

Transportation Commission

March 22, 2017

Item 5A - Recommendation

Approve Design Concept for Cross Alameda Trail Gap Closure on Atlantic Ave. between Webster St. and Constitution Way

Background

As early as 1991, the City Council began enacting policies, via the General Plan, to “Pursue opportunities to utilize the corridor of the former Alameda Belt Line railroad for transit, bicycle and pedestrian transportation.”¹ Since then, the City has worked to implement what is now called the “Cross Alameda Trail” (CAT) in this corridor. Today, there are two segments of the CAT under development with funding from grants. The Transportation Planning Department, in coordination with the Public Works Department, is implementing the section along Ralph Appezato Memorial Parkway (RAMP) from Main Street to Webster Street and the Recreation and Parks Department is developing the Jean Sweeney Park segment (from Constitution Way to Sherman Street). Once built, these sections together will create a 1.5-mile trail from Main Street to Sherman Street that is completely separated from cars and will likely attract a large number and diversity of people, including children, people less comfortable riding, and seniors. The entire CAT, when complete, will be a major east-west walking and bicycling corridor, stretching from the Seaplane Lagoon at Alameda Point to Tilden Way for a total of 4 miles (Exhibit 1).

In the middle of the two approved, funded and designed segments of the trail is a crucial one-block gap along Atlantic, between Webster and Constitution, called the CAT Atlantic Gap. City staff first brought the CAT Atlantic Gap project to the Transportation Commission in November 2015, when a short briefing was provided. The initial recommended concept was brought to the TC in January 2016. It included a two-way protected bicycle lane (also known as cycle tracks) using the curbside eastbound travel lane, maintained the existing sidewalk on the southern side of the street for pedestrians, and eliminated the eastbound bus stop. AC Transit spoke at this meeting and requested that the bus stop be restored. The TC approved this concept in general, while also asking that further data and details be brought back to the TC, along with a refined design. The TC comments included that staff work collaboratively with AC Transit to restore the bus stop, further study the traffic impacts, and propose safety improvements to address the conflicts between bicyclists and right-turning vehicles at Constitution Way.

In March 2016, City staff came back to the TC with a project status update and a request to approve submittal of a grant application, with the Housing Authority as lead, which would include the midblock crossing component of the CAT Atlantic project. The TC provided this approval, however the funding was not received, as the Housing Authority later determined that it needed to withdraw its application.

Over this past year, staff have dedicated much time to working with stakeholders, including AC Transit, and to analyzing the options for providing a high-quality, safe,

¹ Policy 4.1.7.d from the Transportation Element of the City of Alameda General Plan (2009)

comfortable connection though this complex 500-foot block segment, that will meet the needs of people using CAT. Working with its design engineering and traffic analysis consultants, the project plans have been refined and improved, and the entire area has been surveyed. Staff has conducted outreach to internal and external stakeholders, and ensured that the project will connect to the neighboring CAT segments, as well as other city bicycle and pedestrian facilities. The recommended design concept, and one alternate option, presented here are the culmination of this extensive planning, design and outreach work.

Discussion

Planning Context

There are a variety of competing transportation priorities in the project area, and the TC has previously provided guidance on how to balance multiple priorities. The Transportation Element (TE) of the City's General Plan identifies all three of the streets that will be modified by the CAT Atlantic Gap project (Atlantic, Webster and Constitution) with a street functional classification of "Regional Arterial," each with multiple modal priorities. As adopted by the TC², the top modal priority of this street classification is Transit (either Primary or Secondary). On Atlantic Ave. and Constitution Way, the second priority is the Bicycle mode, and the third is Pedestrian. On Webster St., south of Atlantic only, the second priority is Pedestrian, since it is a commercial district, and the third is Bicycle. As for all street classifications in the City, automobiles are the lowest level in the hierarchy.

The TE classifies these streets in the project area as truck routes: Webster, Atlantic, RAMP, and Constitution (to the north of Atlantic only). Truck drivers must use the truck routes for as much of their trip as possible. While the TE states that "sufficient turning radii at intersections frequented by heavy trucks" and "sufficient travel lane width" is needed, it also acknowledges that these needs "may conflict with transit, pedestrian and bicycle design goals" and the "the street design process will have to balance all of these needs depending on the frequency of truck use and the overall goals of the specific street segment."

Both the City's Bicycle and Pedestrian Master Plans include CAT as planned pedestrian/bicycle pathways along Atlantic, connecting to the planned facilities to the east and west.

Existing Conditions: Constraints & Challenges

This short CAT Atlantic Gap segment has many complexities and constraints that have made designing a high-quality walking and bicycling facility here a challenge. These include:

- **Right of Way:** Unlike on the RAMP and Jean Sweeney segments of the trail, there is no wide continuous right-of-way here, since the land on the southern side of Atlantic was developed as the Webster Square shopping area. While the City does have easements in this block that preserved an area for a future bicycle/pedestrian

² "Thresholds of Significance and Procedures for Ranking Modes Where Multiple Priorities Are Identified," *Recommended by the City of Alameda Transportation Commission, April 22, 2009.*

path, they are limited. The easement area to the west of the driveway, near the Walgreen's parking lot, is a landscaped berm, and building in this area would require removing over half of this landscaping, constructing a retaining wall and possibly moving a fire hydrant, which are costly. To the east of the driveway, the easement is narrower and there are utilities and doorways at the backs of the buildings that encroach into this area.

