

Transportation Division

October 15, 2015

To: Transportation Commission

From: Farid Javandel, Transportation Division Manager
Aaron Sage, Principal Planner

Subject: Shattuck Reconfiguration and Pedestrian Safety Project Update

RECOMMENDATION

Receive a progress report and provide recommendations on the 35% design plan for the Shattuck Reconfiguration and Pedestrian Safety Project. The Commission's recommendations will be forwarded to City Council.

SUMMARY

This report provides an update on the design of the Shattuck Reconfiguration and Pedestrian Safety Project ("Shattuck Reconfiguration"), a federally funded project intended to improve pedestrian and bicycle safety, reduce unnecessary delays for northbound traffic (including transit vehicles), and enhance placemaking in the Downtown core.

Detailed design and engineering work on the project began in March 2015 and has progressed to the 35% level (see Attachments 1 and 2). Prior to proceeding with more detailed design, staff is requesting input on the current design from the Transportation Commission, which staff will forward to the City Council. Staff is also conducting extensive outreach with Downtown stakeholders, including an online survey, which is available at www.cityofberkeley.info/ShattuckSurvey.

The project's construction funds are programmed for fiscal year 2016-17, meaning that design work must be completed by October 2016. Construction is anticipated to begin in Spring 2017 and conclude by December 2017.

The key elements of the Shattuck Reconfiguration are:

- Convert the west (southbound) leg of Shattuck Avenue ("Shattuck West") between University Avenue and Center Street into a two-way, four-lane street.
- Reconfigure the Shattuck West/University intersection to reduce the volume of westbound right turns onto Shattuck, which conflict with pedestrians, by relocating that traffic movement to become a northbound through movement that does not conflict with pedestrians.
- Maintain the east (northbound) leg of Shattuck ("Shattuck East") as a one-way street, but narrow to two lanes with bulb-outs for enhanced pedestrian crossings.
- Provide angled parking on Shattuck East in order to maintain as much on-street parking in the project area as possible.

- Route vehicles turning (left or right) onto University to Shattuck East, in order to maintain adequate sidewalk width and parking on Shattuck West between Addison Street and University.
- Prohibit left turns in both directions from Shattuck West at Addison and Center; prohibit northbound left turns from Shattuck West at University, because there is no space for a left turn lane.
- Widen sidewalk and create a “transit plaza” on the east side of Shattuck between Center and Allston, with design treatments similar to the BART Plaza; relocate AC Transit stop in front of Bank of America to the south end of this block, in front of Target, in order to provide access to Shattuck West for northbound buses and facilitate transfers between BART and bus lines.
- Construct a raised intersection at Shattuck East and Center to improve pedestrian access between UC Berkeley and the BART Plaza, and calm northbound traffic entering Shattuck East.

See below for further discussion of these elements.

CURRENT SITUATION AND ITS EFFECTS

The Downtown Area Plan (DAP) and the Downtown Streets and Open Space Improvement Plan (SOSIP), adopted by Council in 2012 and 2013, respectively, recommend the reconfiguration of Shattuck Avenue between Center Street and University Avenue.¹ Based on the concept-level plans in the SOSIP, in 2013 the City applied for, and received, a \$2.8 million grant for the project from the Alameda County Transportation Commission.

