

Bicycle Transportation and Safety - Impact of the Expo Line Phase 2

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The Exposition Right of Way has strong potential to be a “continuous viable bike path from Culver City to Santa Monica” and the most effective bicycle route from Culver City through West LA to Santa Monica. Given the increased energy costs and environmental concerns it is increasingly important that we make sure the potential of this bicycles route be preserved and realized.

There has never been a time when the impending need for reduced energy usage and cleaner, healthier modes of transportation has been more apparent. Los Angeles is one of the few major cities in the world that does not consider bicycles as a serious part of their transportation solution and yet the need to do so has now been made clear. It is also clear that the need is coming to our city very soon if it is not already here.

Bicycles have solved this need in most other countries for a long time and they have been proven to fit into an inter-modal system with rail lines very effectively. The route will not only allow bicycle travel over this critical connection, it will also make it easier for people to use bicycles to get to and from the proposed train stations. In addition, the bicycles can be taken on the train and used at both ends of the train journey to increase the viability of the whole system.

A bicycle path has been approved and funded on two segments down the Exposition rail right of way. There is a gap between these two segments that needs to be completed between Sepulveda and Centinella in order to create a truly viable bicycle transportation route from Culver City to Santa Monica and the beach.

The building of the Expo Light Rail along this route can help realize the potential of the route and/or help destroy this potential. The construction of the phase two Expo Light Rail will impact all three parts of this bicycle transportation corridor and mitigating elements need to be addressed in the EIR.

Why this Outline of Bicycle Impacts is Needed

It has been shown in the workshops given to date that the concerns related to bicycles have not been adequately addressed. In addition, when we look at the elements that were impacted in phase one, we see that better bicycle results could have been created. The elevated main station in Culver City is a case in point. There is no specific allowance for getting bicycles into the Culver City Station. The Bicycle path that is scheduled south of Washington along National ends at an intersection on National. Bicycle traffic onto eastbound path is forced onto pedestrian facilities. There is no bicycle connection into the station other than using pedestrian access. There is also no provision for bicycles to get from that part of the bike path to the other side of the station on Venice and National.

The manifest disregard for the needs of cyclists will prevail for the rest of the bicycle route along the Exposition Line, but also for those bicycle routes crossing the Exposition Line, if the points raised in this report are not acted upon. The detailed discussion of bicycle concerns starts at the Culver City Station and works down to the Santa Monica terminus.

Summary of the Major Impacts

Using the Expo Right of way for the light rail will change that route for bicycle use into the foreseeable future. These changes create conflicts with the bicycle use in and around that area. Here is a summary of the more significant conflicts that are created.

- Creates a major break in the bicycle path by using the Tunnel under the 10 Freeway for the rail line in Cheviot Hills.
- Creates bicycle at-grade crossing problems at each elevated rail crossing since there are similar concerns for bicycles crossing intersections that there are for a train.
- Creates problems getting bicycles into and out of the stations safely and efficiently when the stations are elevated.
- Creates a major, possibly permanent break in the bicycle route at the crossing from east of Sawtelle to west of Pico unless the proposed elevated Rail Bridge includes a bicycle bridge.
- The Colorado Avenue option in Santa Monica creates numerous changes in the surface streets and intersections that would have a very high probability of diverting traffic onto bicycle routes and increasing the frequency of bicycle lane violations and accidents.
- The Olympic Avenue option in Santa Monica creates bicycle access problems to the elevated station at 4th street and would impact the proposed bicycle bridge across the freeway at 7th Street.

All of the problems produced by the elevated rail sections can be addressed when the bicycle path follows the elevated path of the rail lines. At the same time, an elevated bike path requires multiple access ramps, as bicycles destinations are not limited to the stations

One positive impact is that the construction of the rail line in conjunction with the building of the bike path will create a corresponding cost reduction.

The details that follow take a close look at these and other impacts that the current plan would have on the realization of the concept of creating a “continuous viable bike path from Culver City to Santa Monica”.

Bicycle Path From Culver City to Exposition and Sepulveda

The best route for this would be down the raised right of way along National Blvd, through the existing tunnel under the 10 Freeway and along the right of way all the way to Sepulveda. The two options for getting the rail from Culver City to Sepulveda and the right of way have very different impacts on the bicycle path.

