

ATTACHMENT 6

Memorandum**PROJECT: North Santa Monica Boulevard (NSMB) Reconstruction****PSOMAS Project No. 1BEV041000**

To: Dr. Barry Pressman, Chair
North Santa Monica Boulevard Blue Ribbon Committee (BRC)

From: Psomas

Subject: North Santa Monica Boulevard (NSMB) Reconstruction Project Blue Ribbon Committee Meeting Number 3 – Information Packet

Date: January 2, 2014

This memorandum and attached Information Packet is provided to the BRC after BRC Meeting # 2 and in preparation for the third BRC meeting scheduled for January 8, 2014.

In BRC Meeting #2 questions were raised by Committee members regarding existing conditions of North Santa Monica Boulevard (NSMB), safety concerns of introducing various project elements such as medians, and specific design challenges such as working with the existing roadway geometry. Since meeting #2 the Psomas team has gathered the data requested by the BRC Members and met with representatives of the Beverly Hills Fire Department and Beverly Hills Police Department to discuss public safety considerations. We also met with the Beverly Gardens Park architectural consultant to discuss the interface between the two projects. The information provided herewith is constitutes our response to the questions raised by the Committee members at BRC meeting #2 and summarizes our subsequent meetings, discussions, and research.

Finally, Concept Alternatives are presented for discussion along with our Recommended Alternative for BRC consideration.

The consultant team's recommended alternative includes between a 3' and 6' widening along the north side of NSMB, construction of curbed, planted median islands where appropriate, and installation of street trees along the north edge of NSMB.

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1. Requested Information

a. Existing Conditions

Roadway pavement and drainage infrastructure

The Committee has requested a clarification regarding the existing condition of NSMB and the need for reconstruction. The existing asphalt pavement has failed. The pavement is cracked and deteriorated throughout NSMB. The road base and subgrade is exposed to infiltration of water leading further deterioration. The geotechnical and pavement investigation performed as a part of this study indicates high moisture content in the road base material and a failed base condition.

The existing pavement has been continually overlaid, over the years, with new asphalt surfacing as a maintenance measure, a common practice, to provide a new smooth wearing surface. Resurfacing has not and does not correct failure of the base or subgrade. The original surface grade elevations of the roadway have been altered significantly resulting in localized drainage failures which have exacerbated the pavement system's deterioration. The concrete gutters have been also paved over, compromising the ability of the surface to drain positively. The resulting asphalt gutters cannot effectively convey water to the drain inlets, leading to slow drainage and standing water. The drain inlet openings are diminished by the built up asphalt reducing their capacity. The built up asphalt has also diminished the height of the curbs on NSMB reducing the capacity of the street to channel storm water in large events. The shorter curbs provide less protection from vehicles jumping the curb. There are many locations where the curbs are deteriorated or completely missing.

Several sections of storm drain mainlines in NSMB must be replaced due to inadequate capacity and/or condition. Replacing underground utilities requires removal and replacement of the pavement in the location of the construction. Further, the construction requires heavy equipment which is destructive to the pavement surrounding the work area, especially where it is already in poor condition.

b. Bicycle Connectivity

Traffic Flow

Do bike lanes improve or impede vehicular traffic flow? Bicyclists are legally entitled to use the outside travel lane on roadways other than freeways. On an urban arterial with a standard 12-foot outside travel lane, bicyclists typically travel in the middle or toward the outer edge of the lane, generally slowing vehicular traffic as there is not sufficient width to safely pass a bicyclist without maneuvering into the adjacent lane. The amount of vehicular delay depends upon the number of bicyclists on the particular roadway. Given regional and state policy initiatives, it can be expected that the number of bicyclists will grow over time. In order to make roadways safer for bicyclists, transportation engineers typically consider providing wider curb lanes or striped bicycle lanes.