- **Bus Stops:** There are bus stops on Atlantic in both directions. The Line 31 and the new Line 19 stop at the eastbound bus stop, near Webster (the Estuary Crossing Shuttle also stops here, however this service will end by the end of June 2017). Near Constitution, in the westbound direction, there is a stop for the Line 31 and the City's Paratransit Shuttle. As well, there is a heavily-used, fairly newly improved, bus stop on Webster (southbound) at RAMP, which is quite close to the intersection creating constraints for the east-west bicycle/pedestrian crossing of Webster.
- **Driveways:** There are two busy driveways in this block, one on the north to access the Housing Authority and Independence Plaza (a senior living complex), and the busiest one, on the south, at the entrance to Webster Square (where Walgreens, Starbucks and Kinkos are located). While this southern driveway is one of four driveways to access this shopping area, left turns are permitted in and out of the driveway and are highly valued by the owner of this property.
- **Utilities:** There are a large number of utilities, vaults, boxes, signal poles, etc. that must be designed around, to minimize the extremely high cost of moving utilities. In order to develop accurate and realistic designs, the entire area was recently surveyed (above and below-ground) to fully understand the constraints.
- **Busy Intersections:** Atlantic/Webster and Atlantic/Constitution, which bookend the CAT Atlantic Gap, are two of the busiest intersections in the City, and Atlantic/Webster is the busiest transit intersection in the City.
- **Illegal Midblock pedestrian crossings:** Pedestrians, including seniors from Independence Plaza, regularly cross midblock between the two driveways, even though there is no legal crosswalk at this location.
- **Truck routes:** As noted above, Atlantic Ave. is a truck route, as is Webster and Constitution (north of Atlantic).
- **Cost:** Unlike the other two segments of the CAT, this segment is not grant-funded, and so new funding had to be found for this critical linchpin project.

Guiding Design Goals

In approaching the development of this revised conceptual design, City staff have attempted to address many competing demands, in addition to the complexities described above. The City used the following goals and principles in developing its recommended design.

1. Create a safe and convenient facility that people of all ages and abilities will feel comfortable using for walking and bicycling.
2. Minimize conflicts between people walking/bicycling and motorized vehicles at intersections and driveways, especially right turning movements.
3. Create seamless connections to the CAT segments on either end of the project.
4. Create connections to the north/south bikeways that connect to the Posey Tube crossing and the College of Alameda.
5. Separate people bicycling from those walking, as feasible, to reduce conflicts and increase safety and convenience
6. Maintain (and improve, as feasible) the bus stops on Atlantic, especially the eastbound bus stop which the new Line 19, requested by the City, is now using.
7. Minimize use of City's easement, given delays this might cause to the project.
8. Minimize impacts on access to businesses.
9. Improve the situation of illegal midblock crossings regularly being made by seniors and others, as feasible.
10. As applicable, use the latest design standards for protected bicycle lanes and protected intersections³
11. Accommodate the needs of people driving and trucks along the corridor, but not to the detriment of those walking, bicycling and using transit.
12. Slow auto traffic approaching this block of Atlantic from the west (via RAMP), and turning cars.
13. Minimize reductions in number of auto travel lanes.
14. Maintain a minimum 11' outside auto travel lanes.
15. Minimize overall project cost, as feasible and without compromising safety.

Recommended Conceptual Design and Alternate Option

Since City staff began working on this project in late 2015, City staff and consultants have considered and studied this one block segment carefully and explored numerous options. Staff, with consultant support, collected and reviewed the traffic, right-of-way and utility data, and the easement information; observed the current transportation patterns; and met with stakeholders, to find a solution that would work within all of the existing conditions and constraints, and at the same time provide as much separation between people biking and walking and cars/trucks as possible, to create a safe and comfortable experience. Staff evaluated multiple approaches:

- A. combined sidewalk-grade two-way protected bicycle lanes between Webster and the driveway, with an in-street two-way protected bike lane, between the driveway and Constitution;
- B. two-way protected bike lane that reconfigured Atlantic to leave all through travel lanes, but removed the left turn pockets at each intersection;
- C. two-way protected bike lane that reconfigured Atlantic to remove one through traffic lane, but retain the left turn pockets at both intersections;
- D. multi-use trail at sidewalk grade; and
- E. standard bicycle lanes.