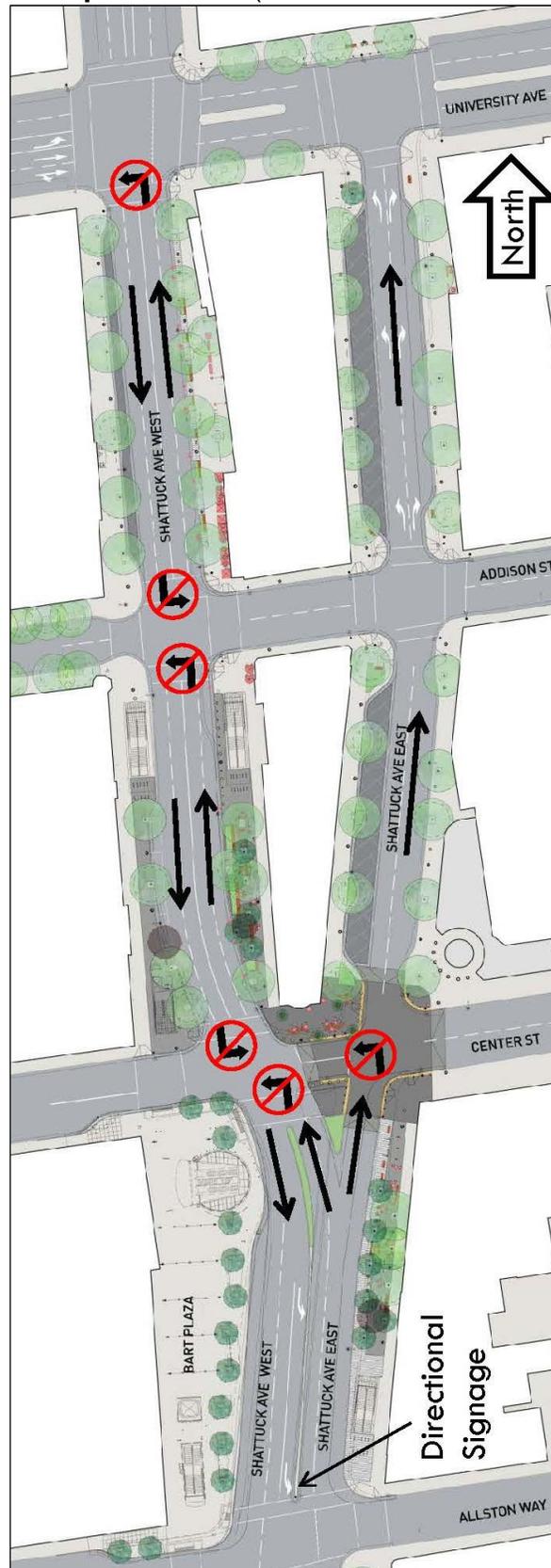
The current configuration of this 2-block portion of Shattuck is a “couplet” where the street divides into two 1-way segments, with northbound traffic on the east segment and southbound traffic on the west segment. Because the east segment ends at University, northbound traffic must turn left (westbound) onto University for ½-block, and then turn right (northbound) back onto Shattuck to proceed north of University. This configuration, combined with the high volume of traffic and pedestrians, contributes to high auto/pedestrian conflict and collision rates at the University/Shattuck intersection. For this reason, the City’s Pedestrian Master Plan identifies the Shattuck/University intersection as High Priority Pedestrian Project #2 (see Attachment 3).

DAP and SOSIP recommend that the existing Shattuck couplet be redesigned so that the west side operates as a 2-way street, and the east side has angled parking in the near term and pedestrian amenities (e.g. a “plaza or slow street”) in the long term. The current plans (see Figure 1 and Attachments 1 and 2) implement the basic near-term concept described in the DAP and SOSIP.

The following discussion covers several key issues that have been encountered during the design and outreach process.

¹ See Downtown Area Plan, Policy AC-1.1(e) (p. AC-9), and SOSIP Policy 1.7 (pp. 27-31, 35). SOSIP excerpts provided in Attachment 4.

Figure 1. Proposed Plan (also see Attachments 1 and 2)



Left Turns Onto University

One of the most important design issues for the project has been how to efficiently handle northbound left turns on University Avenue, without sacrificing pedestrian comfort and good urban design. The SOSIP includes two alternatives for handling these turns in the near-term scenario (see Attachment 4, Figure d.19): (1) allow left turns onto University from both sides of the couplet, with a dedicated turn lane on the west side; and (2) allow left turns onto University only from the east side, with signage between Center and Allston indicating the route for vehicles turning onto University.