Option to Use Venice and Sepulveda for the Rail

This option would have one negative impact on using the right of way for a bicycle path. It would mean that the construction of the path would have to be done as a separate project with some cost increases.

This drawback is far out weighted by the benefit if this allowing the bicycle path to use the bridges and tunnels along that section. This would not only increase the utility of the path but also keep costs in those crossings to a minimum. From the bicycle point of view leaving the right of way for the bicycles would therefore be the preferred option.

It would still be necessary to address the bicycle access issues for the stations on Venice Blvd including the main Culver City Station as discussed below. However these would no longer be tied to the Bicycle Path so those issues can be considered separately.

It should be noted that using Venice and Sepulveda for the rail have not been considered as to the impacts on the bicycle routes. It is however known that the bicycle lanes on Venice would be left pretty much in their current state. Furthermore Sepulveda is not a preferred bicycle route. It would however be important to make sure the bicycle crossing at Palms has adequate bicycle safety features.

Option to Use the Expo Right of Way for the Rail

The bicycle path would start going west from Culver City on Venice next to Robertson and go down the Expo Right of Way from there. The details of how that starting point would work are critical to the success of that part of the bicycle route. The Culver City Station and the bridge across Venice will make a big difference to that starting point.

There are five key access elements to the start of the path as follows:

- Access from westbound Venice onto the bike path
- Access from the bike path onto Venice westbound
- Access from eastbound Venice onto the bike path
- Access from the bike path onto Venice eastbound
- Access from the bike path onto and out of the Train Station

Each one of these access points would need elements in the design to make them work for bicycles. Ignoring these detail would make it difficult to get on the bike path. How can you expect the path to be successful if it is difficult for riders to even start a journey on the route?

The nature of the rail bridge across Venice would have to facilitate all of these access elements.

The optimum solution would be to have the rail bridge include ramps for the bicycles that give access to both the station and to the eastbound Venice bicycle lanes. This would mean very little would be needed on the north side of Venice to complete the bike path access.

The other option would involve station access and the connection to the east bound Venice lanes by way of the light at Robertson. This would require that the rail bridge allow enough room on the north side of Venice to accommodate access to the Robertson light as well as full access to the westbound bike lane on Venice. Using the light at Robertson would require a more complex interchange for the start of the bike path that would require room on the right of way adjacent to Venice.

Without a bicycle bridge, the light at Robertson would also be a key access point for riders coming out of the Culver Station as well as for those wanting to connect with the bicycle route going East from the Culver City Station along National.

The cost difference between these two options has trade offs. Including the bicycle ramps in the rail bridge would be adding a lightweight extension to that bridge. The added space needed along Venice to allow bicycle access to the light at Robertson would increase the span of the full rail bridge by fifteen to twenty feet. That would in turn increase the cost of that bridge. Evaluating the trade off between these two cost factors would be needed in light of the bicycle ramps providing a superior solution.

West of Venice Blvd.

The stretch from Venice to Palms Ave would be kept on the right of way as a bike path. The light rail would not appear to impact this stretch provided the bicycle path is on the south/west side of the line. This would maintain access to the bike path from the adjacent neighborhoods. The impact of the rail line would start again at the crossing over Palms.

The bridges across Palms/National and at Motor Ave will need to be rebuilt for the light rail. If that rebuilding means these bridges would no longer be available for the bike path then that would be a tremendous impact on the bike path. These impacts include:

- Downgrading the path to a bike lane.
- Exposing the bicycles to safe crossing issues at both National/Palms and Motor Ave.
- Impacting car parking along National.
- Creating safe crossing issues at the transitions at both ends of the bicycle path segments.

Building lightweight bicycle bridges along with the rail bridges would be the best option to mitigate this impact. These bridges could even be cantilevered next to the rail bridges. Otherwise, all of these impacts would need to be mitigated with lights and the appropriate safety measures.

Crossing the 10 Freeway

The tunnel under the 10 Freeway is able to take the light rail or the bicycles but not both. Using that for the light rail would create a potentially fatal flaw in the bicycles path. Using the tunnel for the light rail is a huge loss to the bicycle path and is an impact that needs to be addressed

Redirecting the bicycles up Motor to Northvale is a grade climb that only the most hearty and dedicated bicyclist would accept. Cars would not even use this as the alternative.

