City Of Boulder
Community and Environmental Assessment Process

Baseline Road Underpass Project

Broadway to 27th Way

April 2014

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EXECUTIVE SUMMARY

The Baseline Road Underpass Project is located on Baseline Road between Broadway and 27th Way. (Figure 1) Following a Transportation Advisory Board (TAB) and City Council review and approval of this project, the City of Boulder applied for a federal transportation grant for this project in 2010 and was awarded the funds in 2011. The total project budget is $5.4 million and is composed of federal ($4 million), and city ($1.4 million) transportation funds. This project will improve safety for bicyclists, pedestrians and drivers in this location by providing a grade separated bicycle/pedestrian crossing of Baseline Road. This underpass project is expected to reduce the conflicts between vehicles and bicyclists and pedestrians and improve crossing and connectivity in the area. The project will also connect the underpass to existing sidewalks, multi-use paths and on-street bicycle lanes, reconstruct medians and resurface the street with asphalt. Bicycle parking, landscaping and public art will be incorporated into the project improvements.

The Community and Environmental Assessment Process (CEAP) is a formal review process to consider the impacts of public development projects. The purpose of the CEAP is to assess potential impacts of conceptual project alternatives to inform the selection and refinement of a preferred alternative. The CEAP provides the opportunity to balance multiple community goals in the design of a capital project by assessing a project against the policies outlined in the Boulder Valley Comprehensive Plan (BVCP) and departmental master plans. This CEAP report provides an evaluation of three underpass design options and their features on pedestrian, bicycle, vehicular and transit travel as well as impacts to trees, landscaping and property acquisition/easements. For each of the options the width of the underpass is 24 feet and the entrance and path connections on the north side of Baseline Road adjacent to the University of Colorado (CU) are the same (from the west and east sides). On the north side some landscaping and up to six trees are anticipated to be removed. For all options there will be a curb extension/bumpout at the southeast corner of Broadway and Baseline Road with a right turn only lane into the Einstein/Starbucks retail property (2400 Baseline Rd) and the Basemar Shopping Center entrance. The design options differ with regards to the bicycle and pedestrian access ramp (s) on the south side of Baseline Road and the curb extension/bumpouts east of the shopping center driveway with other related differences as described below:

Option A "Access Ramp on West Side" – The 24 foot-wide underpass is perpendicular to Baseline Road and the entrance and path connection on the south side of Baseline Road is from the west. Access to the underpass entrance on the south side of Baseline Road for bicyclists or pedestrians coming from the east requires that they cross the Basemar Shopping Center driveway entrance at grade. Pedestrians also access the underpass using stairs. There are not any impacts to the parking lot but there are landscaping impacts at the Taco Bell property at 2450Baseline Road. One tree on the south side of Baseline Road is anticipated to be removed. The transit stops remain in their current locations. Permanent easements along the south side of Baseline Road will be required for this design option.

Option B "Access Ramp on East Side" – The 24 foot-wide underpass crossing is at a skewed angle and the entrance ramp and path connections on the south side of Baseline Road are from the east. Bicyclists and pedestrians coming from the west requires crossing the Basemar Shopping Center driveway entrance at grade to access the underpass ramp entrance. Pedestrians can also use stairs to access the underpass. In addition to the curb extension/bumpout at the southeast corner of Broadway/Baseline Road, there will be a curb extension east of the Basemar Shopping Center driveway on Baseline Road. An access lane into the shopping center driveway will be retained but there is a lane reduction from three to two through lanes in the eastbound direction from Broadway to the Basemar Shopping Center driveway. The eastbound transit stop will be relocated and reconstructed and a bus layover space is retained but there is less capacity for expansion than the current stop. On the south side there are shrubs, grasses and two trees that will be removed with this option. No additional property acquisition is required for this option.

Option C "Access Ramps from East and West" – The 24 foot-wide underpass crossing is perpendicular to Baseline Road at the same location as Option A. There are entrance ramps and path connections from the east and west along the south side of Baseline Road for bicyclists and pedestrians to use. For the entrance ramp from the east, there would be an additional underpass beneath the Basemar Shopping Center driveway access reducing the conflict potential between underpass users and vehicles turning into Basemar Shopping Center. Pedestrians can also use a staircase to access the south side underpass entrance. In addition to the curb extension/bumpout at the southeast corner of Broadway/Baseline Road, there will be a curb extension east of the Basemar Shopping Center driveway on Baseline Road. An access lane into the shopping center driveway will be retained but there is a lane reduction from three to two through lanes in the eastbound direction from Broadway to the Basemar Shopping Center.
The eastbound transit stop will be relocated and reconstructed and a bus layover space is retained but there is less capacity for expansion than the current stop. There will be landscaping impacts to both properties adjacent to the underpass on the south side of Baseline Road and shrubs, grasses and two trees on the south side will be removed with this option. Permanent easements along the south side of Baseline Road will be required to construct this design option.

The recommended project alternative is Option B. This project improves bicycle and pedestrian crossings of Baseline Road and provides efficient connections to the crossing from all directions. Option B supports the goals of the BVCP, Transportation Master Plan (TMP) and CU master plan by improving multimodal travel options through more direct and efficient crossings and connections. The underpass ramp on the south of Baseline Road provides a direct grade separated connection for the majority of users. This option can meet the Americans with Disabilities Act (ADA) design guidelines. This option has reduced user conflicts at the south side entrance due to less crossing patterns and increased sight distance than Option C. The project can be constructed without

requiring permanent easements from adjacent property owners. Feedback from the community preferred this option over the other options.

City Of Boulder
Community and Environmental Assessment Process

1. Description and location of the project:

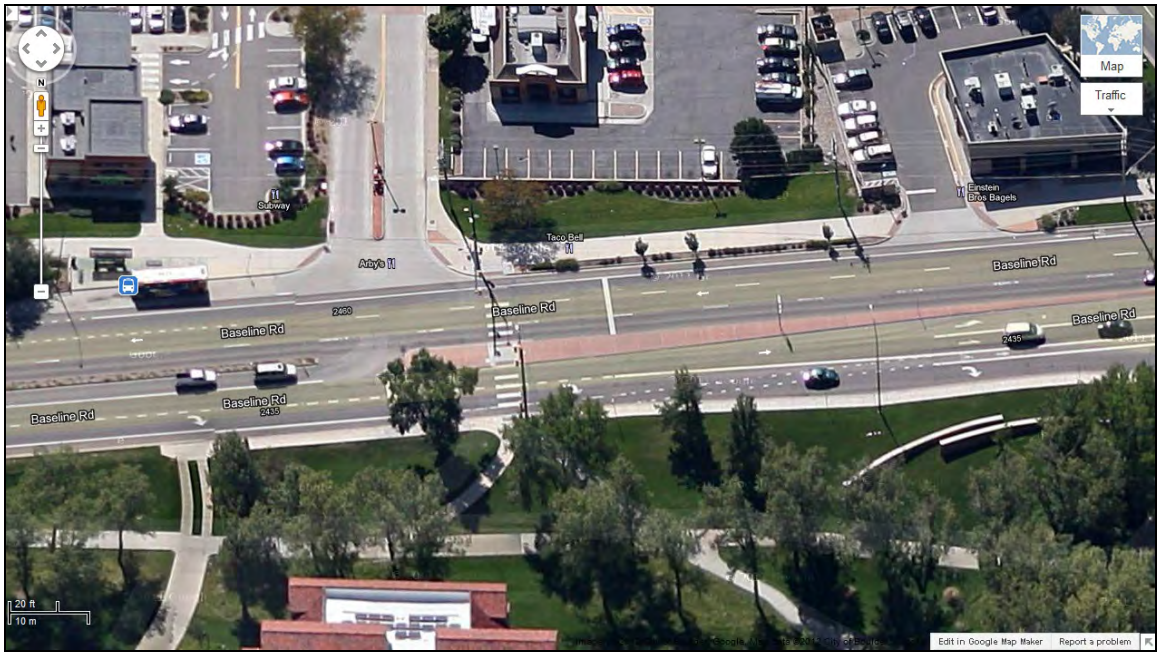


Figure 1

The Baseline Road Underpass Project will replace the existing pedestrian signal with a grade separated crossing of Baseline Road/US 36 Spur W between Broadway/SH93 and 27th Way in the City of Boulder, Colorado. Baseline Road is a Colorado Department of Transportation (CDOT) facility between SH93 and US 36. The project will also connect the underpass to existing sidewalks, multi-use paths and on-street bicycle lanes, reconstruct medians and resurface the street with asphalt. A missing connection of multi-use path on the east side of Broadway from north of Skunk Creek to Baseline Road will also be completed. There will be storm drainage work to provide capacity on the north side of Baseline Road and permanent water quality treatment. Bicycle parking, landscaping and public art will be incorporated into the project improvements.