³ Including, but not limited to: *Urban Bikeway Design Guide (second edition)* by National Association of City Transportation Officials; *Massachusetts DOT Separated Bike Lane Planning and Design Guide (2015)*; *Separated Bike Lane Planning and Design Guide* by FHWA (2015); *Evolution of the Protected Intersection* by Alta Planning + Design (2015)

After thorough study and analysis, and extensive stakeholder outreach, the City is recommending Option 1 (see Exhibit 1), which is essentially (A) in the above list. The City is no longer recommending the option previously brought to the Transportation Commission in January 2016, which was essentially (C) above, primarily because of the goal to retain the eastbound bus stop on Atlantic.

Option 1 meets almost all of the guiding goals and principles noted above. It also addresses the concerns expressed by the TC and AC Transit regarding the previous design. This design has the following attributes, many of which can be seen in Exhibits 1, 4, 5 and 8:

Major Design Elements:

- Bicycle Corridor: Two-way, ten-foot wide, protected bicycle lane on the south side of Atlantic, between Webster and Atlantic.
 - Proceeding from east to west, the bikeway facility will change grade, as follows: Between Webster and the southern driveway, this bikeway will be at street level near the intersection, and then will ramp up to sidewalk level just east of the north/south pedestrian crosswalk at Atlantic. The bikeway will continue at sidewalk level, between the bus stop and sidewalk, until about 40 feet east of the driveway, where it will ramp down to again be at street level, with a 3-foot striped barrier with 3-foot high lane delineators, separating the people biking from the motorized vehicles. Having the protected bike lane at sidewalk-grade, rather than street level, next to the bus stop allows for easy, flat pedestrian crossings between the sidewalk and bus stop, and avoids taking space for curb ramps and creating drainage issues.
- Pedestrian Corridor: Continuous 6 to 7.9 foot sidewalk along the south side of Atlantic.
 - The pedestrian crossing at Webster is about ten feet south of the current location.
 - The sidewalk, except for near the Webster corner, will remain in the same location that it is currently. From east of the driveway to Constitution, there are no changes to the sidewalk.
 - For pedestrians who want to cross Atlantic heading north, there is a 10'x10' refuge area, to the north of the protected bicycle lane, for waiting for the signal.
 - At Constitution, the area for the east-west curb ramp is extremely constrained due to utilities. In order to have an ADA-accessible ramp here, a very short segment of sidewalk must be closed off for pedestrians that want to continue south on Constitution. However, there is already an existing pathway around the utility box which can easily be used instead.
 - All curb ramps and crossings of the protected bike lane are ADA accessible and include tactile warning domes.

- Intersection Crossings:
 - Pedestrian and bicycle crossings are separated, following best practices for protected bike lanes and intersections⁴, which reduces conflicts between the modes which travel at different speeds.
- Intersection Safety:
 - The designs have features of “protected intersections” which include raised corner safety islands, which create a protected area for people biking to wait for the traffic signal. These also tighten the turning radius, so that turning cars are moving more slowly, creating a safer condition for people walking and biking. These islands will have vertical curbs, with highly visually painted/textured aprons around them. These corners are designed so that trucks and buses may use these apron areas for their wider turns, while cars do not.
 - Protected left turn signals will be installed on Atlantic at Constitution, to reduce conflicts between autos and bicyclists, and will also help pedestrians. (There are already protected left turns at Webster and Atlantic.)
 - Signage at the two intersections and driveway will warn turning vehicles to watch for bicyclists and pedestrians.
 - The bicycle crossings at the Webster and Constitution intersections are painted green, highlighting that bicycles are crossing here. The pedestrian crossings are high visibility ones.
 - Hatched green striping is used at the protected bicycle lane crossing of the southern driveway, which is standard for indicating a conflict zone.
 - The protected bike lane is at sidewalk-grade through the driveway, so cars will need to proceed more slowly as they cross the bikeway to enter/exit the shopping area.
- Bus Stop (Eastbound):
 - The City worked closely with AC Transit to retain the eastbound bus stop and ensure that it meets current standards.
 - There is an 8-foot wide by 60 foot long bus waiting area, at the same grade as the protected bike lane and sidewalk.
 - Two striped crossings across the protected bike lane, lead pedestrians to entrances to the bus stop pad.
 - There is a railing between the bus waiting area and the protected bike lane, which will minimize conflicts between people walking to/from the bus stop and those biking.
- Changes to Auto Travel Lanes (see Exhibit 8):
 - This design retains all auto travel lanes on Atlantic, except for one of the three eastbound lanes between the southern driveway and Constitution, which will be utilized by the protected bicycle lane. Note that this is the area where the City’s easement area is very limited, so there were few other options for the facility in this section.

⁴ Including, but not limited to: *Urban Bikeway Design Guide (second edition)* by National Association of City Transportation Officials; *Massachusetts DOT Separated Bike Lane Planning and Design Guide (2015)*; *Separated Bike Lane Planning and Design Guide* by FHWA (2015); *Evolution of the Protected Intersection* by Alta Planning + Design (2015)

- The center median on Atlantic between the southern driveway and Webster Street is removed, to make room for extending the curb to the north for the bikeway and widened bus stop.
- Most auto travel lane widths are reduced, some to 10 feet, however outside lanes are a minimum of 11 feet.