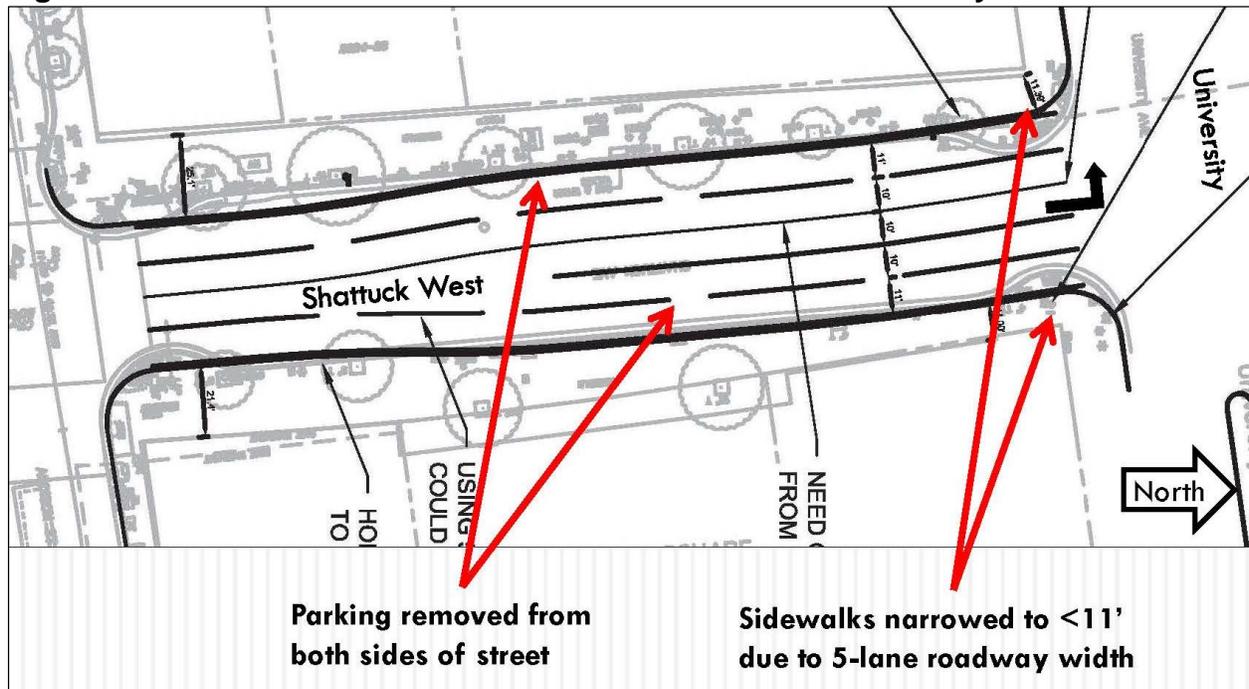
While the SOSIP subcommittee preferred the first option, SOSIP Policy 1.7 acknowledges the need for further evaluation, and that there would be several key tradeoffs between the two options:

“A left turn lane from the west side of Shattuck Square to University Avenue is preferred because it is easy to understand -- but a left-turn lane in this location would result in narrow lane widths, reduced crosswalk curb extensions, and elimination of parking spaces on west Shattuck Square. If lane widths are found to be insufficient, consider routing westbound traffic along the east side of Shattuck Square. To do this, northbound motorists who want to travel west on University would have to be guided by signs before they reach Shattuck Square.”

As detailed design work on the project began, the design team investigated the two options closely. After laying out the geometry of the first option (see Figure 2), it became clear this option would have several major drawbacks:

- The sidewalks at the southwest and southeast corners of Shattuck West and University would be reduced to about 10 feet, with no bulb-outs.² This width would be far less than the 20 to 25 feet provided at the south end of this block (at Addison), and generally not adequate for pedestrian comfort at a busy Downtown intersection. Furthermore, the existing sidewalk on both sides of the street would be reduced for most of the block, where the other option requires only the removal of the bulb-outs on the east side of the block, at University and Addison.
- Parking would be removed from both sides of Shattuck West, where the second option requires parking to be removed only from the east side of Shattuck West.
- The pedestrian crossing distance across Shattuck West at University would be 55 feet (5 lanes) with no median or bulb-outs, one of the widest crossings in the City, where in the second option this distance would be 44 feet with a bulb-out on the southwest corner.

² Figure 2 shows sidewalk widths of 11 feet, but these would have to be reduced in order to provide 11-foot traffic lanes rather than the 10-foot lanes shown in the figure. 10-foot lanes are not advisable given the large volumes of trucks and buses on this roadway.

Figure 2. Issues with Left Turns from Shattuck West to University

The second option, while more inconvenient for drivers turning left onto University, would generally be more consistent with the SOSIP's overall direction to enhance the pedestrian realm, and it would be more responsive to stakeholder concerns regarding loss of on-street parking. Furthermore, staff believes that the inconvenience to drivers turning left onto University would be minimal given the widespread use of GPS navigation devices and apps, as well as the wayfinding signage that would be placed near Shattuck and Allston. Based on these considerations, staff is recommending the second option.