2. Background, purpose and need for the project:

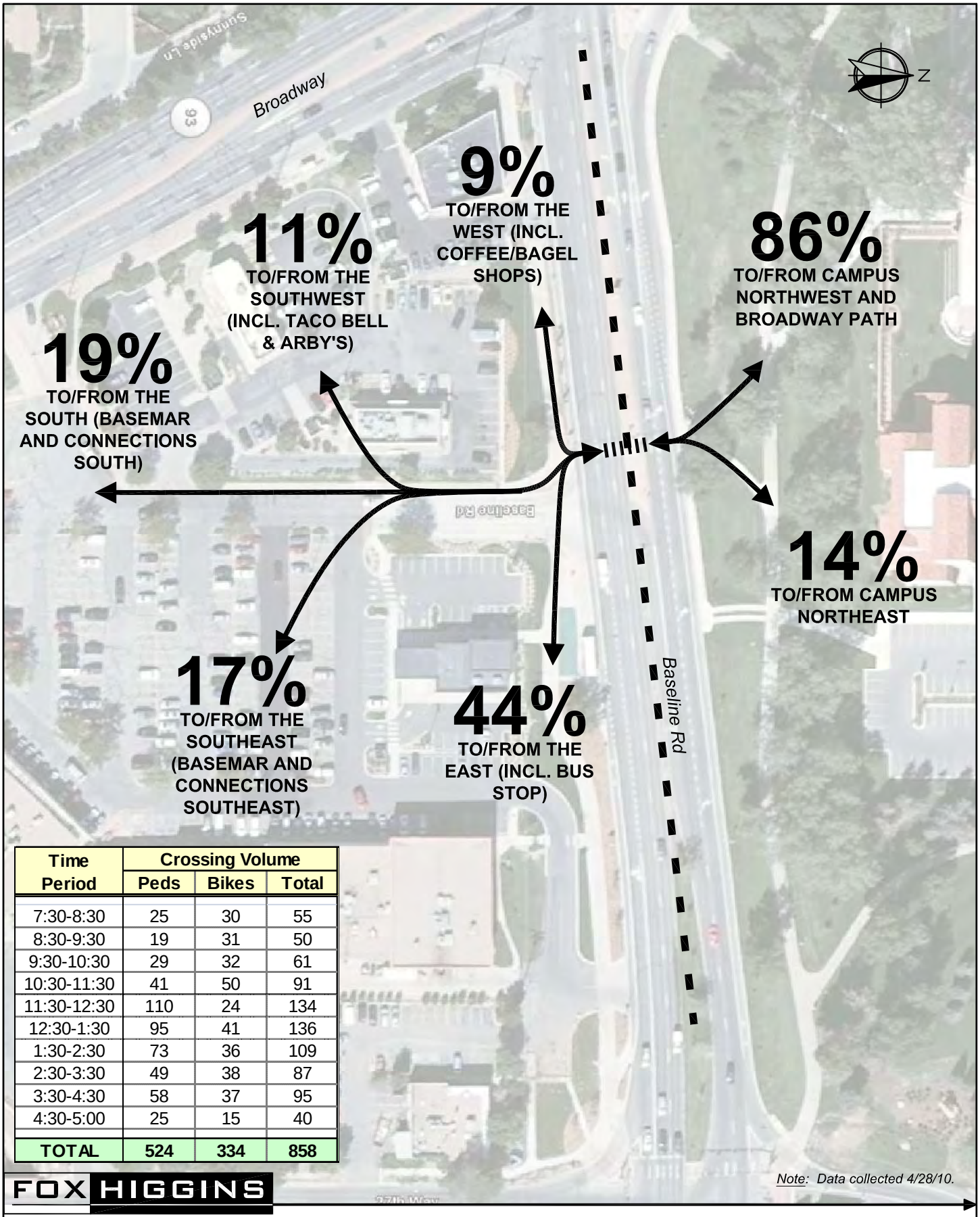
Baseline Road/US 36 Spur W between Broadway/SH93 and 27th Way has high travel activity composed of pedestrians, bicyclists, drivers and transit riders. The north side of Baseline Road is adjacent to the University of Colorado-Boulder campus. The south side is adjacent to a major commercial and retail center and near the Martin Acres neighborhood. This area is within the Bluebell/Kings

Gulch/Skunk Creek floodplain. The existing roadway is composed of on-street bicycle lanes in both traffic directions and five vehicle through lanes; two in the westbound direction and three in the eastbound direction. Over 27,500 vehicles travel through here on a daily basis. Transit service along this section of Baseline Road is provided by the 225 and the BOUND and there is future regional bus service planned for this section as well. There is a multi-use path on both sides of Baseline Road and this section of Baseline Rd is a designated Regional Bicycle Corridor by the Denver Regional Council of Governments (DRCOG). Approximately 1600 pedestrians and bicyclists each day cross in this section; 858 at the proposed underpass location, as per counts in April 2010. The graphic on the following page illustrates the pedestrian and bicycle crossing volumes and movements during the peak hour travel periods.

Due to the high pedestrian and bicycle crossing activity in this location and the city's emphasis on providing safe multimodal transportation options in Boulder, a number of crossing treatments have been utilized at this location and an underpass has been identified in the TMP since 1996. In October 2000, pedestrian crossing signs were installed. In December 2006, a Pedestrian Actuated Flashing Signs (PAFs) treatment was installed which consisted of the State law flashing sign and Yield line signing and markings. Staff monitored the user effectiveness and safety of the PAFs and found that the rate of crossing accidents involving a pedestrian increased at this location from the 'before' conditions to the 'after' conditions. In July 2010 a pedestrian signal was installed at the crossing location to further improve safety at this location recognizing that the master plan called for an underpass. The city plans to reuse the signal equipment in another area of the city. In the fall of 2010 the City of Boulder submitted this project for consideration of a federal transportation grant following review and approval by TAB and City Council. Federal funding for this project was approved in March 2011 with funding available for construction in Federal Fiscal Year 2015.

A summary of the transportation data collected for this project location is included in the Appendix.

The project objective is to increase safety and travel efficiency for bicyclists, pedestrians and drivers in this location by providing a grade separated bicycle/pedestrian crossing of Baseline Road. This underpass project is expected to reduce the conflicts between vehicles and bicyclists and pedestrians. A secondary benefit anticipated with the removal of the pedestrian signal is a simplification of traffic flow in an area with multiple access points between Broadway/SH93 and US 36, reducing overall travel congestion and delay at this location.



Time Period	Crossing Volume		
	Peds	Bikes	Total
7:30-8:30	25	30	55
8:30-9:30	19	31	50
9:30-10:30	29	32	61
10:30-11:30	41	50	91
11:30-12:30	110	24	134
12:30-1:30	95	41	136
1:30-2:30	73	36	109
2:30-3:30	49	38	87
3:30-4:30	58	37	95
4:30-5:00	25	15	40
TOTAL	**524**	**334**	**858**

Note: Data collected 4/28/10.

FOX HIGGINS
TRANSPORTATION GROUP

Baseline Underpass Project

Pedestrian & Bicycle Crossing Data

FH Project #	10023	Original Scale	1"=100'	Date	4/29/10	Drawn by	SGT	Figure #	1

3. Description of project alternatives as follows:

For each of the three options considered in the CEAP, the width of the underpass is 24 feet and the entrance and path connections on the north side of Baseline Road are the same (from the west and east sides). On the north side some landscaping grasses and shrubs and up to six trees are anticipated to be removed. The City of Boulder Forestry group has completed a tree condition assessment and concluded that the trees to be removed on the north side of Baseline Road are in good or fair condition. (Tree assessment is included in the Appendix). Landscaping will be restored and replacement trees will be planted and project staff will look for opportunities within the project area for additional tree planting.

The project will also connect the underpass to existing sidewalks, multi-use paths and on-street bicycle lanes, reconstruct medians and resurface the street with asphalt. A missing connection of multi-use path on the east side of Broadway from north of Skunk Creek to Baseline Road will be completed. There will be storm drainage work to provide capacity on the north side of Baseline Road and install a permanent water quality treatment. Bicycle parking, landscaping and public art will be incorporated into the project improvements. For all options there will be a curb extension/bumpout at the southeast corner of Broadway and Baseline Road with an access lane into the Einstein/Starbucks retail property. The curb extension decreases the crossing distance for pedestrians and bicyclists at the east leg of the Baseline/Broadway intersection.

The design options differ with regards to the bicycle and pedestrian access ramp(s) on the south side of Baseline Road and the curb extension/bumpouts east of the shopping center driveway with other related differences as described below:

Option A "Access Ramp on West Side" – The 24 foot-wide underpass is perpendicular to Baseline Road and is located west of the Basemar Shopping Center driveway. The entrance and path connection on the south side of Baseline Road comes from the west. Access on the south side of Baseline Road for bicyclists or pedestrians coming from the east is on an attached multi-use path and requires crossing the Basemar Shopping Center driveway entrance at grade to access the underpass ramp entrance. Pedestrians can also use stairs to access the underpass. The transit stops remain in their current locations and there is space for expanded regional service operations and future additional transit stop amenities.

There are not any impacts to the parking lot but there are landscaping impacts at the Taco Bell property and one tree on the south side of Baseline Road is anticipated to be removed. The City of Boulder Forestry group assessed the tree to be in fair condition. Landscaping will be restored and replacement trees will be planted and project staff will look for opportunities within the project area for additional tree planting.