Redirecting the bicycles to National and Overland would require them to cross the 10 Freeway either at Overland or at Westwood Blvd. Of these Westwood would be preferred from a safety standpoint but that represents a huge detour from the Expo route for a bicyclist and is a major step down in safe riding.

There are at least three options to offset the impact of the tunnel loss on the bike path. These include:

1. Build a second tunnel adjacent to the existing one.
The second tunnel could be as small as ten feet wide by eight feet tall. It could integrate the design into the structural integrity of the main tunnel to keep cost of construction to a minimum.
2. Build a tunnel perpendicular to the freeway between Motor and the tunnel.
That would use the easement on the north side of the freeway to reconnect to the rail right of way.
3. Use the easement on the north side of the freeway from Motor to the tunnel.
This option would require at least one traffic light or some sort of a hanging bicycle bridge across Motor Ave.

From the 10 Freeway to Centinella

The main impact here is to do with the elevated stations, the elevated crossings and the mid-block at-grade crossings. Building these elements for the rail will be significant opportunity to modify these sections of the bicycle route. It is an opportunity that is not likely to come up again in the foreseeable future.

If this construction does not include the right bicycle elements, then the chance of them ever being built will get close to zero. That would degrade the potential of the bicycle route seriously and probably permanently. The opportunity cost of this part of the rail construction would be huge.

Including the right bicycle amenities will help make the entire bicycle route successful as well as allowing bicycle use to integrate with the rail line and produce inter-modal advantages that will enhance the rail use while reducing the parking and traffic impacts of the rail line and the stations.

The at-grade crossings will need traffic signals for the trains and these would also need to be designed to protect the bicycles. The crossing lights need to respond to the bicyclists. This can be handled by a push button similar to that used by pedestrians but with two differences. One would be the location, which would need to be next to the bike path. The other difference being that the light cycle would be shorter than the response for a pedestrian and more like that for a car.

The elevated crossings are needed for the trains at specific places where the traffic and safety of the trains requires it. The conditions that call for the safety of the trains would also call for similar measures to assure the safety of the bicycles. The same is true when it comes to the cross-traffic impact traffic congestion. Having a light for a bicycle will stop traffic just as much as a train.

In short the elevated crossings should include room for bicycles to cross on the bridges being built for the trains. The part of these bridges used for bicycles would carry very light loads with corresponding low costs. The elevated bicycle paths can be integrated into any emergency exit routes for passengers from those elevated sections.

While this is true for all the elevated sections like those proposed for Bundy and Sepulveda it is particularly critical for one section. That is the crossing from Sepulveda to West of Pico. That area is one of the most problematic in completing the bicycle path due to the complex crossings and traffic patterns. Building a rail bridge without bicycle amenities would probably make any future safe bicycle crossing close to impossible. Including a bicycle path on the bridge would make that section of the path viable.

The crossing at Sawtelle has another concern regarding bicycle impacts. That crossing is a key intersection for the north south bicycle routes from that area into Westwood and UCLA. This is particularly important as there is UCLA graduate student housing for 3000 students further south on Sawtelle. They require improvements to the Pico Sawtelle intersection to get to UCLA. These could be best handled as part of this project.

Elevated Stations

The concerns of elevated crossings apply to the elevated stations as well as additional impacts specific to the elevated stations. One concern is that bicycles have a viable option for either traveling through or safely around the stations. Another concern is that the bicycles can get into the station in a direct and effective manner.

Getting into the stations would be needed for all the bicycle routes to the stations. The way that bicycles get to the platform will be a major factor to the success of the bicycle inter-modal element. Carrying bicycles up stairs is totally unacceptable and creates hazards for other passengers. Escalators are slightly better. Elevators work but create conflicts with pedestrians and have smaller safety issues than stairs.

The optimum solution is to have ramps that can be ridden by bicycles or at least have riders walk their bicycles up and down. The bicycle/ pedestrian ramps from the parallel bike paths would be similar to the ones for the elevated crossing bridges. Additional ramps may be needed for bike lanes that intersect the rail route like those on Venice Blvd. These can include spirals or switch backs as appropriate. All of these ramps can be integrated with the ramps required under ADA specifications.

