

30th Street Pedestrian and Bicycle Underpass Charrette
Preliminary Assessment of Design Ideas
August 11, 2009

REFINING DESIGNS				
Design #	Primary Design Elements	Advantages/Benefits	Disadvantages/Concerns	Preliminary Staff Response
Landscaping and Urban Design Refinements:				
L1	Add vines at top of walls to spill over and soften walls	Improves appearance of walls and adds plant materials	None	Incorporate this revision
L2	Add trellis and vines over Ras Kassas patio	Improves appearance, provides screening and "dappled" light similar to that provided by mature trees	Added project cost	Incorporate this revision if tree canopy is removed and the trellis can be supported by the existing patio.
L3	Incorporate public art into walls and/or bridge	Improves appearance of walls and could be linked to Ethiopian culture (Ras Kassas)	Added project cost	Incorporate this revision
L4	Add color to concrete walls	Improves appearance to walls – softens grey concrete	Added project cost	Explore options and incorporate if funding is available
Bridge Refinements:				
B1	Narrow bridge by reducing multi-use path width on west side or on both sides from 12' to 10'	Provides 2' or 4' additional buffer from 2121 property and may save 1-4 trees	Requires bridge re-design which may result in not meeting CDOT schedule; added project costs; effective MU path width would be 8' on west side due to railing on bridge; could require realignment of the street.	This revision not recommended due to added design costs and time. Tree impacts can likely be reduced with other design options.
B2	Narrow bridge by reducing width of painted median	Provides 2-4' additional buffer from 2121 property and coupled	Requires bridge re-design which may result in not meeting CDOT schedule;	This revision not recommended due to added design costs and time. Tree impacts can likely be

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		with B1 may save up to 4 trees	added project costs; results in substandard roadway alignment. May compromise bike lane safety as traffic patterns will likely cut into the bike lanes.	reduced with other design options.
B3	Narrow bridge by 12 feet by eliminating the multi-use path on the west side	Provides up to 12' additional buffer from 2121 property and may save multiple trees	No sidewalk/ multi-use path connection on the west side of the street; pedestrians would be forced to go down and under 30th Street and then would have to cross back over at-grade; not a feasible solution	This revision not recommended due to unfeasibility
B4	Integrate 5' wide bike lane into 18" gutter, reducing bike lane width by 3.5' on east and west sides	Provides up to 7' additional buffer from 2121 property and may save up to 5 trees	Substandard bike lane design; would force cyclists to effectively ride in the gutter where sand and debris collects; requires bridge re-design which may result in not meeting CDOT schedule; added project costs	This revision is not recommended due to safety concerns
B5	Narrow bridge deck thickness under the sidewalk to raise path and move it closer to the bridge	Reduces impact to Ras Kassar patio and could save some trees. It could shorten the length of the ramp and have less impact on 2121 30 th	If the bridge is widened in the future the construction could be more extensive.	Explore this revision and incorporate if schedule is not impacted and engineering constraints can be met

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		Street near the driveway and possibly save two trees..		
Approach Ramp Refinements:				
R1	Adjust the alignment of the path near Ras Kassas to pull it further east, away from the patio	Could save some 4 to 8 additional trees and would result in a larger outdoor patio at Ras Kassas.	May lessen vertical clearance; may not allow for future path extension with elimination of "flat area" at bridge; approach ramp grades would likely increase	A modification of this proposal is being reviewed and will be incorporated if it meets schedule and budget.
R2	Flip-flop the multi-use path and the approach ramp	Provides buffer to multi-use path users from 30th Street	No width reduction; requires second bridge; approach ramp probably too steep to meet design criteria; requires significant redesign that may result in not meeting CDOT schedule	This revision is not recommended due to unfeasibility and questionable benefits
Multi-use Path Refinements:				
M1	Raise the multi-use path at the bridge on the west side	Provides some additional clearance under bridge which could result in slightly shorter approach ramp	Minimal clearance achieved at path due to close proximity of path with southern edge of bridge; potentially unsafe drop-off from path to street; requires bridge re-design which may result in not meeting CDOT schedule; added project costs	Refinement #B5 is a variation that accomplishes the same thing and is being evaluated for incorporation.