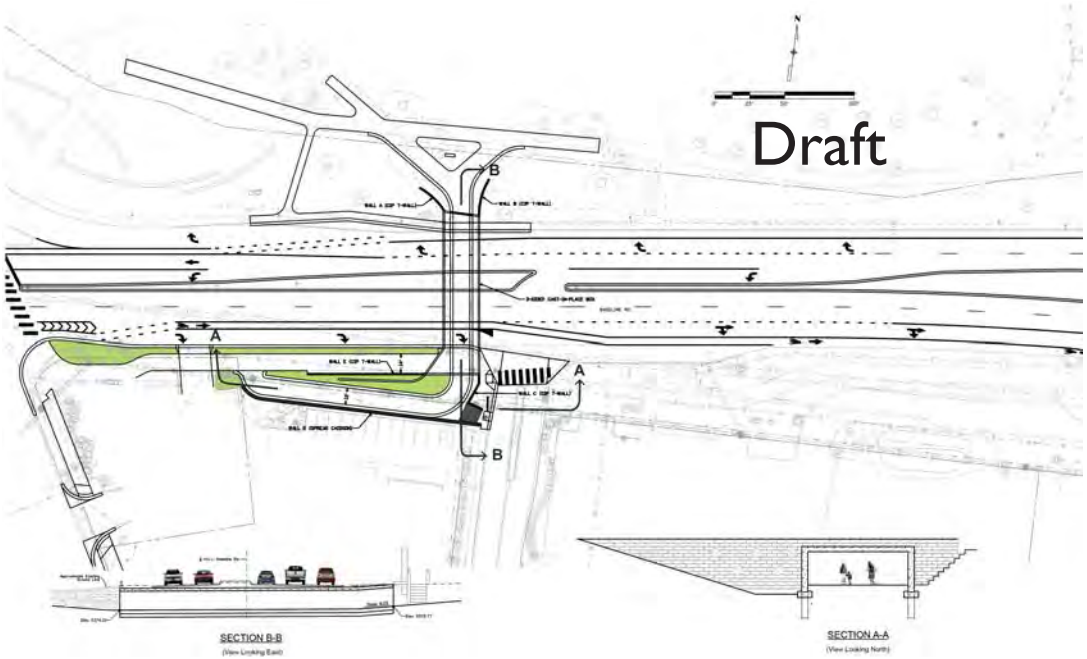
Permanent easements along the south side of Baseline Road will be required for this design option which is an additional cost. The construction period is estimated to be one

year beginning with private utility relocations work followed by the underpass project construction. The graphic for Option A is on the next page.

Baseline Road
Underpass Project
Broadway to 27th Way

Baseline Underpass Project
Conceptual Plan – Option A (Access Ramp on West Side)

View on South side underpass entrance.



View on North side underpass entrance.

Baseline Road Underpass South Side Entrance
Design Option Characteristics

√ = Has This Characteristic

Characteristic	OPTION A (Access ramp on west side)
PEDESTRIANS and BICYCLISTS	
Provides stair access for pedestrians	√
Provides ramp access from west	√
Provides ramp access from east	
Provides ramp access from east and west	
User perception of safety is enhanced due to sightlines and open views on the south side underpass entrance	
Underpass access ramps on south side entrance have wide turning radii, decreasing potential user conflicts	
Reduced user conflicts at south side entrance due to less crossing patterns and sight distance issues	√
VEHICULAR	
Reduces conflicts between vehicles and path users at Basemar Shopping Center driveway	
Removes pedestrian crossing signal on Baseline	√
Reduces eastbound through lanes between Broadway and 27th Way from three to two lanes	
TRANSIT	
Allows for bus recovery/layover area at eastbound transit stop	√
Allows space for expanded regional transit service operations and future transit stop amenities	√
Underpass access ramp is adjacent to transit stop	
LANDSCAPING AND PROPERTY	
Reduces landscaping/green space	√
Requires permanent easements on Baseline Road	√

View of North side underpass entrance.

Option B "Access Ramp on East Side" – The 24 foot-wide underpass crossing is at a skewed angle and the entrance ramp and path connections on the south side of Baseline Road come from the east. The underpass and access ramp design can meet ADA design guidelines. Bicyclists and pedestrians coming from the west will cross the Basemar Shopping Center driveway entrance at grade to access the underpass ramp entrance. The multi-use path is detached from Baseline Road so there is space for left or right turning vehicles to turn and stop for users crossing the driveway entrance. Pedestrians can also use stairs to access the underpass. The eastbound transit stop will be relocated and reconstructed and a bus layover space is retained but there is less capacity for expansion than the current stop.

There will be a curb extension east of the Basemar Shopping Center driveway on Baseline Road with a designated access lane into the Basemar Shopping Center. The additional space from the curb extension at the driveway is utilized for the underpass and transit stop areas. There is a lane reduction from three to two through lanes in the eastbound direction from Broadway to the Basemar Shopping Center.

On the south side of Baseline Road, landscaping and two trees are anticipated to be removed. The City of Boulder Forestry tree condition assessment noted these trees to be in fair and good/fair condition. The tree condition assessment has been included in the CEAP Appendix. Landscaping will be restored and replacement trees will be planted and project staff will look for opportunities within the project area for additional tree planting. The city's landscape architect noted that the landscaping restoration area in this option provides a better opportunity for quality landscaping due to its larger spaces in comparison to Option C which has many smaller spaces for landscaping.

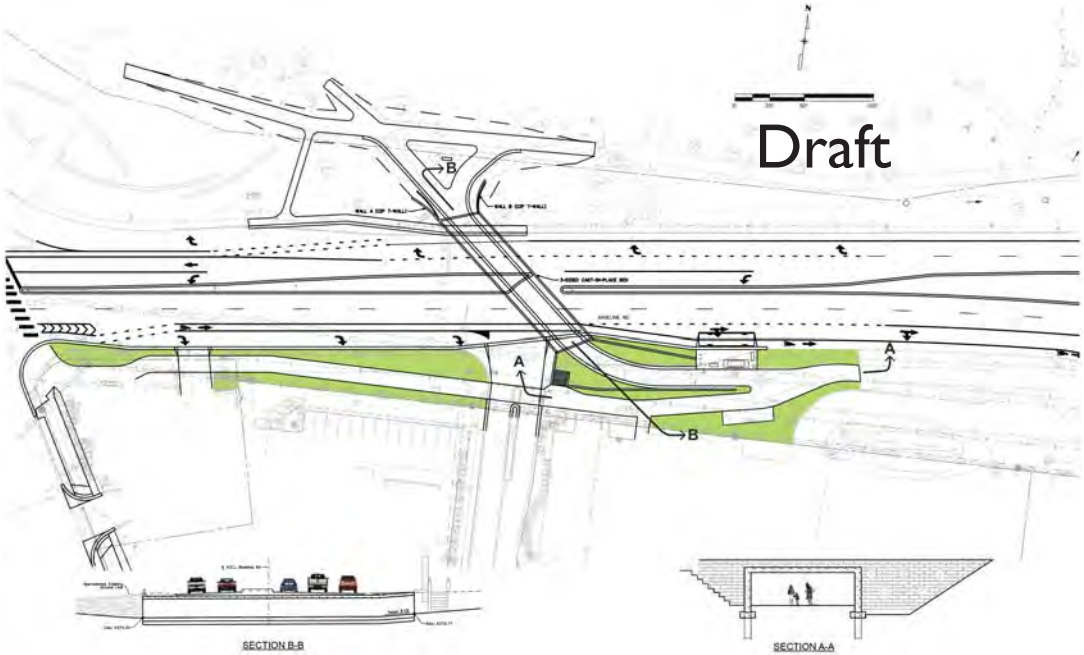
No additional property acquisition is required for this option. The construction period is estimated to be one year beginning with private utility relocations work followed by the underpass project construction. The graphic for Option B is on the next page.

Baseline Road
Underpass Project
Broadway to 27th Way

Baseline Underpass Project
Conceptual Plan – Option B (Access Ramp on East Side)

View on South side underpass entrance.

View on North side underpass entrance.



Baseline Road Underpass South Side Entrance
Design Option Characteristics

√ = Has This Characteristic

Characteristic	OPTION B (Access ramp on east side)
PEDESTRIANS and BICYCLISTS	
Provides stair access for pedestrians	√
Provides ramp access from west	
Provides ramp access from east	√
Provides ramp access from east and west	
User perception of safety is enhanced due to sightlines and open views on the south side underpass entrance	√
Underpass access ramps on south side entrance have wide turning radii, decreasing potential user conflicts	√
Reduced user conflicts at south side entrance due to less crossing patterns and sight distance issues	√
VEHICULAR	
Reduces conflicts between vehicles and path users at Basemar Shopping Center driveway	√
Removes pedestrian crossing signal on Baseline	√
Reduces eastbound through lanes between Broadway and 27th Way from three to two lanes	√
TRANSIT	
Allows for bus recovery/layover area at eastbound transit stop	√
Allows space for expanded regional transit service operations and future transit stop amenities	
Underpass access ramp is adjacent to transit stop	√
LANDSCAPING AND PROPERTY	
Reduces landscaping/green space	√
Requires permanent easements on Baseline Road	

View of North side underpass entrance.

