	<ul style="list-style-type: none"> a. Flyover ramp b. Loop ramp 	<p>Eliminate Alternative Cost is not justified by ramp volume</p> <p>Preferred - Include in all Level 3b Packages Accommodates forecasted demand Design allows for a flyover ramp in the long range</p>

LEVEL 3B SCREENING
ALTERNATIVE PACKAGES

Alternative Package	Major Features (Elements from Level 3A)	Traffic Operations	Cost / Right-of-Way	Social Environment Effects	Conclusion
Package I	<ul style="list-style-type: none"> Picadilly/Colfax Offset "T" Intersection (3b) Picadilly to E-470 – Mainline Weaving Section (4a) Picadilly Interchange – Parclo w/ WB-to-SB Loop Ramp (5c) Access to SE quadrant via Colfax (allowed by 3b and 5c elements) Harvest Interchange – Parclo w/NB-to-WB Loop (2b) E-470/I-70 Interchange – Directional w/EB-to-NB Loop Ramp (6b) 	<ul style="list-style-type: none"> Offset "T" intersection provides Picadilly/Colfax intersection LOS of D or better 2000' weaving section can be obtained with acceptable weaving LOS of C Ramp terminal intersections LOS of C or better 	<ul style="list-style-type: none"> Significant cost savings on I-70 versus braided ramp concepts in Packages II and III Some cost offset with higher Picadilly cost 	<ul style="list-style-type: none"> Obtaining I-70 weaving distance requires relocating Picadilly farther west and closer to residential areas compared with other packages Allows access to the SE quadrant of I-70/Picadilly 	Eliminate Shift of Picadilly farther to the west is less desirable
Package IIa	<ul style="list-style-type: none"> Picadilly/Colfax Offset "T" Intersection (3b) EB on ramp from Colfax/Picadilly intersection (3d) Picadilly to E-470 – Braided Ramps with Slip Ramps (4b) Picadilly Interchange – Parclo w/ WB-to-SB and EB-to-NB Loop Ramps (5d) Harvest Interchange – Parclo w/NB-to-WB Loop (2b) E-470/I-70 Interchange – Directional w/EB-to-NB Loop Ramp (6b) 	<ul style="list-style-type: none"> Creates similar LOS at Picadilly/Colfax intersection as Package 1 Braided ramps eliminate mainline I-70 weaving movements SE (EB-to-NB) loop ramp eliminates the south ramp terminal signalized intersection Eliminates EB Colfax to I-70 "Z" movement 	<ul style="list-style-type: none"> Braided ramps increase costs compared with Package I SE loop ramp increases r.o.w. cost Some cost offset with lower Picadilly cost 	<ul style="list-style-type: none"> Does not require moving Picadilly as far west as Package I Does not allow access to residential/business parcel in SE quadrant I-70/Picadilly 12 residences and 1 business displaced 	Eliminate Relatively high cost and negative effects to social environment
Package IIb	<ul style="list-style-type: none"> Picadilly/Colfax Offset "T" Intersection (3b) EB on ramp from Colfax/Picadilly intersection (3d) Picadilly to E-470 – Braided Ramps with Slip Ramps (4b) Picadilly Interchange – Parclo w/ WB-to-SB Loop Ramp (5c) SE Quadrant Parcel Access Opposite Ramp Terminal (Level 3B modification) Harvest Interchange – Parclo w/NB-to-WB Loop (2b) E-470/I-70 Interchange – Directional w/EB-to-NB Loop Ramp (6b) 	<ul style="list-style-type: none"> Creates similar LOS at Picadilly/Colfax intersection as Package 1 Braided ramps eliminate mainline I-70 weaving movements SE quadrant access opposite ramp terminal intersection creates LOS D at ramp terminal with potential for confusion and wrong-way movement Eliminates EB Colfax to I-70 "Z" movement 	<ul style="list-style-type: none"> Braided ramps increase costs compared with Package I Access to SW parcel reduces r.o.w. costs Some cost offset with lower Picadilly cost 	<ul style="list-style-type: none"> Does not require moving Picadilly as far west as Package I Allows access to the SE quadrant of I-70/Picadilly 	Eliminate Ramp intersection access to SE quadrant creates significant traffic operations concerns
Package III	<ul style="list-style-type: none"> Picadilly/Colfax Offset "T" Intersection (3b) EB on ramp from Colfax/Picadilly intersection (3d) Picadilly to E-470 – EB Braided Ramps with Slip Ramps; WB Mainline Weaving Section (4b EB, 4a WB) Picadilly Interchange – Parclo w/ WB-to-SB Loop Ramp (5c) SE Quadrant Parcel Access from Colfax, grade-separated with I-70 EB on-ramp (Level 3B modification) Harvest Interchange – Parclo w/NB-to-WB Loop (2b) E-470/I-70 Interchange—Directional w/EB-to-NB Loop Ramp (6b) 	<ul style="list-style-type: none"> Creates similar LOS at Picadilly/Colfax intersection as Packages I and II 2000' WB weaving section can be obtained with acceptable weaving LOS of C EB braided ramps eliminate EB mainline weaving movements Eliminates EB Colfax to I-70 "Z" movement 	<ul style="list-style-type: none"> Cost between those of Package I and II Picadilly realignment to the west less than Package II 	<ul style="list-style-type: none"> Does not require moving Picadilly as far west as Package I SE quadrant access provided from relocated Colfax, grade-separated with I-70 EB on-ramp 	Preferred Alternative Provides best balance between traffic operations and cost, r.o.w., and social environmental effects

LEGEND

Best Satisfies Criterion ● Moderate Performance Rating ◐ Lowest Performance Rating ○