Impact on Bicycle Access to the Rail Line in Santa Monica

Bergamot Station

This station is located in one of the more hazardous bicycle access areas in Santa Monica. There is currently no safe way to get to this location by riding a bicycle on the roadways. The Expo Bicycle Path will allow access from the southeast by way of Stewart Ave and from the west by way of 20th and 17th Streets. The path provides only indirect access from the northeast. It would require either unsafe routes or detours for access from the north and from the southwest parts of town.

It is unlikely that the access would change based on the selection of the Olympic or the Colorado options. The main concern is that the Expo Bicycle Path reaches at least to 17th Street in the west.

Based on this, the main bicycle access would be from Stewart and from the adjacent office and work places. The described limits will also shift much of the bicycle access to the 17th Street Station.

17th Street Station

The station would be safely accessible from all directions on either Colorado or Olympic due to the quality of the 17th Street bicycle lanes. It will add to the need to complete the bicycle lane from Michigan to Santa Monica College as well as the need to connect to the bicycle lanes on the south side of the College. This would be the most desirable rail access point between 23rd Street and Lincoln from the entire areas to both the north and the south. That area would expand if safe bicycle access were limited at either the 2nd and or the 4th Street Stations.

If it was possible to get easily to the bicycle routes that are the south of Santa Monica College, then the 17th Station would be a good bicycle access point for rail travelers as far way as Mar Vista.

All of this supports the need for good bicycle parking and access to this station.

Differences in Station access between the Colorado Option and the Olympic Option

The difference between these two options would not be significant at the mid town stations. The big differences occur in the downtown area. With the Olympic option there is just the elevated station at 4th street. With the Colorado Option there is a station at both 4th street and 2nd Street.

4th Street Station

This location at 4th and Colorado is currently a very hazardous location to get to on a bicycle. The heavy traffic and tight vehicle lanes on 4th street create this as does similar conditions on Colorado from Ocean to 5th Street. The 4th Street freeway crossing is a serious hazard area for bicycles in both directions.

The safest access point to this location is by way of the intersection at 5th and Colorado. Bicycles can get to this intersection on Colorado with reasonable safety although things are a little tight coming from 6th Street. Getting along 5th Street from Broadway is reasonable and it is more hazardous northbound toward Broadway due to the traffic from the freeway exit.

The 4th Street Station will have the biggest difference in bicycle access based on which option is selected for the route to that point.

Olympic Option

The elevated 4th Street Station under the Olympic option would not change the basic access for bicycles getting to that location. Since the location is already hazardous to access by bicycles the more neutral impact of the elevated station still leaves a bicycle access issue that would deter

inter-modal use of the station. It would be necessary to add elements to promote safe bicycle routes to get to the station.

One access route would be from the Main/2nd Street bicycle lanes. Good access from that area could be provided on Colorado with a lane between 2nd and 4th Street. That one link would provide reasonable bicycle access to the rail line from all areas west of Lincoln from San Vicente to Marina Del Rey. The only part west of Lincoln that would not be served by that would be some area between approximately Pearl and Santa Monica and Lincoln and 4th Street. That is because the detour to 2nd Street would cause riders from this area to look for a more direct route. Any such route would be more hazardous.

The elevated station also would not include the good bicycle access to the rail line provided by the 2nd Street Station under the Colorado Option.

The elevated rail lines along the freeway raises the concern that the structure would be positioned in such a way as to cross the area that has a proposed bicycle and pedestrian bridge crossing the freeway at 7th Street. This proposal is actually to replace the bridge that was removed the last time the freeway ramps were revised. It is an important part of the bicycle/pedestrian circulation as it would be the only safe crossing between 2nd and 11th Streets and would connect directly to the High School and to the Michigan Ave bicycle route. The old bridge was a much safer way for high students on foot or on bicycle to cross the freeway than Lincoln has ever been.

The elevated rail could be designed in coordination with the design of the bicycle pedestrian bridge and could help to get that project built. If it is not then it would block that bicycle bridge and that would be a big negative impact.