<u>Option C "Access Ramps on East and West Sides"</u> – The 24 foot-wide underpass crossing is perpendicular to Baseline Road which is similar to Option A but the entrance ramps and path connections along the south side of Baseline Road are from the east and west. The underpass and access ramps can meet ADA design guidelines. Bicyclists and pedestrians do not need to cross the Basemar Shopping Center driveway to access the underpass on the south side of Baseline Road. For the entrance ramp from the east, there would be an additional underpass beneath the Basemar Shopping Center driveway access reducing the conflict potential between underpass users and vehicles turning into Basemar Shopping Center. There is an additional cost to provide a second underpass structure for the Basemar Shopping Center driveway. Pedestrians can also use stairs to access the south side underpass entrance. The underpass ramps on the south side have low sight distance which increases the potential for user conflicts for those entering and exiting the underpass for left turning movements. The multi-use path on the south side of Baseline Road is attached at the Basemar Shopping Center entrance.

The eastbound transit stop will be relocated and reconstructed and a bus layover space is retained but there is less capacity for expansion than the current stop. There will be a curb extension east of the Basemar Shopping Center driveway on Baseline Road with a designated right turn access lane into the Basemar Shopping Center. The additional space from the curb extension at the driveway is utilized for the underpass and transit stop areas. There is a lane reduction from three to two through lanes in the eastbound direction from Broadway to the Basemar Shopping Center.

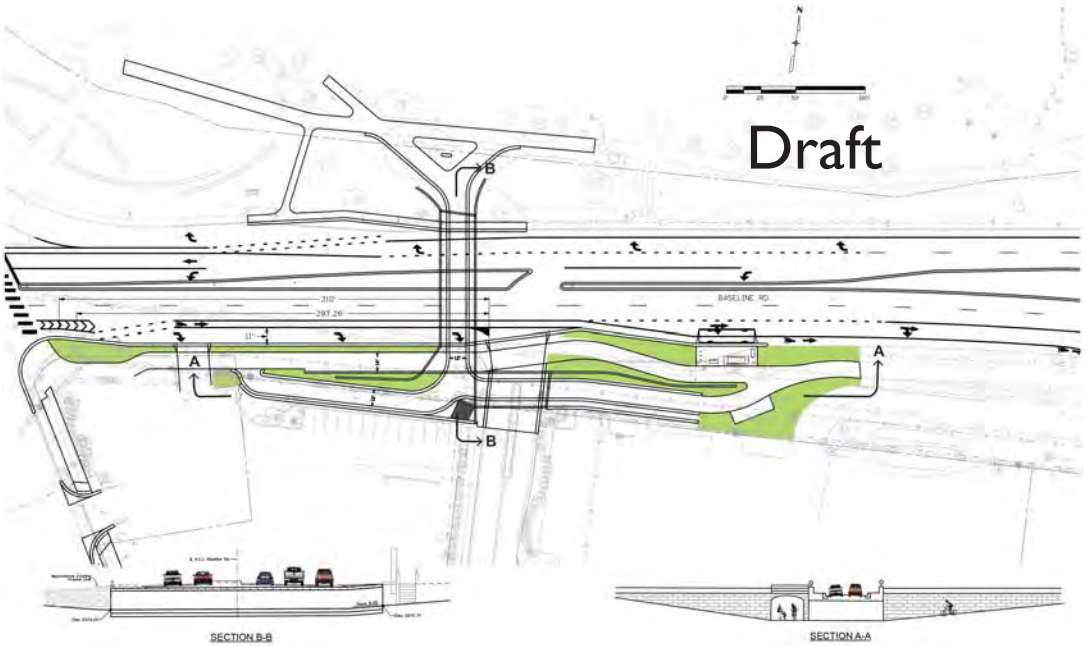
The additional space from the curb extension at the driveway is utilized for the underpass and transit stop areas. There is a lane reduction from three to two through lanes in the eastbound direction from Broadway to the Basemar Shopping Center.

Permanent easements along the south side of Baseline Road will be required to construct this design option and this is an additional cost to the project. The construction period is estimated to be one year beginning with private utility relocations work followed by the underpass project construction. The graphic for Option C is on the next page.

Baseline Road
Underpass Project
Broadway to 27th Way

Baseline Underpass Project
Conceptual Plan – Option C (Access Ramps on East and West)

View on South side underpass entrance.



View on North side underpass entrance.

Baseline Road Underpass South Side Entrance
Design Option Characteristics

√ = Has This Characteristic

Characteristic	OPTION C (Access ramps on east and west sides)
PEDESTRIANS and BICYCLISTS	
Provides stair access for pedestrians	√
Provides ramp access from west	
Provides ramp access from east	
Provides ramp access from east and west	√
User perception of safety is enhanced due to sightlines and open views on the south side underpass entrance	
Underpass access ramps on south side entrance have wide turning radii, decreasing potential user conflicts	
Reduced user conflicts at south side entrance due to less crossing patterns and sight distance issues	
VEHICULAR	
Reduces conflicts between vehicles and path users at Basemar Shopping Center driveway	√
Removes pedestrian crossing signal on Baseline	√
Reduces eastbound through lanes between Broadway and 27th Way from three to two lanes	√
TRANSIT	
Allows for bus recovery/layover area at eastbound transit stop	√
Allows space for expanded regional transit service operations and future transit stop amenities	
Underpass access ramp is adjacent to transit stop	√
LANDSCAPING AND PROPERTY	
Reduces landscaping/green space	√
Requires permanent easements on Baseline Road	√

View of North side underpass entrance.

A description of the characteristics of each of the Underpass design options has been incorporated into a table for ease of review among the three options and can be seen on the following page. The key issues that the design options are addressing include bicycle and pedestrian access and safety, transit operations and bus stop amenities, landscaping, and property acquisition. A matrix reviewing each of the options and whether they demonstrate those specific factors are also shown in the next page.

	Option A-Access ramp on west side	Option B-Access ramp on east side	Option C-Access ramps on east and west
Description	This underpass is perpendicular to Baseline Road. The entrance ramp and path connections on the south side of Baseline Road come from the west.	The underpass is at a skewed angle and the entrance ramp and path connections on the south side of Baseline Road come from the east.	This option has the underpass perpendicular to Baseline Road. The entrance ramps and path connections on the south side of Baseline Road come from the east and west.
Pedestrian	Pedestrians access the underpass from the south side by a ramp from the west. If coming from the east, pedestrian must cross Basemar Shopping Center driveway at grade before using ramp or stairs.	Pedestrians access the underpass from the south side by a ramp from the east. If coming from the west, pedestrian must cross Basemar Shopping Center driveway at grade before using ramp or stairs.	Pedestrians access the south side underpass entrance from either direction and do not need to cross the Basemar Shopping Center driveway.
Bicycle	Bicyclists access the underpass from the south side by a ramp from the west or use stairs. If coming from the east, bicyclists must cross Basemar Shopping Center driveway at grade before using ramp.	Bicyclists access the underpass from the south side by a ramp from the east. If coming from the west, bicyclist must cross Basemar Shopping Center driveway at grade before using ramp or stairs. The multi-use path is detached from the roadway so visibility and distance is increased between bicyclists, pedestrians and westbound Baseline vehicles turning left into Basemar Shopping Center. There is then space for the vehicles to stop and wait for path users to cross. Boulder B-Cycle station will be relocated.	Bicyclist access the south side underpass entrance from either direction and do not cross the Basemar Shopping Center driveway. There is an additional cost to provide a second underpass structure for the Basemar Shopping Center driveway. Underpass ramps from the east and west in this space have low sight distance which increases the potential for user conflicts for those entering and exiting the underpass for left turning movements. Boulder B-Cycle station will be relocated.
Transit	The current eastbound transit stop and bus layover remains in place. There is space for expanded regional service operations and future transit stop amenities.	The eastbound transit stop is relocated and reconstructed and layover space is provided but has less capacity for expansion than existing. Underpass access ramp is adjacent to transit shelter.	The eastbound transit stop is relocated and reconstructed and layover space is provided but has less capacity for expansion than existing. Underpass access ramp is adjacent to transit shelter.
Vehicular	Same as today. (2) No curb extension/bumpout at Basemar shopping center entrance.	A curb bumpout will be constructed on the south side of Baseline on the east side of the shopping center driveway. The number of eastbound through travel lanes from Broadway to Basemar Shopping Center driveway will be reduced from three to two lanes. An access lane into the Basemar Shopping Center driveway will be retained.	A curb bumpout will be constructed on the south side of Baseline on the east side of the shopping center driveway. The number of eastbound through travel lanes from Broadway to Basemar Shopping Center driveway will be reduced from three to two lanes. An access lane into the Basemar Shopping Center driveway will be retained.
Property	A permanent easement along the south side of Baseline Road will be needed which is an additional cost.	All on city owned property on Baseline Road.	A permanent easement along the south side of Baseline Road will be needed which is an additional cost.
Landscaping and Trees	On the south side, there will be a a reduction in the landscaping area and one tree will be removed. The area will be restored. (1)	On the south side, there will be a a reduction in the landscaping area and two trees will be removed. The area will be restored. (1)	On the south side, there will be a a reduction in the landscaping area and two trees will be removed. The area will be restored. (1)

* (1) All options have the same north side underpass access and the removal of up to six trees. Tree assessment is provided as an Appendix. (2) For all options a curb extension will be constructed at the southeast corner of Broadway and Baseline Road and an access lane into Starbucks/Einsteins property is provided.