Accidents

Do bike lanes reduce accidents? The number of reported bicycle accidents on North Santa Monica Boulevard in the City of Beverly Hills in the three years between May 2010 and May 2013 was 13. (Source: California Statewide Integrated Traffic Reporting System). During that same time period, there were 10 bicycle accidents on the portion of Santa Monica Boulevard in West Hollywood where there are bike lanes compared to 30 bicycle accidents on the portion east of Sweetzer, where there are no bike lanes. It should be noted that on street parking is permitted on Santa Monica Blvd. in West Hollywood. The number of bicycle accidents is relatively small, so there is limited data available on bicycle accident rates, nor many before and after studies. It should be noted that many bicycle accidents are also not reported.

One study indicated that the addition of bicycle lanes on arterial streets is shown to reduce the risk of serious injuries by 30 percent. (Kay Teschke et al. 2012. Route Infrastructure and the Risk of Injuries

to Bicyclists: A Case-Crossover Study. American Journal of Public Health) Injury risks to bicyclists in New York City dropped by 72 percent between 2000 and 2010 and declined by nearly 30 percent two consecutive years in a row (2008 and 2009) when the City was the most active in building bicycle lanes.

A 2000 safety study of 682 bicycle-motor vehicle accidents in Phoenix found that 95% of crashes occurred on streets with no bicycle facilities and only two percent occurred in bicycle lanes. (Adam Arvidson, 2012. Power to the Peddlers. Planning May/June 2012, pp. 12-17.)

The underlying reason of this pattern is that motorists drive slower when bicyclists and pedestrians are visible either in number or frequency, and drive faster when fewer pedestrian and bicyclists are present resulting in higher overall travel speeds. This effect of modified driving behavior is consistent with other research focused on 24 California cities that shows that higher bicycling rates among the population generally shows a much lower risk of fatal crashes for all road users. Comparing these low versus high bicycling communities, there was a ten-fold reduction in fatality rate for motorists, and eleven-fold reduction in fatality rate for pedestrians, and an almost fifty-fold reduction in fatality rate for bicyclists. (Marshall, Wesley E., N. W. Garrick. 2011. Evidence on Why Bike-Friendly Cities Are Safer For All Road Users. Environmental Practice 13 (1) March 2011.)

c. Meeting with City of Beverly Hills Public Safety Representatives

Raised vegetated medians, if implemented, would provide a positive change to the corridor including the addition of urban greening with the opportunity to create a distinct identity for NSMB. The AASHTO Green Book states that medians are a desirable feature of arterial streets and should be provided where space permits. It notes that even a median of only 4 feet wide is better than none; however each additional foot provides an additional increment of safety and improved operation. The Committee is in favor of considering the addition of raised medians on NSMB, but expressed concerns regarding access for emergency vehicles, which currently have the flexibility of using the center lane.

The consultant team met with Chris Heyer, Deputy Fire Marshal, and Joe Matsch, Fire Captain of the Beverly Hills Fire Department, and Gregg Mader, Sergeant of the Beverly Hills Police Department on December 20, 2013 to discuss the project including the impact of introducing medians on NSMB. The following items were discussed:

- In considering emergency vehicle access, adding medians is feasible. Standard operating procedure is to drive down the painted center lane where there are no raised median islands, but FD/PD can also respond along roadways with medians, sometimes by running on the opposite side of the median if necessary.
- The design may consider maximizing the area/number of medians in appropriate locations within reason. That is, the design should consider some shorter medians, medians that are narrower than the center lane, and omitting medians in some sections to allow greater flexibility for emergency access. The Fire Department requires 10' clearance to pass by stopped traffic.
- Widening the roadway would enhance emergency vehicle access as drivers would have more room to pull over to the curb. This would also improve feasibility for adding raised medians. Sergeant Mader suggested not striping bike lanes.
- Eucalyptus trees on the south side of NSMB in the undeveloped area (between Alpine Drive and Sierra Drive) impede emergency vehicle access. FD desires the trees to be removed, however they are on private property, so Code Enforcement can work with the owner to have them trimmed. The design of the roadway should consider providing more lateral clearance from the trees if possible.

d. Specific Design Considerations

NSMB/Beverly Blvd Intersection

Concerns have been expressed regarding safety of the subject intersection due to its complex geometry and substandard pedestrian access issues. The proposed design of NSMB shall consider up to date design standards and feasible improvements within the right-of way to enhance safety and access, and simplify movements through the intersection. Proposed changes to the intersection will be addressed in the detailed design. Project elements, if elected, such as widening and medians will directly affect the final design of the intersection.