Other Design Elements:

- Webster Bus Stop (at southwest corner of RAMP/Atlantic):
 - This bus stop will be re-configured, as part of the combined CAT RAMP/Atlantic Gap project, to remove the step up to the bus stop, and create a fully level corner plaza that seamlessly connects to the bus stop. With the widening of the crosswalk, to include separated bicycle and pedestrian crossings, changes were needed to allow for adequate length for the bus to stop to not block the crosswalk, and also to maintain ADA access.
- North/South Bike/Ped crossings
 - The bicycle crossings were added at both Atlantic and Webster, to connect the CAT to the north/south bikeways that continue to the College of Alameda and to the Posey Tube (the only bike/ped estuary crossing on the west end of Alameda besides bus transit).
- Easement and retaining wall
 - A minimal amount of the City's easement area near the corner of Webster is needed for this design. It is about 10 feet wide at its maximum, and a retaining wall will be built here, at the back of the sidewalk. Some landscaping will be removed.

Midblock Pedestrian Crossing

For many years, people have been crossing Atlantic Avenue in the middle of the block, where there is no legal crossing, between the 186-unit residential senior complex, Independence Plaza, and the Housing Authority building on the north, and the Webster Square shopping area on the south. Given the immediate proximity to the project area, staff studied and evaluated these illegal crossings and considered possible design solutions. Ultimately, staff is recommending against installing a midblock crossing, and will instead encourage people to use the existing signalized crossings at either end of the block. However, because several stakeholders have requested a crossing, staff is presenting its findings, the pros and cons, and a second conceptual design, Option 2, with a midblock crossing (see Exhibits 3, 6 and 7). The traffic analysis, described below, also considered the impacts of Option 2.

Staff conducted the following analysis to understand the current conditions:

- Pedestrian Counts
 - Counts of pedestrians crossing midblock between the northern and southern driveways were conducted in 2015, 2016 and 2017. At peak hours, as shown in Figure 1 below, all but one of the counts had between 8-17 total pedestrians, with 2-12 of these being seniors.
 - In the 2017 eleven-hour count period, between 7:00am and 3:30pm, there were one or more pedestrians crossing in 30 of the 34 15-minute periods.

Figure 1: Midblock Crossings on Atlantic Ave, between Webster and Constitution

Year	Period	Peak Hour	# of Peds	# of Senior Peds	Total # of Peds
2015	AM	8 – 9 AM	12	not counted	12
2015	PM	4:15 – 5:15 PM	8	not counted	8
2016	AM	8 – 9 AM	9	2	11
2016	Midday	12 – 1PM	2	3	5
2016	PM	4:15 – 5:15 PM	1	8	9
2017	11-hr Count	11:45 – 12:45 PM	5	12	17

- Collision Analysis
 - Staff reviewed the collision history for the past ten available years (2007-2016) and found one pedestrian-involved collision. Given this record, this crossing is deemed to be relatively low risk for pedestrians crossing here.
- Anecdotally, City staff have heard from Housing Authority staff, whose building is at this location, and also observed ourselves, that people regularly cross here. This includes able-bodied people, including seniors, and those using walkers. Those with walkers use the driveways as ramps. Pedestrians will sometimes wait on the existing 4-foot median, until there is a gap in traffic when they can cross.

Staff considered three types of midblock crossings in this location, all of which included, at base level, striping a crosswalk and signage: (1) rectangular rapid flashing beacon or “RRFB” (as have been installed around Alameda, including many on Park Street), (2) pedestrian hybrid beacon (not currently used in Alameda or the East Bay), and (3) full traffic signal.

There are no warrants for striping a midblock pedestrian crossing, as there are for traffic signals, and so staff with consultant support used a Federal Highway Administration (FHWA) Study⁵ on marked versus unmarked crossings, and the California Manual on Uniform Traffic Control Devices (MUTCD) to guide whether or not to recommend a midblock crossing here. The FHWA Study recommends, regarding pedestrian volumes, that a minimum of 20 general pedestrian crossings or 15 senior and/or child pedestrian crossings take place during a peak hour before placing a high priority on the installation of a marked crosswalk alone. The California MUTCD includes the following pedestrian safety factors that may be considered: auto speed limit, visibility, vehicular volumes, vehicular turning volumes, distance from adjacent signalized intersections, roadway width, historical collision data, and more.

While some of the above factors would support a midblock crossing, none of the staff-identified three key factors were met for the most minimal treatment of an RRFB at this location:

1. Pedestrian Volumes: There were 17 pedestrians (with 12 being seniors) in the most recent peak hour count (below the 20/15 guidance described above);
2. Collisions: There was one pedestrian-involved collision in ten years; and
3. Distance to other Signalized Crossings: This midblock location is less 300 feet from both of the two nearest signalized intersections.

⁵ *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines*, FHWA, September 2005

Ultimately, staff considered the pros and cons of installing or not installing a midblock crossing (as described below, for each option), and recommend design Option 1, *without* a midblock crossing, primarily because the three key guidance criteria were not met.