BASELINE ROAD UNDERPASS
South Side Entrance
DESIGN OPTION CHARACTERISTICS

√ = Has This Characteristic

Characteristic	OPTION A (Access ramp on west side)	OPTION B (Access ramp on east side)	OPTION C (Access ramps on east and west sides)	NOTES
PEDESTRIANS and BICYCLISTS				
Provides stair access for pedestrians	√	√	√	
Provides ramp access from west	√			
Provides ramp access from east		√		
Provides ramp access from east and west			√	
User perception of safety is enhanced due to sightlines and open views on the south side underpass entrance		√		
Underpass access ramps on south side entrance have wide turning radii, decreasing potential user conflicts		√		Option B has larger turning radii for the access ramps on the south entrance than other options
Reduced user conflicts at south side entrance due to less crossing patterns and sight distance issues	√	√		
VEHICULAR				
Reduces conflicts between vehicles and path users at Basemar Shopping Center driveway		√	√	Option C reduces the conflicts more than Option B
Removes pedestrian crossing signal on Baseline	√	√	√	
Reduces eastbound through lanes between Broadway and Basemar Shopping Center driveway from three to two through lanes		√	√	
TRANSIT				
Allows for bus recovery/layover area at eastbound transit stop	√	√	√	
Allows space for expanded regional transit service operations and future transit stop amenities	√			
Underpass access ramp is adjacent to transit stop		√	√	Increased potential for user conflicts
LANDSCAPING AND PROPERTY				
Reduces landscaping/green space	√	√	√	Option C removes more existing landscaping/green space than other options
Requires permanent easements on Baseline Road	√		√	

4. Permits, Wetlands Protection and Habitat Encroachment

Construction of the project components may require the following permits:

Colorado Department of Public Health and Environment Colorado Stormwater Discharge Permit (Construction Activity General Permit and Stormwater Management Plan)
City of Boulder Floodplain Development Permit
Colorado Department of Public Health and Environment Colorado Construction Dewatering Permit
City of Boulder construction dewatering discharge agreement.

5. Preferred project alternative:

The preferred project alternative is Option B. This project improves bicycle and pedestrian crossings of Baseline Road and provides efficient connections to the crossing from all directions. Option B supports the goals of the BVCP, TMP and CU master plans by improving multimodal travel options through more direct and efficient crossings and connections. The underpass ramps on the south of Baseline Road provide a direct grade separated connection for the majority of bicyclists and users. This option has reduced user conflicts at the south side entrance due to less crossing patterns and increased sight distance than Option C. The project can be constructed within the existing public right-of-way. The underpass and access ramps can meet ADA design guidelines. Feedback from the community preferred this option over the other options.

6. Public input to date:

Information on the project is available on the project webpage and a public meeting was held on April 8, 2014. The meeting graphics were also available at the Main Boulder Library 2nd Floor Reference Desk and the project webpage. Information on the project and the public meeting was distributed to 400 residents, property owners, businesses and other interested parties through a direct mailing. The City of Boulder and University of Colorado also distributed this information through their system's email groups and social media.

Feedback on the project and the design options was received at the public meeting and through the project webpage and social media sites. Eighteen people attended the April 8 meeting and eleven people provided input electronically. Most people preferred Option B due to its simple, direct connections for the majority of the bicycle and pedestrian users, its ability to provide an accessible facility for people with disabilities and it having less potential for bicycle/pedestrian conflicts on the south side of Baseline Road than Option C may have with its "T" intersection and low sight distances. There was one person who favored Option A for its access for users coming from the west and southwest and there were four persons who preferred Option C because it provided completed grade separated access and

crossing from the east and west directions although there was some concern about the conflict potential at the underpass entrance for this option.

The project team is coordinating with other city departments and work groups including Community Planning and Sustainability, Forestry, GO Boulder and Transportation and Utilities Maintenance. As part of the CEAP review process, the CEAP was presented to the interdepartmental staff review team on April 29, 2014 for review and documentation. Feedback and comments received during this review have been incorporated into the revised CEAP. Concurrence was also obtained for the preferred design option.

At the May 12, 2014 Transportation Advisory Board meeting, the Board will hold a public hearing and consider a recommendation on the Baseline Road (Broadway to 27th Way) Underpass Project CEAP.

Following the TAB review and recommendation the CEAP will be forwarded to the City Council for call-up action by June 17, 2014.

7. Staff project manager:

This project is being managed by the City of Boulder's Public Works Department – Transportation Division. Bryant Gonsalves is the Project Manager for this project. Noreen Walsh provides assistance with the public outreach and involvement and drafting the CEAP document.

8. Other consultants or relevant contacts:
SEH Inc, a current on-call consultant for the City of Boulder composed of engineers, architects, planners, and scientists is the prime civil engineering consultant developing the designs and plans for the project. Subconsultants included in the project team for landscape design and traffic engineering include Studio Terra and Fox-Tuttle. CDOT Region 4 Local Agency Project staff are involved with the federal aid and NEPA review aspects of the project.

Goals Assessment:

1. Using the BVCP and department master plans, describe the primary city goals and benefits that the project will help to achieve:
a. Community Sustainability Goals – How does the project improve the quality of economic, environmental and social health with future generations in mind?

The Boulder Valley Comprehensive Plan (BVCP) and Transportation Master Plan (TMP) call for a multimodal transportation system with accessible and safe travel options and connections. The proposed underpass and connections to existing multi-use paths, on-street bicycle lanes and nearby transit stops support

the master plans' goals by improving the facilities for all modal users and the project is in the TMP.

The project helps the city achieve its ***economic*** *goals by improving walking, bicycling, driving and transit access for travelers, employees, students and residents traveling through the area from this location to the commercial center on the south side and the university on the north side.*

This project helps the city achieve its ***environmental*** *goals by providing a safer crossing and connections to the bicycle and pedestrian facilities and the adjacent transit stops. In addition to addressing current needs at this crossing location, this project is anticipated to decrease single-occupant vehicle use which would reduce and minimize the use of non-renewable energy resources and greenhouse gas emissions. In the DRCOG TIP application it was estimated that there would be an annual emissions reduction of 239,000 lbs of CO2 from this project.*

This project helps the city achieve its ***social*** *sustainability goals by improving the transportation options for all members of the community to use and improving public safety with a grade separated crossing of Baseline Road.*

b. BVCP Goals related to:

Community Design/Built Environment *– The city's goal is to evolve toward an urban form that supports sustainability. Boulder's compact, interconnected urban form helps ensure the community's environmental health, social equity and economic vitality. It also supports cost-effective infrastructure and facility investments, a high level of multimodal mobility, and easy access to employment, recreation, shopping and other amenities, as well as a strong image of Boulder as a distinct community. The project improvements and the public art and aesthetics are in support of these goals for an interconnected urban form providing multimodal mobility and easy access to employment, shopping, and educational activities. The landscaping, public art and aesthetics of the project are taking into consideration the adjacent buildings and land uses as well as the architecture of the university campus. The project team is coordinating with city and CU staff on landscaping and urban design. To view this section of the BVCP, please go to: https://www-static.bouldercolorado.gov/docs/2-built-environment-1-201307121119.pdf*

Urban Services - *The proposed project helps to implement the goals and objectives of the TMP by providing a safer and more efficient crossing and connection for bicycling and walking. This underpass and the path connections on the north side will be maintained by CU Boulder Facilities Management. The underpass and path connections on the south side will be maintained by Basemar Shopping Center. To view this section of the BVCP, please go to:*
https://www-static.bouldercolorado.gov/docs/1-core-values-sustainability-framework-general-policies-1-201307121119.pdf

Environment *– This section of the BVCP recognizes that the natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected and is the framework within which growth and development take place.*
This CEAP analysis of the project alternatives provides information on the various design options and their potential impacts on the adjacent natural resources, such as trees and landscaping and these factors have been considered in the selection of the preferred alternative. A tree assessment was conducted by the City of Boulder Forestry group and it is included in the Appendix. Further description of tree assessments and impacts are detailed in each design option.
The landscaping plans will be focused on native and low water tree species, shrubs and plants. To view this section of the BVCP, please go to: https://www-static.bouldercolorado.gov/docs/3-natural-environment-1-201307121120.pdf