Curb Radii

Some committee members expressed concern regarding tight curb radii where NSMB intersects the cross streets (especially the residential streets on the north side.) Appropriate curb radii is generally selected by jurisdictional standard design based on the types of intersecting streets and consideration other site specific circumstances, including curb ramp/landing area needs, signal equipment location, visibility, and available right-of-way.

Study the project in sections

The consultant team started review of the project, and continues to do so, in four distinct identified segments based on roadway geometry and uses of the adjacent parcels. These sections are identified in the table below:

Segment	North side	South side
Western Segment (Moreno to Wilshire)	Hospitality	Commercial
Churches and Parking Structures (Wilshire to Rodeo)	Churches/Beverly Gardens Park	Parking Structures
Beverly Gardens Park/Civic Center (Rodeo to Civic Center Drive)	Beverly Gardens Park	Civic Center
Eastern Segment (Civic Center Drive to Doheny)	Beverly Gardens Park	Vacant (former RR) land

Bus stops

Metro Bus Operation, Scott Page, Manager of Service Planning, confirmed that bus turnouts adversely impact bus operations and that Metro generally will not use them. Further, the City cannot force them to use them. If they are provided, the bus drivers will either stop beyond the turnout, as the Metro Rapid Bus does at the turnout between Crescent and Canon, or they will stop in the travel lane and make passengers walk out to the bus. It was also noted that bus turnouts increase accidents as buses try to re-enter traffic.

There is insufficient right of way on the south side of Santa Monica Boulevard to provide turnouts, other than in front of City Hall or the Annenberg Center for the Performing Arts, where the bus turnout was recently removed. In order to provide turnouts on the north side of the street, an area of 2,400 square feet would be required at each location. The turnouts are 12 feet wide and 140 feet long (60 feet for one bus and 80 feet for a second bus, in case of a break down or multiple buses arriving at the same time) and 60 foot transitions at either end of the turnout.

The table below illustrates the transit lines that travel on North Santa Monica Boulevard.

Line	Route Name	Service Area	Approx. Weekday Hrs of Operation in the Beverly Hills Area		Days of Operation	
			NB/EB	SB/WB	M-F	Sat/Sun Holiday
004	Metro Local - Downtown Los Angeles - West Los Angeles - Santa Monica via Santa Monica Bl	Los Angeles, Echo Park, West Hollywood, Beverly Hills, Century City, Santa Monica	5:09 AM – 4:49 AM 10 minute peak headway	4:53 AM – 4:25 AM 10 minute peak headway	X	X
016, 316	Metro Local and Limited – Downtown Los Angeles - Century City via 3rd St	Los Angeles, Koreatown, Hancock Park, Park La Brea, Beverly Hills, Century City	4:08 AM - 12:43 AM 10 minute peak headway	5:00 AM - 12:29 AM 20 minute peak headway	X	X
704	Metro Rapid - Downtown Los Angeles - Santa Monica via Santa Monica Bl	Los Angeles, Echo Park, West Hollywood, West Los Angeles, Santa Monica	6:30 AM – 8:14 PM 10 minute peak headway	6:09 AM – 8:41 PM 10 minute peak headway	X	X

Widening the South Side of NSMB

The private undeveloped (former railroad, Alpine to Sierra) property currently has a chain link fence on the property line which is 2' behind the existing curb, eucalyptus trees along the street, some overgrown and encroaching onto the right-of-way.

Widening within existing right-of-way would yield an additional 12" to 18" at best and would worsen an existing substandard condition (i.e. no sidewalk, parkway, street lights) and is not recommended. Additional trees would have to be removed on private property. The Fire Department has indicated that the trees currently interfere with emergency access and require trimming or removal.