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M2	Narrow the multi-use path off the ends of the bridge on the north end.	Reduces impacts to 2121 30 th Street.	Path width is less than the city standard and the newly constructed 30 th Street multi-use path on the west side.	Incorporate this revision
Grading Refinements				
G1	Provide minor revisions to the grading and sidewalk layout at the Ras Kassas entry	Saves 2 trees flanking Ras Kassas driveway	May require low "tree-well" style retaining walls at trees	Incorporate this revision
G2	Re-route parking lot drainage to the east	Could allow for additional patio space or additional plantings at edge of patio	May compromise effectiveness of drainage	Explore this revision and incorporate if drainage can be accommodated
G3	Redesign shorter retaining walls (usually at the ends of structural walls) to minimize the wall footprint	Minimize footprint of retaining wall construction at 2121 30 th Street.	None identified.	Incorporate this revision

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REALIGNING DESIGNS				
Design #	Primary Design Elements	Advantages/Benefits	Disadvantages/Concerns	Preliminary Staff Response
Realign 1	Bring the path on the west side of 30 th Street in from the south along 30 th without the addition of a driveway bridge for Ras Kassas. Add a low flow crossing to get the path to the North side of the bridge. (Generally mirrors the proposed design with path access from the south instead of the north.)	<ul style="list-style-type: none"> This would shorten the approach from the conceptual option B (a previously considered design option) and hold the path tighter to 30th Street which may minimize the impacts to the patio of Ras Kassas. Less impact to the 2121 frontage. 	<ul style="list-style-type: none"> This option would cut off the Ras Kassas access from 30th Street. If access could be built it would have to be on the adjacent property and combined with the drive access to the back of Aspen Plaza and be one way only. The option would increase the height of the walls along 2121. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.
Realign 2 (Same as Refine option #B4.)	Eliminate the multi use path at grade with 30 th on the West side of 30 th by adding a ramp from the underpass to both the North and South. This option would add the South ramp similar to conceptual option B (a previously considered design alternative.)	<ul style="list-style-type: none"> This would shift the ramp in front of 2121 to the East by about 12 feet and reduce the impacts to some trees. 	<ul style="list-style-type: none"> This option forces all path users along 30th to go down the ramp to the channel bottom and then back up a ramp for through travel along 30th. Requires the construction of a bridge at Ras Kassas drive and a new ramp system to the south. Requires the relocation of the bus stop farther from the underpass. More significant impacts to the frontage to the two properties south of the slough. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.

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Realign 3	Re-align the path to the West to minimize the impacts to the Ras Kassas patio (loop the path up the channel more).	<ul style="list-style-type: none"> Minimize the impacts to the patio and adjacent trees 	<ul style="list-style-type: none"> Generally impacts to 2121 30th Street would be greater This option would require additional tree removal on the 2121 side and increase the retaining walls between 2121 and the creek. The vertical path would have to dip down lower to meet vertical clearance requirements which would require steep grades. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.
Realign 4	Start the path at the center of the bridge heading down and to the West. Provide a “Y” turn to then bring the path back under the bridge	<ul style="list-style-type: none"> This would keep the path over the creek and potentially minimize the impacts to the trees along the banks. 	<ul style="list-style-type: none"> The construction of this ramp system would likely require extensive walls and structures that would take out more trees. The option would fully cover the creek for at least 100 feet west of the bridge and is unlikely to meet drainage requirements. The construction would extend beyond the length of the existing buildings. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.

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Realign 5 (Same as Relocate Option #3.)	Shift the alignment of 30 th to the East by 20' to 25'	<ul style="list-style-type: none"> This would minimize impacts to the properties on the West. 	<ul style="list-style-type: none"> Requires more significant impacts to the properties on the east. Inequitable impacts to adjacent property owners. Has an impact on the geometry of the intersection at Pearl Street. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.
Realign 6 (Same as Relocation Option #1)	Carry slough path east and west to back of Target on west and to 32 nd Street on the east with no access ramps at 30 th on either side.	<ul style="list-style-type: none"> Potentially meets the original DRCOG application scope. If connections are provided to the east and west, it constructs more of the path sooner. 	<ul style="list-style-type: none"> Removes a larger number of trees along the back of current buildings west of 30th Street. Larger impact to adjacent business for construction. Need to acquire additional ROW by the federal acquisition process on both east and west sides of 30th Street and in the 32nd Street alignment. Would have similar situation to current Goose Creek/30th Street underpass on the west side where you can't get from the 30th Street on-street bike lanes or sidewalk to the east/west MUP. The federal funding requires that the underpass needs to be functional when the project is completed, so the pathway connections could not be postponed until redevelopment occurred. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.