Economy *– The policies in this section of the BVCP support the following goals related to maintaining a sustainable economy:*
-Strategic Redevelopment and Sustainable Employment
-Diverse Economic Base
-Quality of Life
-Sustainable Business Practices
-Job Opportunities, Education and Training
This project supports the Quality of Life policy with the funding and construction of Urban Infrastructure that is important to the quality of life of residents, employees and visitors to the community including a strong and complete transportation system with multimodal facilities and connections. To view this section of the BVCP, please go to: https://www-static.bouldercolorado.gov/docs/5-economy-1-201307121121.pdf

Transportation *– The BVCP and TMP support the maintenance and development of a balanced transportation system that supports all modes of travel, making the system more efficient in carrying travelers while maintaining a safe system and shifting trips away from the single-occupant vehicle. This project helps to provide a safer multimodal transportation system with a grade separated crossing of Baseline Road. To view this section of the BVCP, please go to: https://www-static.bouldercolorado.gov/docs/6-transportation-1-201307121121.pdf*

Housing*- The new underpass will provide a safer crossing of Baseline Road for residents of nearby neighborhoods such as Martin Acres which may increase the use of bicycling and walking thereby possibly decreasing household transportation costs. University of Colorado students, faculty and staff who may or may not reside nearby will also utilize and benefit from the underpass project which is adjacent to the CU Law School and the university*

campus. To view this section of the BVCP, please go to: https://www-static.bouldercolorado.gov/docs/7-housing-1-201307121121.pdf

***Community Well Being** – The policies in this section of the BVCP relate to Human Services; Social Equity; Community Health; and, Community Infrastructure and Facilities. The new underpass will provide a safer grade separated crossing of Baseline Road for use by pedestrians and bicyclists. The at-grade crossing of Baseline Road at Broadway will also be improved with the curb extension/bumpouts which will decrease the crossing distance. The project's incorporation of artistic elements also supports this section of the plan. To view this section of the BVCP, please go to:* https://www-static.bouldercolorado.gov/docs/8-community-well-being-1-201307121122.pdf

c. Describe any regional goals (potential benefits or impacts to regional systems or plans?)

The CU Boulder Transportation Master Plan is part of the Campus Master Plan. The Baseline Road Underpass Project helps to fulfill their vision of mobility and accessibility for all CU Boulder faculty, staff, visitors and vendors and safe and well-maintained bicycle and pedestrian facilities.
This section of Baseline Road is identified as a regional bicycle corridor in the Denver Regional Council of Governments Metro Vision Plan and this project addresses safety and access to and from the bicycling and pedestrian facilities along Baseline Road.

2. Is this project referenced in a master plan, subcommunity or area plan? If so, what is the context in terms of goals, objectives, larger system plans, etc.? If not, why not?
This underpass project is identified in the City of Boulder Transportation Master Plan and it supports the goals of the TMP by improving safety and connectivity in the bicycle and pedestrian system.

3. Will this project be in conflict with the goals or policies in any departmental master plan and what are the trade-offs among city policies and goals in the proposed project alternative? (e.g. higher financial investment to gain better long-term services or fewer environmental impacts)
This project will not be in conflict with the goals or policies or any other departmental master plan.

4. List other city projects in the project area that are listed in a departmental master plan or the CIP.
There are not any other city projects identified in the CIP that are in the project area.

5. What are the major city, state, and federal standards that will apply to the proposed project? How will the project exceed city, state, or federal standards and

regulations (e.g. environmental, health, safety, or transportation standards)?
The project is on a State highway on CDOT property and will therefore comply with all required city, state and federal permits and meet or exceed the city and national standards (AASHTO) for the development of bikeway facilities.

6. Are there cumulative impacts to any resources from this and other projects that need to be recognized and mitigated?
There are none identified at this time.

Impact Assessment:

1. Using the attached checklist, identify the potential short or long-term impacts of the project alternatives. Use +, - or 0 in the checklist table to indicate impacts, benefits and no changes for each alternative.
   + indicates a positive effect or improved condition
   - indicates a negative effect or impact
   0 indicates no effect

Categories on the Checklist Table indicating positive or negative impacts (+ or –) should answer the Checklist Questions following the table in full.

City Of Boulder
Community and Environmental Assessment Process

Checklist

+ Positive effect
- Negative effect
0 No effect

Project Title:	Option A	Option B	Option C
A. Natural Areas or Features			
1. Disturbance to species, communities, habitat, or ecosystems due to:			
a. Construction activities	0	0	0
b. Native vegetation removal	0	0	0
c. Human or domestic animal encroachment	0	0	0
d. Chemicals (including petroleum products, fertilizers, pesticides, herbicides)	0	0	0
e. Behavioral displacement of wildlife species (due to noise from use activities)	0	0	0
f. Habitat removal	0	0	0
g. Introduction of non-native plant species in the site landscaping	0	0	0
h. Changes to groundwater or surface runoff	0	0	0
i. Wind erosion	0	0	0
2. Loss of mature trees or significant plants?	-	-	-
B. Riparian Areas/Floodplains			
1. Encroachment upon the 100-year, conveyance or high hazard flood zones?	0	0	0
2. Disturbance to or fragmentation of a riparian corridor?	0	0	0
C. Wetlands			
1. Disturbance to or loss of a wetland on site?	0	0	0

Project Title:	Preferred Alternative	Alternative 2	Alternative 3
D. Geology and Soils			
1. a. Impacts to unique geologic or physical features?	0	0	0
b. Geologic development constraints?	0	0	0
c. Substantial changes in topography?	0	0	0
d. Changes in soil or fill material on the site?	0	0	0
e. Phasing of earth work?	0	0	0
E. Water Quality			
1. Impacts to water quality from any of the following?			
a. Clearing, excavation, grading or other construction activities	-	-	-
b. Change in hardscape	-	-	-
c. Change in site ground features	-	-	-
d. Change in storm drainage	+	+	+
e. Change in vegetation	0	0	0
f. Change in pedestrian and vehicle traffic	0	0	0
g. Pollutants	0	0	0
2. Exposure of groundwater contamination from excavation or pumping?	0	0	0
F. Air Quality			
1. Short or long term impacts to air quality (CO2 emissions, pollutants)?			
a. From mobile sources?	+	+	+
b. From stationary sources?	0	0	0
G. Resource Conservation			
1. Changes in water use?	+	+	+
2. Increases or decreases in energy use?	+	+	+
3. Generation of excess waste?	0	0	0

Project Title:	Preferred Alternative	Alternative 2	Alternative 3
H. Cultural/Historic Resources			
1. a. Impacts to a prehistoric or archaeological site?	0	0	0
b. Impacts to a building or structure over fifty years of age?	0	0	0
c. Impacts to a historic feature of the site?	0	0	0
d. Impacts to significant agricultural land?	0	0	0
I. Visual Quality			
1. a. Effects on scenic vistas or public views?	0	0	0
b. Effects on the aesthetics of a site open to public view?	0	0	0
c. Effects on views to unique geologic or physical features?	0	0	0
d. Changes in lighting?	0	0	0
J. Safety			
1. Health hazards, odors, or radon?	0	0	0
2. Disposal of hazardous materials?	0	0	0
3. Site hazards?	0	0	0
K. Physiological Well-being			
1. Exposure to excessive noise?	0	0	0
2. Excessive light or glare?	0	0	0
3. Increase in vibrations?	0	0	0
L. Services			
1. Additional need for:			
a. Water or sanitary sewer services?	0	0	0
b. Storm sewer/Flood control features?	0	0	0
c. Maintenance of pipes, culverts and manholes?	-	-	-
d. Police services?	0	0	0
e. Fire protection services?	0	0	0

f. Recreation or parks facilities?	0	0	0
g. Library services?	0	0	0
h. Transportation improvements/traffic mitigation?	0	0	0
i. Parking?	0	0	0
j. Affordable housing?	0	0	0
k. Open space/urban open land?	0	0	0
l. Power or energy use?	0	0	0
m. Telecommunications?	0	0	0
n. Health care/social services?	0	0	0
o. Trash removal or recycling services?	0	0	0
M. Special Populations			
1. Effects on:			
a. Persons with disabilities?	+	+	+
b. Senior population?	+	+	+
c. Children or youth?	+	+	+
d. Restricted income persons?	+	+	+
e. People of diverse backgrounds (including Latino and other immigrants)?	+	+	+
f Neighborhoods	+	+	+
g. Sensitive populations located near the project (e.g. schools, hospitals, nursing homes)?	+	+	+
N. Economy			
1. Utilization of existing infrastructure?	0	0	0
2. Effect on operating expenses?	0	0	0
3. Effect on economic activity?	+	+	+
4. Impacts to businesses, employment, retail sales or city revenue?	+	+	+

City of Boulder
Community and Environmental Assessment Process

Checklist Questions

Note: The following questions are a supplement to the CEAP checklist. Only those questions indicated on the checklist indicating positive or negative impacts (+ or –) *are to be answered in full.*

A. Natural Areas and Features

1. Describe the potential for disturbance to or loss of significant: species, plant communities, wildlife habitats, or ecosystems via any of the activities listed below. (Significant species include any species listed or proposed to be listed as rare, threatened or endangered on federal, state, county lists.)
   a. Construction activities
   b. Native Vegetation removal
   c. Human or domestic animal encroachment
   d. Chemicals to be stored or used on the site (including petroleum products, fertilizers, pesticides, herbicides)
   e. Behavioral displacement of wildlife species (due to noise from use activities)
   f. Introduction of non-native plant species in the site landscaping
   g. Changes to groundwater (including installation of sump pumps) or surface runoff (storm drainage, natural stream) on the site
   h. Potential for discharge of sediment to any body of water either short term (construction-related) or long term

For all options project staff will be redirecting a portion of the groundwater or surface water runoff. Short term discharge will be treated by installing Best Management Practices (BMPs) according to the Colorado Stormwater Discharge Permit. Long term discharge will be treated by the installation of water quality structures according to Municipal Separate Storm Sewer System (MS4) requirements.

   i. Potential for wind erosion and transport of dust and sediment from the site

2. Describe the potential for disturbance to or loss of mature trees or significant plants.
   If potential impacts have been identified, please provide any of the following information that is relevant to the project:
   - A description of how the proposed project would avoid, minimize, or mitigate identified impacts.