Consideration of widening in this area would require a private property dedication to allow ample room to allow for parkway and sidewalk. It should be noted that the existing property is 60' deep, so a dedication may create a hardship for the potential development of the property. Widening to the south also presents engineering challenges including regrading to join the elevations and design of

longitudinal transitions in the roadway geometry. Further, all existing surface infrastructure including storm drain inlets, fire hydrants, signal equipment, etc. would require relocation.

The disposition of the commercially developed property between Linden and Wilshire is similar with regard to the interface with NSMB, and the same considerations noted above should be considered.

2. Requested – Alternatives Discussion

a. Alternative 1A - Maintain Existing Curb to Curb Widths – No Median

Alternative 1A is the "Base Project" alternative. Basic features include:

- Maintain existing curb to curb width of roadway.
- Repair/Replace subsurface infrastructure.
- Replace deteriorated roadway pavement, curb and gutter.
- Address substandard conditions and apply up to date design standards.
- Address Specific design consideration cited above.

The concept for Alternative 1A is illustrated in Exhibits 1, 1A-1, 1A-2, 1A-3, 1A-4 attached herewith.

b. Alternative 1B - Maintain Existing Curb to Curb Widths - Vegetated Median

Alternative 1B is identical to the Base Project Alternative 1A above, with the addition of vegetated medians.

The concept for Alternative 1B is illustrated in Exhibits 1B-1, 1B-2, 1B-3, 1B-4 attached herewith.

3. Recommended Alternative for BRC Consideration

a. Alternative 2 – Increase Curb to Curb Width – Vegetated Median

Alternative 2 includes all project upgrades provided in Alternative 1B, and considers widening the roadway to provide a 66' curb to curb as follows:

- Widen existing 63' roadway sections by 3' by relocating the north curb.
- Widen existing 60' roadway sections by 6' by relocating the north curb.
- Establish a Shared Roadway (No bikeway Designation) with an outside lane of 16' (to curb face)

Per the California Streets and Highways Code Section 891 - All city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall utilize all minimum safety design criteria

Per the Caltrans Highway Design Manual, Chapter 1000 Bicycle Transportation Design, Section 1002.1 Selection of the Type of Facility – (1) Shared Roadway (No Bikeway Designation). Most bicycle travel in the State now occurs on streets and highways without bikeway designations and this may continue to be true in the future as well. In some instances, entire street systems may be fully adequate for safe and efficient bicycle travel, where signing and pavement marking for bicycle use may be unnecessary.

The American Association of State Highway and Transportation Officials (AASHTO) publication "Geometric Design of Highways and Streets" (the Green Book), in the chapter devoted to Design Guidelines for Bicycle Facilities it states that lane width of 15 feet or less (to face of curb with a 2' gutter) require most vehicles to be driven at least part way into the next lane to pass a bicyclist

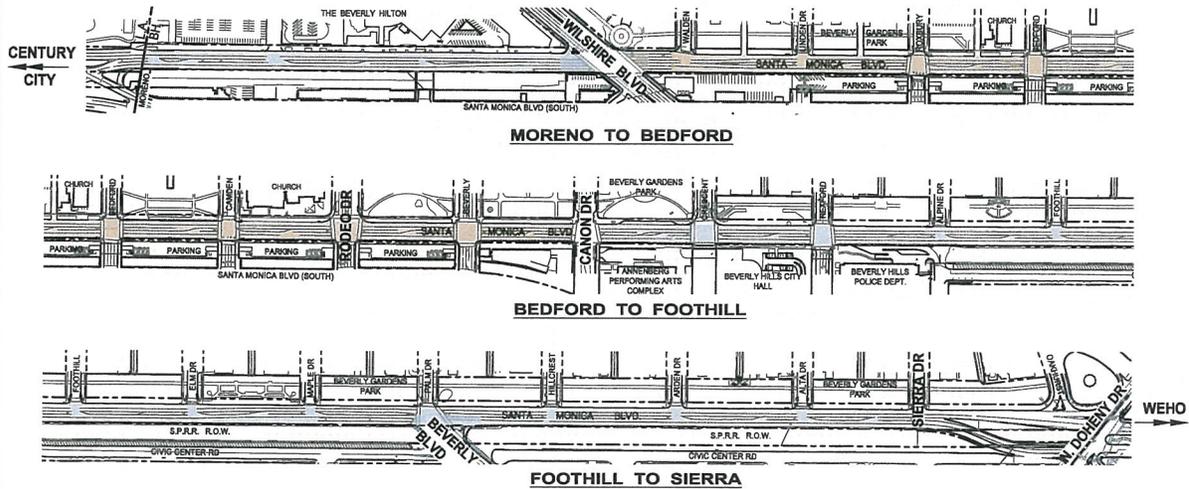
The concept for Alternative 2 is illustrated in Exhibits 2-1, 2-2, 2-3, 2-4 attached herewith.