Another issue is whether the elevated section along the freeway would include an adjacent elevated bicycle path. This would give a direct route to the 4th Street Station from 11th Street. This would not only give access to the station but to that part of downtown and the Civic Center. Having this path connected to the proposed bridge at 7th Street would provide rail access to the high school students as well as creating safe routes for the area from Pico to Santa Monica mentioned above.

Colorado Option

The rail lines on Colorado would impact the bicycle access in this area. A good bicycle lane that would allow access to the 5th and Colorado intersection could then neutralize any impact, as would similar accommodation from the 2nd Street Station to 4th Street.

The stretch along Colorado from 4th to 5th Street would have the rail line crossing the eastbound lane in two places. These rail lines will probably make that stretch the most hazardous piece of road for bicycles in the City. This is due both to the problem of bicycle wheels interacting with the rails as well as the trains crossing in ways that may surprise the riders. Given that bicycle have ways of getting around traffic signals these rails represent a very high risk for fatal train/bicycle encounters. This concern would extend to bicycles being ridden on the sidewalk along that stretch.

Given the negatives associated with the 4th Street Station including the potential for adding to traffic congestion identified below, it calls into question if there needs to be a station there at all or if a larger 2nd Street Station would not be a better option. That would free up the 4th Street location to be used for parking and other uses.

2nd Street Station

The 2nd Street Station would have good bicycle access from the Bicycle lanes on Main and 2nd Street.

Getting to the 2nd Street Station from Ocean Ave would depend on the safety on Colorado from the Pier. Currently that area is confusing to traffic with no room for bicycles to share the lane with a car. The sidewalks are already crowded before trainloads of pedestrians start arriving. The turns from Ocean are heavily trafficked and confusing, which makes it a hazardous area for bicycles and therefore a hazardous access route to the station. Clearly this whole area would need to be reworked for both pedestrian and bicycle safety.

Building the 2nd Street Station could make bicycle access on Colorado to the east of the station even more hazardous than it is now. That stretch is narrow and currently has heavy traffic and no allowance for bicycles. Bicycles in those areas have to take the whole lane to stay safe. A bike lane in that area would allow bicycles to at least get to and from the 4th Street Station. Good bicycle parking at 2nd Street would also offset any access impact on Colorado and support inter-modal use of that station. The bicycle parking could be located next to the Freeway and still be viable.

Impact on Bicycle Lanes in Santa Monica

The two alternative locations of the rail line in Santa Monica would have very different impacts on the bicycle routes in Santa Monica.

The impact will come in two forms. One would be from rail lines that actually cross the bike lanes. The other impact would be from the increased traffic that would be diverted to the bicycle routes as a result of the rail line.

The increase in traffic on bicycle routes would increase all the problems that bikes have with cars. If we assume that hazardous driving behavior happens as a constant percentage of the number of vehicles then it would follow that there would be more numbers of everything including:

- More violations of the bicycle lane with cars crossing into the lane as they swerve around any vehicle in the middle divider including large vehicles turning left
- More cars that violate and threaten the bicycle lane at intersections without traffic signals
 - 1, as they turn right onto the road and travel on the bike lane for a short distance.
 - 2, as they nose out into the bike lane in preparation for turning left onto the road
- More drivers turning left that may not see bicycles in the oncoming bike lane.
- More drivers turning right that may not see fast riders coming up next to them in the bike lane.

- More times when bicycles cannot change lanes to turn left due to heavy traffic in the main car lane
- More vehicles exceeding the speed limit going past the bicycles
- More cars on the left when riders have to avoid car door openings and people stepping into the bike lane.

Olympic Impacts

The Olympic location would have moderate crossing impacts on the following lanes only:

- 17th street from Michigan to Santa Monica Blvd
- 11th Street from Michigan to Santa Monica Blvd

An additional bicycle concern come from the Olympic Option taking the Expo Bike path down the right of way from Olympic to near the intersection of Colorado and 17th Street. This requires bicycle mid block crossings at 20th, 19th and 17th Streets. Safety elements that include a turning island in the center lane as well as flashing crossing lights would make that reasonable. This would be essential at 17th Street for the bicycles turning south toward Santa Monica College and for those turning onto the bike path coming from the north.