- A habitat assessment of the site, including: 1. a list of plant and animal species and plant communities of special concern found on the site; 2. a wildlife habitat evaluation of the site.
- Maps of the site showing the location of any Boulder Valley Natural Ecosystem, Boulder County Environmental Conservation Area, or critical wildlife habitat.

For all options it is estimated up to six (6) trees on the north side of Baseline Road will need to be removed. The City of Boulder Forestry staff has conducted a tree assessment of all trees that will be potentially removed and this is included in the Appendix. Some of the trees on the north side of Baseline Road have been assessed as good condition and a few trees are in fair condition. Five of the trees are cottonwood trees and one (1) is a Siberian Elm tree. The five Cottonwood trees are not a desirable tree species along multi-use paths since their trunks tend to get hollowed out which make them more susceptible to falling down during high winds or other harsh winter conditions. The impacts to the trees on the south side of Baseline Road vary for the three options. Option A removes one (1) tree which is in fair condition; Options B and C require the removal of two (2) trees which are assessed to be in fair and good/fair condition, respectively. Project staff will plant replacement trees and look for areas to plant additional trees.

B. Riparian Areas and Floodplains

1. Describe the extent to which the project will encroach upon the 100-year, conveyance or high hazard flood zones.

A City of Boulder Floodplain Development Permit will be obtained for any of the options prior to construction and the result will not create a negative effect on the existing Bluebell/Kings Gulch/Skunk Creek floodplain. The project will encroach on the 100-year floodplain but not within the conveyance zone.

2. Describe the extent to which the project will encroach upon, disturb, or fragment a riparian corridor: (This includes impacts to the existing channel of flow, streambanks, adjacent riparian zone extending 50 ft. out from each bank, and any existing drainage from the site to a creek or stream.)

If potential impacts have been identified, please provide any of the following information that is relevant to the project:

- A description of how the proposed project would avoid, minimize, or mitigate identified impacts to habitat, vegetation, aquatic life, or water quality.
- A map showing the location of any streams, ditches and other water bodies on or near the project site.

- A map showing the location of the 100-year flood, conveyance, and high hazard flood zones relative to the project site.

E. Water Quality

1. Describe any impacts to water quality that may result from any of the following:
   a. Clearing, excavation, grading or other construction activities that will be involved with the project;

For all options, there will be potential impacts from these activities but these will be mitigated through the water quality Best Management Practices (BMPs) outlined in the stormwater pollution prevention plan. Additionally, due to Municipal Separate Storm Sewer System (MS4) requirements, the project is installing up to five permanent water quality structures (four within the existing storm drainage system) which will capture pollutants before they would be discharged to Skunk Creek.

   b. Changes in the amount of hardscape (paving, cement, brick, or buildings) in the project area;
   c. Permanent changes in site ground features such as paved areas or changes in topography;

For all options, there will be a slight increase in the amount of impervious surface due to the additional concrete for underpass, access ramps and path connections.

   d. Changes in the storm drainage from the site after project completion;

See response to E1a above.

   e. Change in vegetation;
   f. Change in pedestrian and vehicle traffic;
   g. Potential pollution sources during and after construction (may include temporary or permanent use or storage of petroleum products, fertilizers, pesticides, or herbicides).

2. Describe any pumping of groundwater that may be anticipated either during construction or as a result of the project. If excavation or pumping is planned, what is known about groundwater contamination in the surrounding area (1/4 mile in all directions from the project) and the direction of groundwater flow?

If potential impacts have been identified, please provide any of the following that is relevant to the project:

- A description of how the proposed project would avoid, minimize, or mitigate impacts to water quality.
- Information from city water quality files and other sources (state oil inspector or the CDPHE) on sites with soil and groundwater impacts within 1/4 mile radius of project or site.

- If impacts to site are possible, either from past activities at site or from adjacent sites, perform a Phase I Environmental Impact Assessment prior to further design of the project.
- Groundwater levels from borings or temporary peizometers prior to proposed dewatering or installation of drainage structures.

Contaminated groundwater has been identified in the area and is currently being assessed by the State Division of Oil and Public Safety (DOPS). Their assessment will either lead to a mitigation project to eliminate the contamination prior to construction or funding and oversight for containment and removal of contaminated groundwater encountered during construction.

F. Air Quality

1. Describe potential short or long term impacts to air quality resulting from this project. Distinguish between impacts from mobile sources (VMT/trips) and stationary sources (APEN, HAPS).

For all options, the emissions from construction equipment would have a short term effect on air quality during construction. The effects of the emissions would be negligible because of the small number of short term emission sources.
The manufacture and use of resources for the construction can provide some short-term impacts to air quality at the manufacture site or construction site. The general types of construction and construction elements are similar for all options.
The long term impacts to mobile source air quality for all options in all segments is expected to positive one with an increase in the use of bicycling and walking. In the DRCOG TIP application it was estimated that there would be an annual emissions reduction of approximately 239,000 lbs of CO2 from this project.

G. Resource Conservation

1. Describe potential changes in water use that may result from the project.
   a. Estimate the indoor, outdoor (irrigation) and total daily water use for the facility.
   b. Describe plans for minimizing water use on the site (Xeriscape landscaping, efficient irrigation system).

For all options, there will be a decrease in grass lawn area. Project staff will be working with the adjacent property owners to develop landscaping restoration plans that reduce water usage.

2. Describe potential increases or decreases in energy use that may result from the project.
   a. Describe plans for minimizing energy use on the project or how energy conservation measures will be incorporated into the building design.
   b. Describe plans for using renewable energy sources on the project or how renewable energy sources will be incorporated into the building design?
   c. Describe how the project will be built to LEED standards.

> In all options, the existing pedestrian signal will be removed which will have a slight decrease in energy use.
> Fixtures for the art component, street lighting and underpass lighting will be added but will be high efficiency.

3. Describe the potential for excess waste generation resulting from the project. If potential impacts to waste generation have been identified, please describe plans for recycling and waste minimization (deconstruction, reuse, recycling, green points).

L. Services

1. Describe any increased need for the following services as a result of the project:
   a. Water or sanitary sewer services
   b. Storm sewer / Flood control features
   c. Maintenance of pipes, culverts and manholes

> The pipes, inlets, manholes and water quality structures will require additional maintenance. Project staff will work with maintenance staff for the selection of water quality structure type and assessment of additional maintenance needs.

   d. Police services
   e. Fire protection
   f. Recreation or parks facilities
   g. Libraries
   h. Transportation improvements/traffic mitigation
   i. Parking
   j. Affordable housing
   k. Open space/urban open land
   l. Power or energy use
   m. Telecommunications
   n. Health care/social services
   o. Trash removal or recycling services

2. Describe any impacts to any of the above existing or planned city services or department master plans as a result of this project. (e.g. budget, available

parking, planned use of the site, public access, automobile/pedestrian conflicts, views)

M. Special Populations

1. Describe any effects the project may have on the following special populations:
   a. Persons with disabilities
   b. Senior population
   c. Children or Youth
   d. Restricted income persons
   e. People of diverse backgrounds (including Latino and other immigrants)
   f. Sensitive Populations located near the project (e.g. adjacent neighborhoods or property owners, schools, hospitals, nursing homes)

   If potential impacts have been identified, please provide the following:

   • A description of how the proposed project would avoid, minimize, or mitigate identified impact.

   • A description of how the proposed project would benefit special populations.

The underpass will provide a safer crossing for bicyclists and pedestrians at the pedestrian signal which could be utilized by the above identified populations. Option A does not meet ADA design guidelines.
The crossing distance of the east leg of the Broadway and Baseline Road intersection will be slightly decreased by the construction of a curb extension at the southeast corner of the intersection. The project will also complete a section of multi-use path on the east side of Broadway from north of Skunk Creek to Baseline Road.