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RELOCATION OPTIONS				
Design #	Primary Design Elements	Advantages/Benefits	Disadvantages/Concerns	Preliminary Staff Response
Relocate 1	Carry slough path east and west to back of Target on west and to 32 nd Street on the east with no access ramps at 30 th on either side.	<ul style="list-style-type: none"> • Potentially meets the original DRCOG application scope. • If connections are provided to the east and west, it constructs more of the path sooner. 	<ul style="list-style-type: none"> • Removes a larger number of trees along the back of current buildings west of 30th Street. • Larger impact to adjacent business for construction. • Need to acquire additional ROW by the federal acquisition process on both east and west sides of 30th Street and in the 32nd Street alignment. • Would have similar situation to current Goose Creek/30th Street underpass on the west side where you can't get from the 30th Street on-street bike lanes or sidewalk to the east/west MUP. • The federal funding requires that the underpass needs to be functional when the project is completed, so the pathway connections could not be postponed until redevelopment occurred. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.

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Design #	Primary Design Elements	Advantages/Benefits	Disadvantages/Concerns	Preliminary Staff Response
Relocate 2	At-grade crossing with flashing lights somewhere on 30 th Street (i.e., at existing path location) instead of a grade separated crossing. Replace bridge in same configuration as today without bike/ped underpass and/or raising the bridge and the street. (same footprint)	<ul style="list-style-type: none"> • At-grade crossing is less expensive than grade separated crossing. • Maintain connection to N/S on-street bike lanes and west side path. • Doesn't impact existing trees at the Boulder Slough • Crossing location is closer to current activities. 	<ul style="list-style-type: none"> • Can't use current bike/ped funding for bridge replacement without the bike/pedestrian grade separated crossing – city funding is not available to make up this difference. • Doesn't include a grade separated bike/ped crossing between Walnut and Pearl • Precludes constructing the grade separated crossing and the slough path as identified in the connections plan in the future. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.
Relocate 3 (Same as Realign option #5.)	Shift bridge replacement farther to the east. Don't install a bike/ped underpass.	<ul style="list-style-type: none"> • This would minimize impacts to the properties on the West. 	<ul style="list-style-type: none"> • Requires more significant impacts to the properties on the east. • Inequitable impacts to adjacent property owners. • Has an impact on the geometry of the intersection at Pearl Street. • No grade separated bike/ped crossing is constructed with the project. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.

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Relocate 4	Make 32 nd Street the main north/south bike/pedestrian corridor from BTV to Walnut – go along Walnut and construct underpass at Walnut – possibly into underground parking of the 29 th Residences. Repair or replace bridge based on structural need (replacement not driven by bike underpass funding.)	<ul style="list-style-type: none"> • 32nd Street has less traffic and no buses so more pleasant for biking and walking. • There is an existing social path in this location today. • Saves trees west of 30th Street 	<ul style="list-style-type: none"> • City doesn't own the property for 32nd Street from Pearl to Prairie Avenue. • Development plans for the 29th Street Residences are already through the planning process. • Can't use current bike/ped funding for low rated bridge replacement without the bike/pedestrian grade separated crossing – city funding is not available to make up this difference. • If the bridge is reconstructed in place it precludes constructing the grade separated crossing and the slough path as identified in the connections plan in the future. 	All realign and relocate options have significant schedule impacts and could jeopardize federal funding.
Relocate 5	Put grade separated crossing diagonally under the 30 th and Pearl intersection	<ul style="list-style-type: none"> • Potentially more direct access from the multi-use path on the west side of 30th Street and on the south side of Pearl Street to the Boulder Transit Village. 	<ul style="list-style-type: none"> • Significant property impacts to the southwest and northeast properties. Likely requires removal of the existing bank building on the southwest corner. • Significant underground utility coordination and impacts. • Construction impacts to two major arterial streets. 	

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OTHER IDEAS:

Several suggestions by charrette participants did not fit into the approaches at the three tables so were captured separately:

1. Re-evaluate study that gave bridge low rating; determine if remedial work could be done to bring up score without replacing.
2. Re-visit budget and R.F.P. evaluation to meet highest standard apprenticeship training programs provided by applicant contractors and subcontractors. (Responsible contracting and best value contracting saves taxpayer cost overruns and saves lives in the nation's deadliest industry.)
3. Improve private property-owner engagement prior to and during design; ditto public engagement.
- Consider more mailings earlier on.
4. On the west side of 30th Street, north of Arapahoe, evaluate the need for the on-street bike lane that parallels the existing 12' wide multi-purpose sidewalk. Look at the costs and benefits.
5. You know those metal teeth that pop your tires if you back up out of the rental place? Let's add those in the forward direction at a street-level flashing crosswalk. The 85% traffic stop rate will hit 99-100% quickly. (Cheaper, too.)
6. Make 30th Street 1-lane in each direction with on-street parking (except on the bridge) Use room for underpass ramping.