It should be noted that the recommended design would likely make conversion of Shattuck East into a fully pedestrianized plaza or highly pedestrianized "slow street" more difficult in the future, since vehicles turning onto University (including buses and trucks) must utilize this roadway. However, these types of improvements may still be possible if traffic volumes in the Downtown can be substantially reduced through mode shift or other means. Even if it is not possible to implement further pedestrian improvements on Shattuck East, staff believes the proposed design still makes Shattuck East into a much safer and more pleasant street for pedestrians, with the possibility for occasional street closures for fairs and similar events (e.g. the annual "Sunday Streets" event sponsored by Livable Berkeley).

Left Turn Restrictions at Center and Addison

As noted earlier, the project would prohibit left turns in both directions from Shattuck West at Addison and Center. Left turns would also be prohibited from Shattuck East to Center. These prohibitions are necessary for the following reasons:

- With only two lanes available, left-turning vehicles would frequently reduce the capacity of the roadway and cause congestion. When this occurs simultaneously with a right-turning vehicle that is waiting for crossing pedestrians, congestion could be severe. This is particularly problematic on northbound Shattuck between Center and Allston, because of the need to provide a clear path for buses pulling out of the stops on that block.
- Given the high pedestrian volumes along Shattuck, allowing permitted left turns (where the turning vehicle must yield to oncoming traffic) is not advisable because the driver's attention is focused primarily on the oncoming traffic, and not on pedestrians who may be crossing to the left. In this situation, drivers frequently make the left turn and then deal with pedestrian cross-traffic, creating safety risks to the pedestrians and blocking oncoming traffic if the vehicle must wait for pedestrians to clear.

Table 1. Impact of Turn Restrictions on Addison and Center Destinations

Destination	Location	Impact of Turn Restriction
Center Street Garage	Entrances on Addison and Center between Shattuck and Milvia	Access to the Addison St. entrance would be unchanged from the current condition, since northbound left turns would still be allowed from Shattuck East to Addison. Northbound vehicles on Shattuck could access the Center St. entrance by (1) turning left on Addison, then left on Shattuck West and right on Center, or (2) turning left on Allston, then right on Milvia and right on Center.
Addison Street Arts District	Addison between Shattuck and Milvia.	Access to destinations in the Arts District (e.g. Berkeley Repertory Theatre, Freight & Salvage) would be unchanged from the current condition, since northbound left turns would still be allowed from Shattuck East to Addison.
Allston Way Garage	Entrances on Allston and Center between Shattuck and Milvia	Access to the Allston Way entrance would be unchanged from the current condition. Inbound vehicles that would otherwise use the Center St. entrance would likely shift to the Allston entrance. However, as noted earlier the northbound left turn from Shattuck to Center does not currently function well, so this shift would have other benefits.
Berkeley Art Museum	Center/Oxford (north side of Center)	Southbound vehicles on Shattuck cannot turn onto Center. However, because the museum's drop-off zones will be located on the west side of Oxford and the north side of Center, it will be more convenient for southbound vehicles to turn left at University and right at Oxford. Vehicles turning from Shattuck onto Center would have to do a U-turn to access the drop-off zones.
Proposed hotel at 2129 Shattuck	Center/Shattuck (north side of Center)	Southbound vehicles on Shattuck cannot turn onto Center. However, because the hotel's drop-off zone is proposed for the north side of Center, it will be more convenient for southbound vehicles to turn left at University and right at Oxford. Vehicles turning from Shattuck onto Center would have to do a U-turn to access the drop-off zones.

- At Shattuck West and Center, the curved roadway would make it more difficult for left-turning drivers to see both lanes of oncoming traffic, particularly if another driver is turning left in the opposite direction. In addition, a southbound left turn at this intersection would function poorly because of the limited space for cars to wait between Shattuck West and East (which is also a problem for existing left turns at this intersection).

As discussed in Table 1, staff expects the inconvenience to drivers heading for destinations on Center and Addison Streets to be fairly minor.