Colorado Impacts

The Expo line going down Colorado has the potential of having a huge impact on one or more of the following bike routes in Santa Monica -

- Broadway from Ocean to Cloverfield
- 17th street from Michigan to Santa Monica Blvd
- 11th Street from Michigan to Santa Monica Blvd
- Main/2nd Street from Pico to Santa Monica Blvd
- Michigan East West from Lincoln to 14th and possibly
- Ocean from Pico to Santa Monica Blvd

The Current plan is to have the block between 18th and 17th be the place where Colorado transitions from two lanes in each direction to one lane. The train would join Colorado at 17th Street and there would be a station between 15th and 17th. Colorado would be one lane from there to Second Street. That means the loss of one lane in both directions from 18th to 2nd Street.

Westbound Traffic Diversions from Colorado

The traffic that would normally use Colorado to go west from 20th street toward downtown would be diverted to adjacent routes. This would mean Broadway, Olympic and Santa Monica Blvd.

The traffic that starts to go westbound on Colorado from 20th Street would produce an increase in cars turning off Colorado looking to get away from the one-lane restrictions ahead. This would result in more traffic turning onto 17th, 18th and 19th streets. The traffic that turns north would either cross or turn on Broadway from all three of these streets. The traffic that turns south at 17th would turn right onto Olympic. These turns would increase bicycle lane violations on both 17th Street and on Broadway, as would the traffic crossing Broadway at intersections without traffic lights.

Eastbound Traffic Diversions from Colorado

Colorado eastbound traffic comes from the entire downtown area from Pico to Wilshire. That is a larger area than the source of westbound traffic, which is primarily from the area between Olympic and Broadway. People whose destination is the Cloverfield area would select routes on the main arteries such as Santa Monica Blvd or Pico.

People who are trying to go east and find traffic congestion around Colorado will want to get away from the congestion. These people are more likely to use Broadway, Olympic Way (south of the freeway) and Michigan. This will occur during heavy commute times and on weekends and Holidays. These are the times when large numbers of visitors are at the beach and in the downtown area. These times would also be when the most bicycles would be using all three of these bicycle routes.

North South Bicycle Lane Crossings

17th Street North to South

The Bicycle lanes on 17th Street are the only ones between there and Centinella along Colorado. There is only one set of lanes that go both north and south between there and Main/2nd Street and that is on 11th Street. This makes it one of the most important north south bike routes in the City.

The train station is being located there to serve both SMC and the Hospitals. The plans call for shuttle buses circling the area to take people at least to SMC. That would mean wide buses down 17th street from Pico to Colorado. Pico to Michigan does not have enough width for a bicycle lane at this time. With the station on Olympic it would be closer to walk and fewer shuttles would be needed.

Colorado and 17th Street is currently planned as the end of the Expo Bike Path. That means that the intersection will now be a major bicycle intersection as well as the location of the train station and the point at which the train enters Colorado. The Intersection of 17th and Colorado would be made wider and more complex due to the presence of the train. This would work against the safety of that intersection for bicycles at a major focal point for bicycle travel.

11th Street North South

The at-grade train crossing on Colorado at 11th Street would have a very minor impact on the bicycle lanes due to low congestion. The congestion could increase at this intersection due to the traffic diversions discussed below.

There would be negligible difference between the at-grade crossing at Colorado compared to Olympic Blvd.

2nd Street and Colorado Station

The Main Street/ 2nd Street Bicycle route is the safest route between the beach bicycle path and 11th Street. The adjacent stretch of Ocean Ave has the most bicycle lane violations of any stretch in the City and is one of the most dangerous bicycle lanes in town. It also leads to the Ocean and Pico intersection, which has significant bicycle safety issues as well.

The station located at the Colorado and 2nd Street would need to accommodate the bicycle riders getting through that intersection. If it did not then bicycles would be diverted to the more dangerous Ocean Ave.

The position of the station on Colorado would block the northbound bicycle route with the current Main Street Bridge. The new bridge that is planned with City center developments would need to accommodate north/south bicycle travel safely to mitigate this impact.

Traffic Diversions from North and South Crossings, 11th Street to Ocean

The trains would cross the intersections from 11th Street to Ocean along Colorado. The entire length would be at-grade crossings. The question here is whether the trains would impact the lights at these crossings so as to result in added congestion on the north south routes.