PROJECT ELEMENTS	CRITERIA		
	SAFETY	FUNCTION	AESTHETICS
 1. ACCESS / SAFETY-RELATED GEOMETRIC IMPROVEMENTS	<ul style="list-style-type: none"> PROMOTE SAFE MULTI-MODAL TRAFFIC MOVEMENTS IMPROVED EMERGENCY VEHICLES ACCESS 	<ul style="list-style-type: none"> IMPROVE TRAFFIC MOVEMENTS 	—
 2. PHYSICAL ROADWAY IMPROVEMENTS	<ul style="list-style-type: none"> REPLACE STRUCTURALLY FAILED ROADWAY PROVIDE NEW RIDING AND WALKING SURFACES IMPROVE SURFACE STORM WATER CONVEYANCE IMPROVE CONDITIONS 	<ul style="list-style-type: none"> IMPROVE CURB RADII AND CURB RAMPS IMPROVE RIDING CONDITION 	<ul style="list-style-type: none"> REPLACE BROKEN CURB, GUTTER AND PAVEMENT
 3. SUBSURFACE UTILITY IMPROVEMENTS	<ul style="list-style-type: none"> ALLEVIATE POTENTIAL VECTOR HAZARDS 	<ul style="list-style-type: none"> IMPROVE STORM DRAIN CAPACITY 	—
 4. ALLEY DRAINAGE IMPROVEMENTS / STORMWATER MANAGEMENT	<ul style="list-style-type: none"> PROMOTE SAFE MULTI-MODAL CORRIDOR USE VISIBILITY 	<ul style="list-style-type: none"> ALLEVIATE LOCALIZED FLOODING 	<ul style="list-style-type: none"> PREVENT SILTATION IN ALLEYS AND TRASH ACCUMULATION
 5. STREET LIGHTING	<ul style="list-style-type: none"> ESTABLISH PHYSICAL DELINEATION OF PARK FROM STREET 	—	<ul style="list-style-type: none"> NEW STREET LIGHT STANDARDS WILL ENHANCE THE CHARACTER OF THE CORRIDOR
 6. PARKWAY STREET TREES	<ul style="list-style-type: none"> DIMINISHED STORM WATER RUNOFF PHYSICALLY SEPARATE OPPOSING TRAFFIC 	<ul style="list-style-type: none"> PROVIDE SPACE FOR SIGNAGE AND LIGHTING 	<ul style="list-style-type: none"> VISUALLY PLEASING ICONIC CORRIDOR
 7. VEGETATED MEDIANS	<ul style="list-style-type: none"> PROMOTES SAFE SHARED MULTI-MODAL ACCESS 	<ul style="list-style-type: none"> MULTI-MODAL ROADWAY OPERATION 	—
 8. BICYCLE NETWORK CONNECTIVITY	<ul style="list-style-type: none"> PROMOTES SAFE PEDESTRIAN ROUTES 	<ul style="list-style-type: none"> PROVIDE FOR PEDESTRIAN CONNECTIVITY TO PUBLIC TRANSPORTATION 	—
 9. PEDESTRIAN CONNECTIVITY			