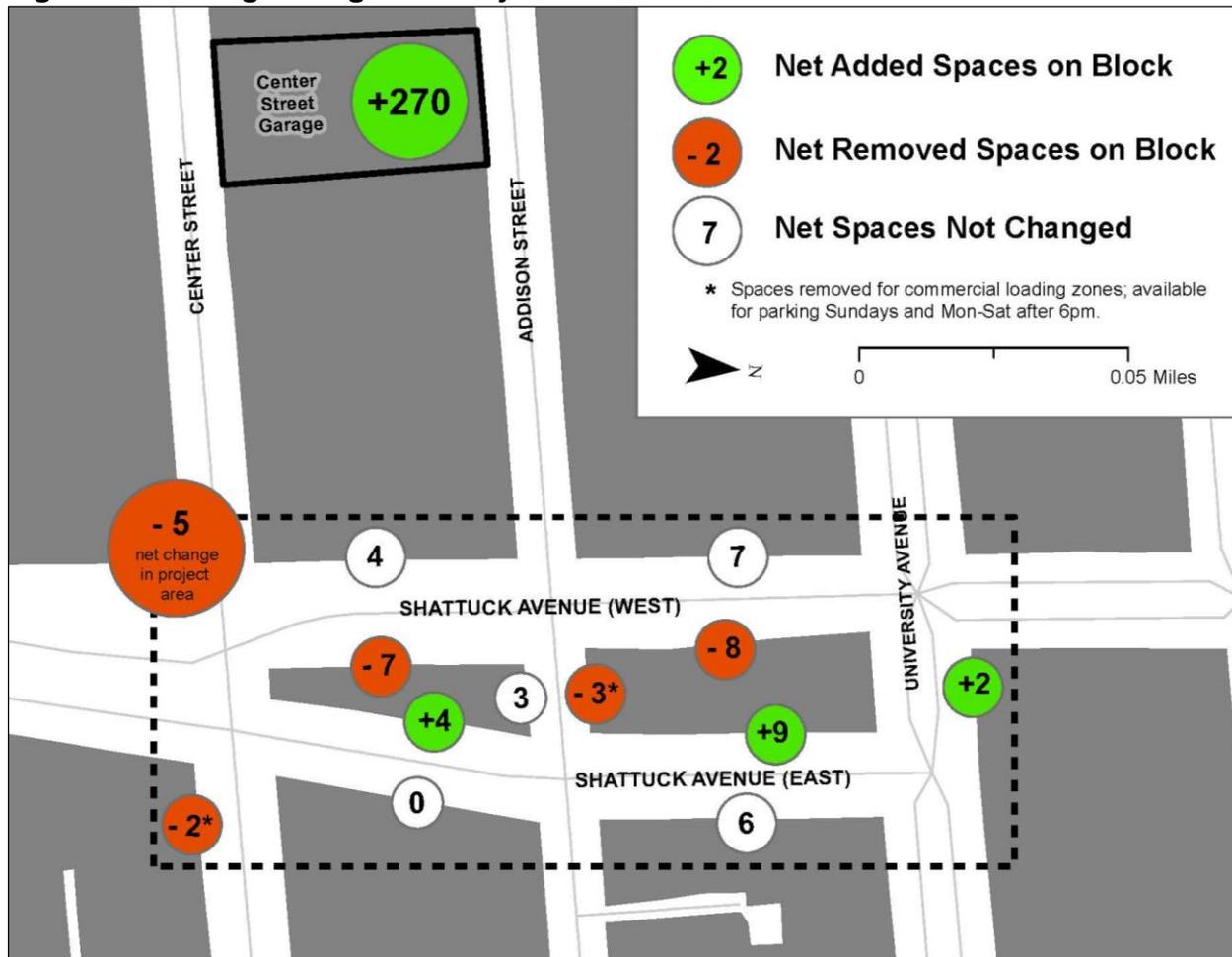
On-Street Parking Changes

Figure 3 shows the proposed changes in parking supply on each block face within the project area. The biggest changes would occur on Shattuck West and East between Center and University. In order to accommodate four traffic lanes on Shattuck West, it is necessary to remove the 15 on-street parking spaces along the east side of Shattuck West. Parking would be removed from the east side rather than the west side because this results in a better alignment of the roadway, due to the BART stairs at the southwest corner of Shattuck West and Addison, and the geometry of Shattuck north of University. In addition, because the east side has lower pedestrian volumes, removal of parking on that side would impact fewer people.

The design team investigated several options to maintain these parking spaces, including having only one northbound lane, and having parking spaces recessed into the existing sidewalk between street trees. The single northbound lane would cause excessive congestion at Shattuck and University (see Attachment 5, p. 14, Alternative 4), and the recessed parking option would substantially increase the project cost while yielding only 5 parking spaces per block and narrowing sidewalk widths (see Attachment 6).