Option 1: NO midblock crossing

Pros	Cons
<ul style="list-style-type: none"> • Crossing does not meet City guidance for installing a midblock crossing (pedestrian volume, collision history and distance to nearest signalized crossing). • Pedestrians are safest using the existing signalized intersections at Webster and Constitution. • Pedestrians are more alert for auto traffic when crossing without a marked and lighted crossing. • Installing a midblock crossing may not increase safety, if pedestrians cross without pushing button for the light, and/or cars do not yield. 	<ul style="list-style-type: none"> • Pedestrians will most likely continue to cross midblock, without the aide and possible safety benefit, of marked crossing and warning lights. • Without the crossing, there is no benefit of possibly slowing cars making left turns into driveway, allowing motorists more time to see bicyclists and pedestrians on the CAT. • Pedestrians in walkers will not be channelized to a curb ramp and will continue to use the driveways as ramps resulting in conflicts with vehicles.

Option 2: Install midblock crossing

Pros	Cons
<ul style="list-style-type: none"> • Formalizes the direct path that seniors and others are now using to access Walgreens and other businesses in the shopping area. • Pedestrians in walkers will use pedestrian curb ramps, rather than driveways as ramps, when crossing, thereby reducing conflicts with vehicles. • May increase pedestrian crossing safety and reduce near-misses. • May increase safety of left turn movements into driveway, by slowing cars before they turn and permitting more time to see bicyclists and pedestrians on the CAT. 	<ul style="list-style-type: none"> • Does not meet City's key guidance criteria (pedestrian volume, collision history and distance to nearest signalized crossing). • May not increase safety, if pedestrians cross without looking for cars and without pushing button for the light. • Motorists may not expect a midblock crossing here, and may therefore be less likely to yield to crossing pedestrians. • Queueing cars will sometimes extend beyond the crosswalk and therefore they may stop in crosswalk, blocking the crossing.

Traffic Analysis and Data

A multi-modal level of service (LOS) transportation analysis was conducted for both Options 1 and 2 (Exhibit 9) to ascertain how the changes from this project would be experienced by people bicycling, walking and driving, as compared to existing conditions. Future (2040) cumulative project impacts were also analyzed, as data allowed. While the City is moving away from using LOS, particularly auto LOS, and towards vehicle miles

traveled (VMT) analysis, the auto LOS data was developed and used in the development of the recommended design concept and to provide the TC with data it had previously-requested. Overall, the data shows that the project is beneficial to those bicycling and walking, and has a minimal negative impact on those driving, as shown below.

Option 1 (without midblock crossing)

- Bicycling: The analysis generally shows improvements in the bicycle intersection LOS for both intersections. (It should be noted that this analysis does not look at changes between intersections, and is very limited in evaluating the benefits of protected intersections.)
- Pedestrian: The pedestrian LOS would remain the same, with the project, except for at Constitution, where the Atlantic Ave crossing would be shortened with the removal of an auto travel lane, which improves the LOS for this leg.
- Intersection vehicular LOS
 - Webster/Atlantic: Given that the project does not include any travel lane or traffic signal changes at this intersection, there are no changes to the delay here.
 - Constitution/Atlantic: The project would add 1 second of delay in the AM peak hour, and 7.5 seconds of delay in the PM peak hour. For the 2040 scenario, the project would add 2 and 13 seconds, respectively.
- Arterial vehicular LOS
 - This measure of average speeds is a combination of travel speeds and delays at the intersections.
 - For the eastbound direction, the delays would increase, creating a situation similar to, but slightly better than, the current speeds in the westbound direction. The current speed of about 10 mph in the AM and PM peaks would slow to 7.7 and 5.9 mph, respectively.
 - In the year 2040, in the eastbound direction, the average speeds would decrease very slightly (0.5 to 1 mile mph reductions), as compared to the speeds seen with the project in current years.
 - There are no changes in the westbound direction in the current or future year, with this project, since the lane configuration remains the same.
- Vehicular Queuing
 - Webster/Atlantic: For the same reasons described above, there are no changes to queuing at this intersection.
 - Constitution/Atlantic: Given the reduction from three to two lanes, for half of a block in the eastbound direction, the queuing will increase for the combined eastbound through/right turn lane. The queuing will be higher in the PM than AM peak hour, but will still remain within the existing storage area for both periods. In the 2040 cumulative scenario, the queuing is anticipated to be even higher, but still within the existing storage area in the AM. In the PM, the model shows the storage area will be at capacity. One option, for the future, would be to restore the third eastbound lane by removing the center median and narrowing all of the lanes further, which would alleviate the queuing issue. Given the cost and lack of need for this today, this is not proposed at this time.