The new Main Street Bridge would mitigate the traffic impact for the Station at 2nd and Colorado. Any disruption of North South traffic at this intersection would divert traffic to Ocean and to 4th street. It is more likely that traffic would be diverted to this intersection from 4th Street once the new bridge is in place.

The Intersection at 4th and Colorado.

The trains going to the 2nd Street Station would cross 4th Street westbound and then cross eastbound as it returns to the depot at 4th and Colorado. The short distance between the two stations could increase the impact of the train crossings at the 4th street light.

The westbound train would be slow, as it would be approaching the 2nd Street station after having navigated the three traffic lights from Lincoln. The eastbound train entering the depot would be a slow moving train as it crosses the 4th street intersection preparing to enter the 4th Street Station. The 4th Street intersection would be almost completely shut down with the passing of each eastbound train. Only some right turns would be possible for the cars as the train crosses the intersection and turns into the station by crossing the eastbound lane of Colorado.

The Construction Authority has stated that it takes 35 to 45 seconds for a train to cross an intersection. The trains would take 3-4 minutes to stop at the 2nd street station. At 45 seconds for each crossing that would mean that one and a half minutes out of five would be dedicated to getting the train across 4th street. There is some chance that the eastbound crossing may actually take longer than 45 seconds since the two stations are so close. That could happen every 5 to 10 minutes at peak travel.

In addition, the trains leaving the 4th Street Depot going eastbound on Colorado would impact the 4th street intersection. It would be necessary to keep any cars from going eastbound on Colorado any time the train crosses onto Colorado. That means stopping eastbound traffic as well as cars turning onto Colorado to go eastbound from 4th Street.

The congestion on 4th street for southbound traffic is already one of the worst in the city. It can have traffic backed up to just South of Santa Monica Blvd. The delays due to the train crossing at 4th will increase the congestion even more. All of this would result in traffic diverting toward Lincoln and other points east as well as west toward 2nd Street and Ocean Ave. The diversions

would impact Pico, Olympic Way, Broadway and Santa Monica Boulevard as the first available alternatives to get to these other routes.

The impact of the train crossing at Lincoln would be less than for 4th Street. The East bound trains would leave the 4th Street Depot at a more controlled pace than would be the case from the 2nd street Station. It should also be possible to manage the traffic lights from 5th to Lincoln to allow a better crossing schedule at Lincoln.

However Lincoln can back up in both directions at different times of the day. The traffic queues can stretch from Pico to Santa Monica Blvd. Traffic can in fact block the Colorado crossing from either direction and that may cause real added delays on both Colorado and Lincoln. With things this tightly congested even a 5 percent change in the signal timing can have a big impact. It is not realistic to think that adding 270-foot long trains at five-minute intervals to such an intersection will have no impact.

The extent to which the trains add congestion and delays to Lincoln and at 4th Street is the extent to which traffic will look for alternative routes. The alternative route for southbound traffic would be Broadway and Santa Monica. The alternative route for northbound traffic would be Olympic Way and Michigan. Three of these are important bicycle routes.

Once this traffic gets east of the congestion on both 4th and Lincoln it will move to the next north south route, which would be 11th Street. 11th Street is another important bicycle lane route.

Summary of the Olympic Option versus the Colorado Option

All of this suggests that having the train on surface streets with the Colorado Option will have significant traffic congestion concerns. Those concerns translate into added traffic on the bicycle routes in the area, which increases the chances of bicycle encounters with cars. Then too, it is possible that the area will go into regular periods of gridlock, which means the cars are not moving. When that happens bicycles will be safer and will be the only vehicles that can get anywhere!

Whatever option is chosen it would be important to provide access to the rail line from the bicycle route on Main/2nd Street.

If there were some way to keep the congestion from the surface rail from having a serious impact on the bicycle routes then the 2nd Street Station would be the best one for Bicyclists.

If favorable access were provided from Main/2nd Street bicycle route, then the Olympic route with an elevated bicycle path from 11th to 4th Street that ties into the bicycle bridge across the freeway at 7th Street would be the most favorable option in Santa Monica for bicycles. It should be added that some sizable portion of the bicyclists would want this option to include keeping the Coral trees on Olympic in as many places as possible.

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