The loss of parking on Shattuck West would largely be offset by angled parking on Shattuck East and by 2 new parallel spaces on the north side of University, where there is currently a dedicated right turn lane. However, the project also converts a total of 5 parking spaces on Addison and Center to loading zones in order to replace loading zones being removed in other locations. In sum, the current design results in a net loss of 5 parking spaces within the project area.

Given that 270 public parking spaces are being added in the immediate vicinity at the Center Street Garage, and given that the goBerkeley program has been demonstrated to effectively manage the on-street parking supply in the Downtown, staff believes the loss of 5 on-street parking spaces is acceptable. In addition, SOSIP Policy 1.18 states that a net loss of parking due to SOSIP improvements is appropriate once “parking & transportation demand management programs are implemented and attain a target of one vacant on-street parking space per block face (about one vacant space for every ten spaces [the number achieved by goBerkeley]) during peak demand under typical conditions.”

Figure 3. Parking Changes in Project Area

Pedestrian “Buffer” along East Side of Shattuck West

Removal of the parking spaces along the east side of Shattuck West presents a design challenge, in that parking spaces typically provide a visual and psychological buffer between the sidewalk and moving traffic, increasing pedestrian comfort. The project team has investigated several options for introducing landscaping elements along the edge of this sidewalk to maintain an adequate buffer, including new street trees, light poles, various types of planters, benches, and bicycle racks. One of the issues still under discussion is whether fixed seating is appropriate given the potential for loitering, panhandling, and other problematic behaviors. Water usage is also being considered. The design team will continue working with adjacent stakeholders and the Downtown Berkeley Association to refine the design of this buffer.

Commercial Loading

Loading zones in the project area are shown in Attachment 7. The project would remove 2 existing loading zones, but replace these in the immediate vicinity. Merchants in the project area have expressed concerns that: (1) removal of traffic lanes will cause double-parked delivery vehicles to have a greater impact on congestion; and (2)

removal of specific loading zones will adversely impact businesses currently relying on those zones.

Staff has conducted observations of loading activity in the project area and collected data on duration, type of vehicle, frequency of double parking, and whether loading zones were being actively used for loading or just as parking spaces. Staff's main finding was that much of the time, loading spaces are being used for general parking rather than loading, and that better enforcement, along with metering of loading spaces, is likely to be most effective in reducing double parking and ensuring that loading zones remain available for commercial deliveries.

Transit

By removing the need to turn onto University, the project reduces delays for northbound traffic from Allston to University by about 20 percent (25 seconds). This will help improve on-time performance for AC Transit buses passing through the corridor. In addition, as noted earlier, a key element of the project is the creation of a "transit plaza" on the east side of Shattuck between Center and Allston, across from, and with design treatments similar to, the BART Plaza. This feature has several important benefits:

- Reinforce (visually and functionally) this block of the Downtown as the City's major transit center.
- Allow easier transfers between bus and BART by moving the stop for several AC Transit lines one block closer to the BART entrances, with one less street to cross (Center). The
- Allow easier transfers between buses by consolidating all north- and westbound buses on the same block.
- Enhance the appearance and "sense of place" of the Downtown core by complementing the design features of the BART Plaza (especially trees, lighting, paving, and high-quality bus shelters).³

The design team has coordinated closely with AC Transit in the design of this project. In particular, there was extensive discussion regarding where the 4 northbound bus lines needing to use Shattuck West should stop. The team investigated several options for a bus boarding island between Center and Allston, but these were determined to be infeasible and/or inferior to the current design.

The team has conducted modeling of traffic gaps and queues on this block for the current design, and the modeling shows there will be sufficient opportunity for buses to pull out of the new stop on the far side of Allston in order to proceed on Shattuck West. As the design work proceeds, the team will be investigating the use of queue jump lanes and transit signal priority to further enhance bus operations.

³ Some of these enhancements are subject to the City securing required funding. The City has requested funding from the Alameda County Transportation Commission for transit center improvements.

Attachments:

1. 35% Design Plan (Signage/Striping)
2. 35% Design Plan (Landscaping)
3. Pedestrian Master Plan Excerpt Regarding Project
4. SOSIP Excerpt Regarding Project
5. Traffic Study
6. "Bulb-In" Parking Option (Shattuck West between Addison and University)
7. Commercial Loading Zones