Option 2 (with midblock crossing)

- **Bicycling:** Same as Option 1.
- **Pedestrian:** Same as Option 1 (at the two intersections).
- **Intersection vehicular LOS**
 - Same impacts as for Option 1
- **Arterial vehicular LOS**
 - Similar impacts to Option 1, except very slight additional decrease in speeds due to the occasional delays that occur when pedestrians activate the midblock crossing lights, in both the current and future years.
- **Vehicular Queuing**
 - In this option, because of the addition of the midblock crossing, the queueing storage areas are shorter.
 - **Webster/Atlantic:** The one change to this intersection would be that the queue for the westbound through movement would extend beyond the midblock crossing by about 15 feet (less than one car) in the AM peak hour, possibly meaning that cars would stop in the crosswalk. In the 2040 cumulative scenario, when the queueing is anticipated to be even higher, this same queue would extend 50 feet in the AM peak (or 2 cars).
 - **Constitution/Atlantic:** The queueing area would be adequate in the AM peak hour, but would extend beyond the midblock crossing in the PM by about 80 feet (or 3 cars) in the eastbound through direction. In the 2040 cumulative scenario, in the PM, the model shows the storage area to be significantly above capacity, with queues extending about 170 feet (or 7 cars). The alternative of adding back a third lane is possible, as described under Option 1.

Counts

Pedestrian, bicyclist, and auto counts were conducted in the project area, in the AM and PM periods in 2015 (for details, see Appendix A of Exhibit 9). The TC requested this data at their January 2016 meeting, and, as summarized below, it shows that generally on Atlantic the auto traffic volumes are moderate; the pedestrian, bicycle and auto volumes are highest at the Webster/Atlantic intersection; and the bicycle volumes in the project area are low overall, presumably because there are no existing bicycle facilities in this corridor.

- **Pedestrians:** The total number of pedestrian crossings at Webster and Atlantic, the City's busiest transit intersection, was 250 for all legs in the AM peak hour and 175 in the PM. The Constitution and Atlantic intersection was less busy, with only 60 pedestrians in the AM peak hour and about 50 in the PM.
- **Bicyclists:** Not surprisingly, very few bicyclists are currently traveling along this corridor, since it is bounded by two busy intersections and there are no through bicycle facilities, although several terminate here. In a December 2015 count, the data show that there were 5 and 3 bicyclists, in the AM and PM peak hours respectively, traveling along Atlantic Ave. (Note that bicycling typically is lower in the winter months.) In an October 2015 count, at the Webster/Atlantic intersection, 17 bicyclists passed through the intersection in the AM peak hour, and 8 in the PM peak hour. At Constitution/Atlantic, there were fewer bicyclists, with 7 and 10 bicyclists using the intersection in the AM and PM peak hour periods, respectively. By dramatically improving the bicycling facilities in this corridor and developing the

full CAT, it is expected that the number of people biking in the project area will increase greatly.

- Autos:** The number of automobiles traveling along this one block of Atlantic was 1,000 in the peak hour, and the average daily traffic (ADT) is 10,000. At Webster/Atlantic, approximately 2600 vehicles passed through this intersection in the AM peak hour and 3000 in the PM peak hour. As for the other modes, the Constitution/Atlantic intersection was slightly less busy, with about 2000 autos in the AM peak hour and 2800 in the PM.

The TC also requested data on the right-turn auto movements in this corridor, due to concerns about conflicts between bicyclists and autos, especially at the Constitution/Atlantic intersection. Figures 2 and 3 below show the highest peak hour counts for the (free) right and left turns in the project area. The green arrows indicate turns, and thus conflicts, across the CAT bicycle and pedestrian crossings; the blue arrows show the turns across the new north-south separated pedestrian and bicycle crossings; and the yellow arrows indicate turns across pedestrian-only crossings.

Figure 2: AM Turns Across Bike/Ped Crossings: 7-9AM - Highest peak hour count for each turn (Oct/Dec 2015)