**NORTH SANTA MONICA BLVD.
RECONSTRUCTION
CRITERIA EVALUATION**



EXHIBIT 0



LEGEND

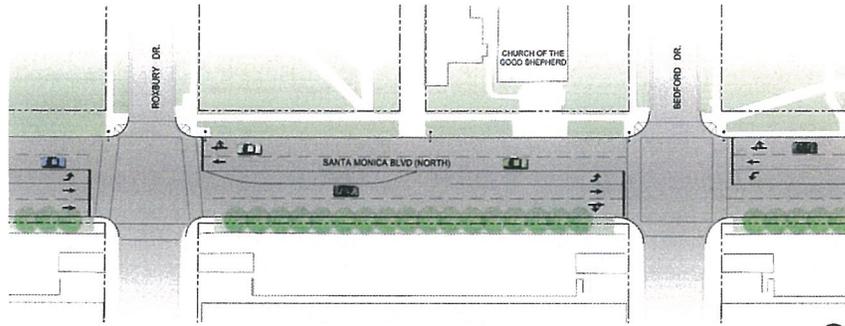


- 63' CURB TO CURB
- 60' CURB TO CURB

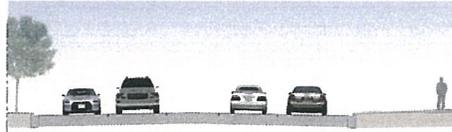
**NORTH SANTA MONICA BLVD.
RECONSTRUCTION
EXISTING ROADWAY WIDTHS**



EXHIBIT 1



NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Maintain Existing Curb to Curb Width



IMPROVED CONDITIONS SECTION
 60' Roadway Width (Curb to Curb)
 LOOKING WEST



**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH



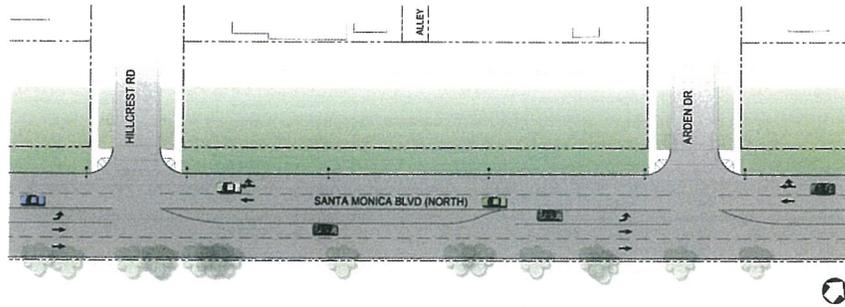
EXHIBIT 1A-1



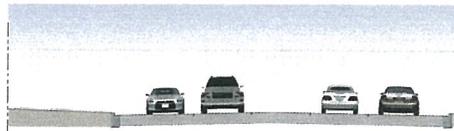
**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH



EXHIBIT 1A-2



NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Maintain Existing Curb to Curb Width



IMPROVED CONDITIONS SECTION
 63' Roadway Width (Curb to Curb)
 LOOKING EAST



EXHIBIT 1A-3

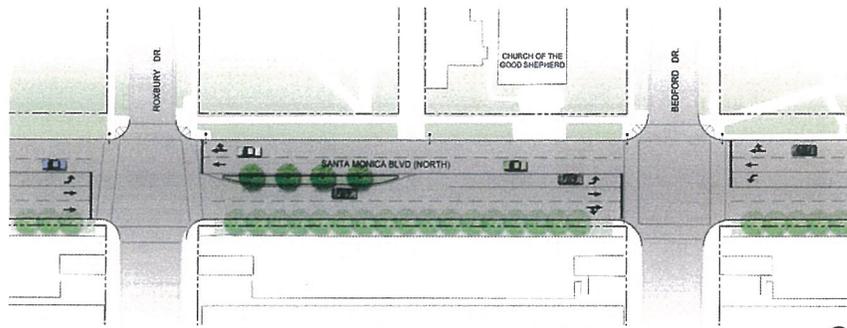
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 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH



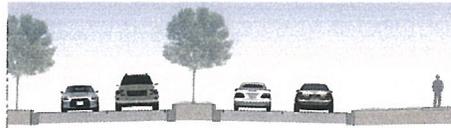
EXHIBIT 1A-4

**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH





NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Maintain Existing Curb to Curb Width, with Landscaped Median (Where Feasible)



IMPROVED CONDITIONS SECTION
 60' Roadway Width (Curb to Curb)
 LOOKING WEST



EXHIBIT 1B-1

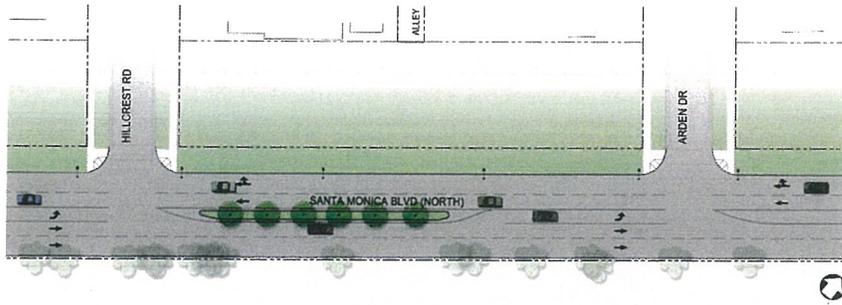
**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH w/ MEDIAN



EXHIBIT 1B-2

**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH w/ MEDIAN





NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Maintain Existing Curb to Curb Width, with Landscaped Median (Where Feasible)



IMPROVED CONDITIONS SECTION
 63' Roadway Width (Curb to Curb)
 LOOKING EAST



EXHIBIT 1B-3

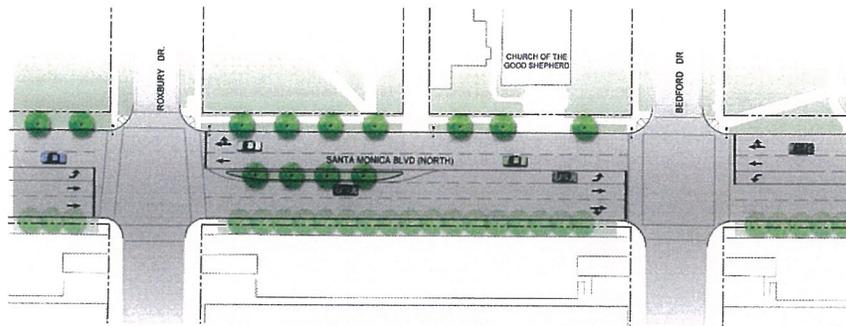
**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH w/ MEDIAN



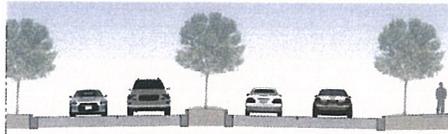
EXHIBIT 1B-4

**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 MAINTAIN EXISTING STREET WIDTH w/ MEDIAN





NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Increase Curb to Curb Width by 6'



IMPROVED CONDITIONS SECTION
 66' Roadway Width (Curb to Curb)
 LOOKING WEST



**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 INCREASE STREET WIDTH



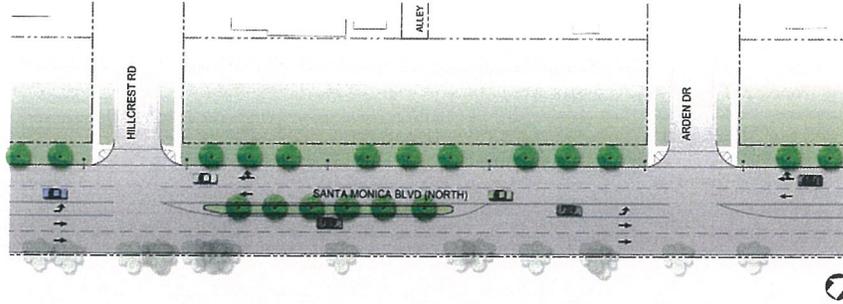
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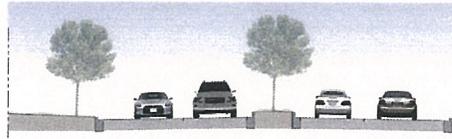
**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 INCREASE STREET WIDTH