N. Economic Vitality

1. Describe how the project will enhance economic activity in the city or region or generate economic opportunities?
2. Describe any potential impacts to:
   a. businesses in the vicinity of the project (ROW, access or parking),
   b. employment,
   c. retail sales or city revenue
   and how they might be mitigated.

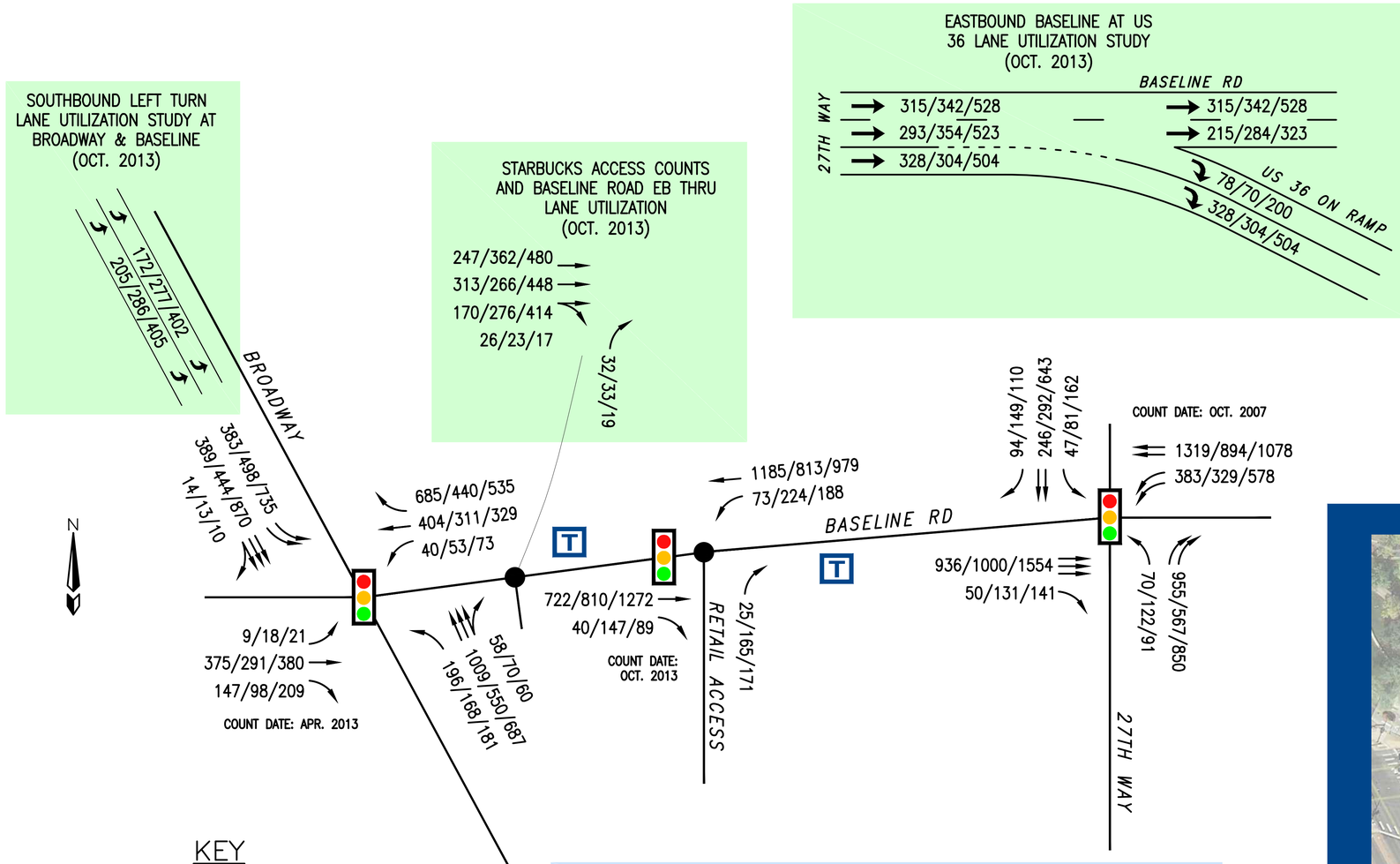
In all options, this project will provide a safer crossing of Baseline Road and this will improve bicycle and pedestrian access to both Basemar Shopping Center and the University of Colorado.

Appendix

Baseline Road Underpass Project
Broadway to 27th Way

Baseline Underpass Project
Transportation Data

Vehicular Volumes and Lane Utilizations



KEY

XXX/XXX/XXX AM / NOON / PM PEAK HOUR VEHICULAR VOLUME

T TRANSIT STOP

TRANSIT DATA

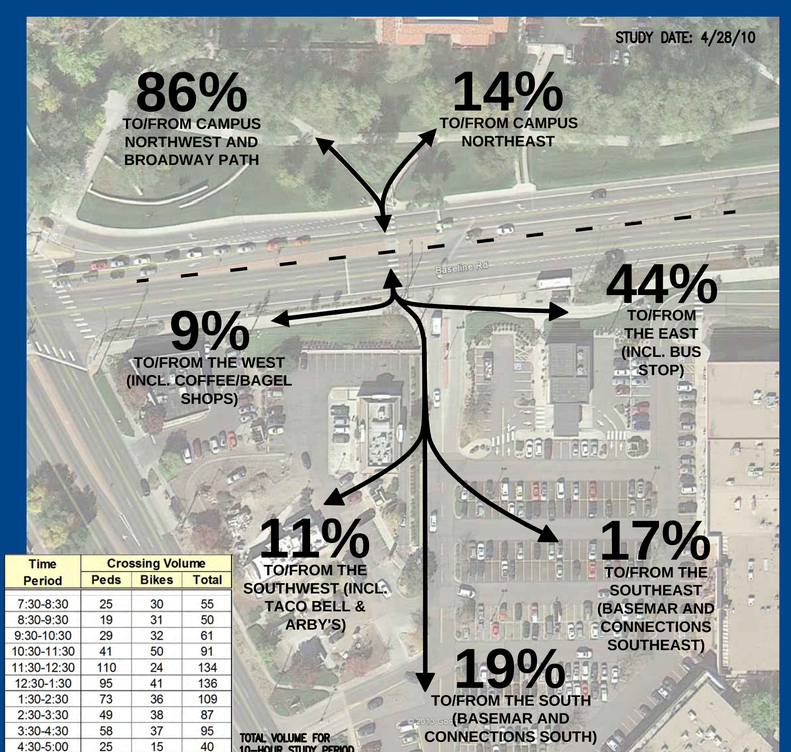
WB BASELINE AT BROADWAY DAILY BOARDING & ALIGHTINGS

Route	On	Off
204	8	27
225	3	68
TOTAL	11	95

EB BASELINE AT BROADWAY DAILY BOARDINGS & ALIGHTINGS

Route	On	Off
BOUND	453	112
204	22	40
225	80	24
TOTAL	555	176

Pedestrian & Bicycle Volumes and Travel Patterns



Time Period	Crossing Volume		
	Peds	Bikes	Total
7:30-8:30	25	30	55
8:30-9:30	19	31	50
9:30-10:30	29	32	61
10:30-11:30	41	50	91
11:30-12:30	110	24	134
12:30-1:30	95	41	136
1:30-2:30	73	36	109
2:30-3:30	49	38	87
3:30-4:30	58	37	95
4:30-5:00	25	15	40
TOTAL	524	334	858

TOTAL VOLUME FOR 10-HOUR STUDY PERIOD

FOX TUTTLE TRANSPORTATION GROUP

BASELINE ROAD UNDERPASS - TREE ASSESSMENTS. PREPARED BY PAT BOHIN, FORESTRY ASSISTANT, 4/9/14							
TREE #	**LOCATION**	**SPECIES**	**DIA SIZE**	**CONDITION**	**APPRAISED VALUE**	**NOTES**	**PLAN OPTION**
1	SOUTH OF BASELINE, WEST OF CROSSWALK	HONEYLOCUST	13"	FAIR	$3,640	POWER LINE TREE	OPTION A, B AND C
2	SOUTH OF BASELINE, EAST OF BUS STOP	CRABAPPLE	15/14"	GOOD TO FAIR	$9,900	TWO STEM TREE	OPTION B AND C
3	NORTH OF BASELINE, EAST OF CROSSWALK	SIBERIAN ELM	17/17"	FAIR	$5,200	TWO STEM TREE	OPTION A, B AND C
4	NORTH OF BASELINE, EAST END	COTTONWOOD	17"	GOOD	CU TREE		OPTION A, B AND C
5	NORTH OF BASELINE, EAST END	COTTONWOOD	22"	FAIR	CU TREE	TIP DIE BACK	OPTION A, B AND C
6	NORTH OF BASELINE, INSIDE TRIANGLE	COTTONWOOD	24"	GOOD	$10,200		OPTION A, B AND C
7	NORTH OF BASELINE, WEST OF CROSSWALK	COTTONWOOD	19"	GOOD	CU TREE		OPTION A, B AND C
8	NORTH OF BASELINE, WEST END	COTTONWOOD	27"	GOOD	CU TREE		OPTION A, B AND C