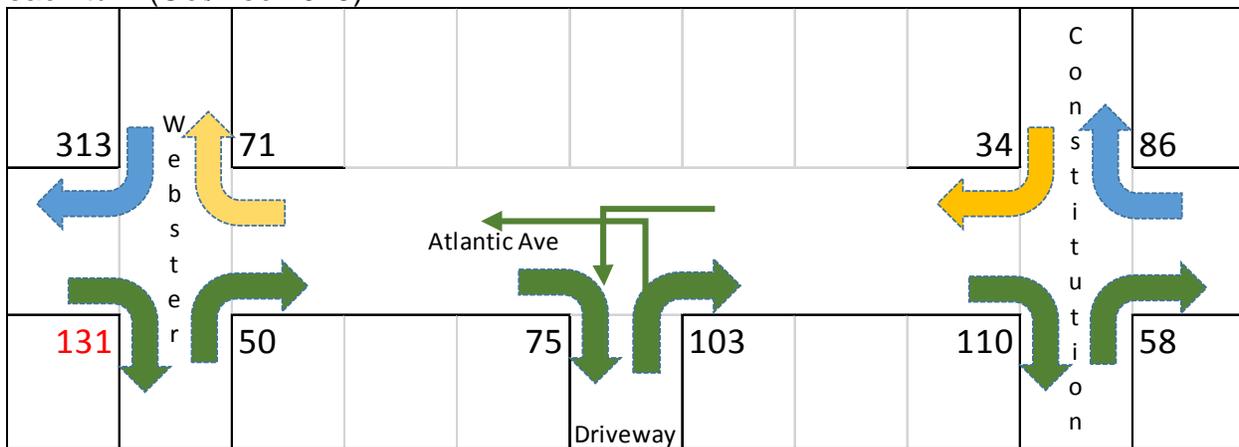
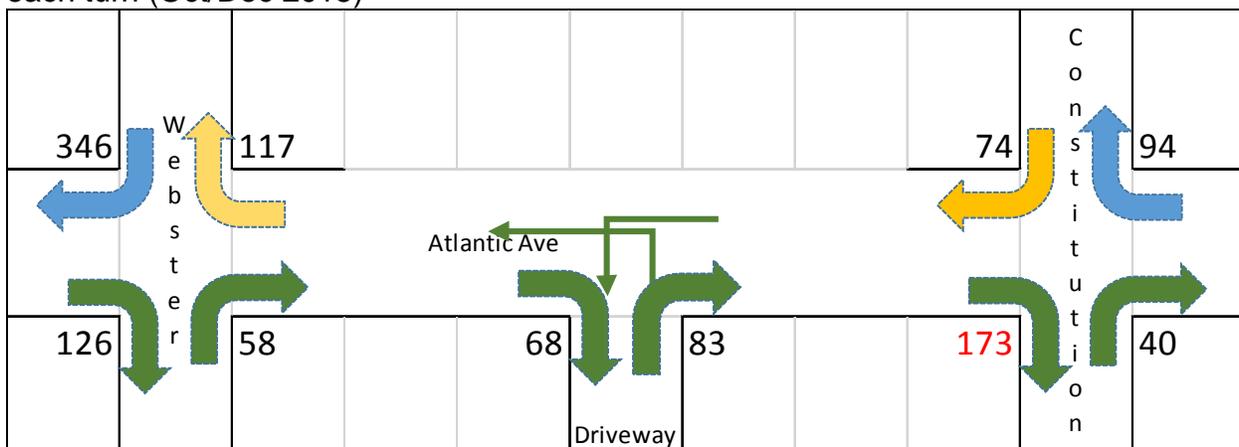


Figure 3: PM Turns Across Bike/Ped Crossings: 4-6PM - Highest peak hour count for each turn (Oct/Dec 2015)



The three corners with the highest volumes of right-turning motorists are: Webster to RAMP, RAMP to Webster, and Atlantic to Constitution. The recommended project design includes elements to slow right-turning motorists and make bicyclists and pedestrians more visible at these corners, including corner safety islands with vertical curbs and curb aprons, striped corner islands, signage alerting right-turning motorists to crossing pedestrians and bicyclists, and in some instances, positioning bicyclists ahead of motorists to increase their visibility.

Transportation Commission Input on Previous (Jan. 2016) Concept

Staff considered the Transportation Commission comments, concerns and questions raised at its January 2016 meeting on the previously-presented design concept, and all were addressed, as follows:

Commissioner Comment	Staff Response
<p>Data: Commission would like to see more extensive traffic analysis data, including: intersection LOS (with queing), volume counts (all modes, including all turning movements, and driveways). Also, clarify the meaning of “total delay” in hours, and number of “stops”, in the arterial LOS analysis.</p>	<p>Extensive multi-modal traffic analysis was conducted and results and explanations are included above and in the attached memo (Exhibit 9).</p>
<p>Barrier Design: Describe type of barriers that could be used for protected bike lane. Include any drainage issues and cost.</p>	<p>The design uses closely spaced 3-foot high lane delineators for the barrier. Given that these barriers are not solid, there will be no drainage issues. The cost is estimated to be under \$2000.</p>
<p>Intersection Design: Address conflicts between right-turning vehicles and cycle-track users from eastbound Atlantic Avenue to southbound Constitution Way. Consider using a bike signal, to separate all movements.</p>	<p>As described above, various features are being used to reduce these conflicts: a corner safety island to slow vehicles as they turn, placing waiting bicyclists ahead of the auto stop line to increase visibility, and signage warning turning vehicles to watch for bicyclists and pedestrians. With these features, a bike signal was not deemed necessary.</p>
<p>Easement area: Explain how staff considered using the easement area and the limitations of using it. There is so little room in the community, that all possible areas should be explored.</p>	<p>The City considered using the full easement, but given the placement of major utilities (including a fire hydrant) which would be expensive to relocate, and the need to provide an 8-foot wide bus pad, the alignment of a protected bike lane would not work well. This design, which uses a small amount of the City's easement near the Webster corner, also minimizes the removal of trees and landscaping.</p>

No shoulder: Concern about an auto breakdown where one travel lane is proposed (Webster to driveway).	The current recommended design concept maintains two lanes in each direction.
Bus Stop: Work with AC Transit on a mutually acceptable solution.	Staff worked very closely with AC Transit to retain the existing bus stops and provide a design that fully meets their standards.
Review of Emergency Services: Have the Fire and Police departments review the plans.	The designs have been reviewed by Fire and Police and there are no objections.
Midblock Crossing: What would this look like? What are the concepts for how it would work with protected bike lane?	A midblock crossing was studied in detail, as described above, but is not being recommended. However, Option 2 shows how this element could work with the protected bike lane.

Outreach

In developing the recommended design concept, staff met internally with other City departments and also with outside stakeholders, sharing the most recent design with each group. In addition to working closely with Public Works and AC Transit, staff shared the designs with Police, Fire, Alameda Municipal Power and ACI, and received and responded to their minor comments.

Staff presented the project to the full WABA Board on February 15 and also met with the Executive Director in the field to review the project. Staff contacted and met with the owner of the Webster Square shopping center, which includes the easement area. City staff have received comments on the design from the Housing Authority, which operates Independence Plaza and has its offices on this block of Atlantic Staff met with Bike Walk Alameda and Bike East Bay, and received their input. All of these entities have been supportive of the overall current design concept for the CAT, although the Housing Authority requested the midblock crossing be included in the design.

As well, for the March 22 TC meeting, staff mailed notices of this agenda item to all property owners and residents in a 300-foot radius of the project area.

Next Steps

Staff will combine the plans and implementation of the CAT Atlantic Gap project with the CAT RAMP segment (from Webster to Main). These two segments will be bid and constructed as one project. Staff anticipate the project will be bid in Fall 2017 and constructed by mid-2018.

Financial Impact

The cost estimate for constructing the recommended CAT Atlantic Gap project (Option 1) is \$970,000. Option 2 is estimated at \$1,113,000, with the difference being the cost of the midblock crossing (as an RRFB with a bulbout). The improvement work itself, to construct the new protected bike lane, improved bus stop and corner safety islands, (after site work

and demolition is completed), is estimated to cost between \$260,000 and \$310,000 for Options 1 and 2 respectively. After this, the largest single line item is the signalization work at \$270,000, which includes installing new protected left turn signals at Constitution/Atlantic, and relocating signals at both intersections (Webster/Atlantic and Constitution/Atlantic) to accommodate the relocated edge of curb, and the new crossings and curb ramps. While quite expensive, the Constitution/Atlantic signal work will improve safety by reducing conflicts between people walking and biking on the CAT and motorists, and is less costly and will have fewer auto traffic impacts than installing a dedicated bicycle signal here. In addition, given these designs are in their early stages, a 25% contingency was added to the construction costs, which may not all be utilized. As well, staff have built in the full project cost of internal and consultant construction management and support. Staff have identified Measure B/BB, Development Impact Fee, and CDBG (Community Development Block Grant) funds (the latter for the midblock crossing), for this critical project. An allocation for the project will be included in the 2017-2019 Capital Improvement Program budget, which will be brought to the Transportation Commission for review in April and approved by the City Council in June.

Environmental Review

In accordance with the California Environmental Quality Act (CEQA), this project is Categorically Exempt under the CEQA Guidelines Section 15301(c) Existing Facilities (Minor alterations to existing facilities including bicycle facilities) and Section 15304 (h) Minor Alterations to Land and the creation of bicycle lanes on existing public rights of way. On a separate and independent basis, the project is also statutorily exempt from CEQA pursuant to Public Resources Code Section 21080.20.5 (restriping of streets and highways for bike lanes in an urbanized area that is consistent with a bike plan). The City prepared an assessment of the project related traffic and safety impacts, and recommends a concept that alleviates potential vehicular traffic impacts and bicycle and pedestrian safety impacts. No further environmental review is required because the project fits within the above categorical and statutory exemptions that are specifically designed for these types of bicycle infrastructure projects in urban areas.

In accordance with the National Environmental Policy Act, this project is a Categorical Exclusion under 23 Code of Federal Regulations 771.117(c): activity (c)(3) Construction of bicycle and pedestrian lanes, paths and facilities.

Recommendation

That the Transportation Commission approve the design concept “Option 1 (without midblock crossing)” of the CAT Atlantic Gap segment on Atlantic between Webster and Constitution, for staff to implement in coordination with the trail segments to the east and west of this one-block segment.

Respectfully submitted,

Rochelle Wheeler, Transportation Planner

Exhibits

1. Cross Alameda Trail: Big Picture
2. Design Option 1
3. Design Option 2 (with Midblock Crossing)
4. Option 1 Design Detail: Webster St & Atlantic Ave Intersection + Signage
5. Option 1 Design Detail: Constitution Way & Atlantic Ave Intersection + Signage
6. Option 2 Design Detail: Webster St & Atlantic Ave Intersection + Signage
7. Option 2 Design Detail: Constitution Way & Atlantic Ave Intersection + Signage
8. Cross Sections on Atlantic: Existing and Proposed
9. Memo from Stantec: Multi-Modal Traffic Analysis with Appendix A only
(Appendices B, C and D available from City staff upon request)
10. Presentation for Transportation Commission Mar. 22, 2017 Meeting