EXHIBIT 2-2



NORTH SANTA MONICA BLVD. - IMPROVED CONDITIONS PLAN
 Increase Curb to Curb Width by 3'



IMPROVED CONDITIONS SECTION
 68' Roadway Width (Curb to Curb)
 LOOKING EAST



**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 INCREASE STREET WIDTH



EXHIBIT 2-3



**NORTH SANTA MONICA BLVD.
 RECONSTRUCTION**
 INCREASE STREET WIDTH



EXHIBIT 2-4

Memorandum

PROJECT: North Santa Monica Boulevard Reconstruction

PSOMAS Project No. 1BEV041000

**To: Dr. Barry Pressman, Chair
North Santa Monica Boulevard Blue Ribbon Committee**

From: Psomas

**Subject: North Santa Monica Boulevard Reconstruction Project
Blue Ribbon Committee Meeting #3 Continuation – Information Packet**

Date: January 22, 2014

This memorandum and attached Information Packet is provided to the Blue Ribbon Committee in preparation for the continuation of Blue Ribbon Committee Meeting #3, scheduled for January 22, 2014. Attachment 1 outlines the specific issues and provides a summary of considerations for each to be voted on by the Blue Ribbon Committee. In Blue Ribbon Committee meeting #3 questions were raised by Committee members regarding various topics identified in the table of contents attached herewith. The Psomas team has gathered the data requested by the Blue Ribbon Committee Members and the information provided herein constitutes our response to the questions raised by the Committee members at Blue Ribbon Committee meeting #3.

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Exhibit 2 – Candidate Median Locations Exhibit (18 Pages)

Exhibit 3 – Emergency Access Clearance Exhibit

Exhibit 4 – Beverly Blvd/North Santa Monica Blvd Intersection Exhibit

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Exhibit 6 - Photo Rendering – (No Median) 63’ Curb to Curb Width

Exhibit 7 - Photo Rendering – (Vegetated Median) 60’ Curb to Curb Width

Exhibit 8 - Photo Rendering – (Vegetated Median) 63’ Curb to Curb Width

Exhibit 9 - Photo Rendering – (Vegetated Median and Street Trees) Increased Width at Existing 60’ Curb to Curb Location

Exhibit 10 - Photo Rendering – (Vegetated Median and Street Trees are Not Shown for Clarity) Increased Width at Existing 60' Curb to Curb Location

Exhibit 11 - Photo Rendering – (Vegetated Median and Street Trees) Increased Width at Existing 63' Curb to Curb Location

Exhibit 12 - Photo Rendering – (Vegetated Median and Street Trees are Not Shown for Clarity) Increased Width at Existing 63' Curb to Curb Location

Appendix

Appendix A – Email Correspondence: LADOT Bicycle Division

Attachment 1 - Blue Ribbon Committee Voting Matrix

Issue	Considerations
Existing Roadway	
<p>Maintain Existing Curb to Curb Width</p>	<ul style="list-style-type: none"> • Replaces failed infrastructure (curb, gutter, pavement, utilities). • Improves storm water conveyance. • Improves riding/walking condition. • Improves curb radii and curb ramps. • Increased construction duration and phasing/sequencing costs. • Reference Exhibits 5, 6, 7, 8
Enhancement Options	
<p>Widen Roadway to Current Standards</p>	<ul style="list-style-type: none"> • Allows safe shared access and accommodation for potential future bicycle lane. • Provides adequate lane width for safe passage of bicyclists by vehicles in conformance with Three Feet for Safety Act. • Allows additional width for stopped buses. • Allows additional width for emergency vehicle access. • Displaces 3' to 6' of current parkway. • Reference Exhibits 1, 3, 9, 10, 11, 12
<p>Bicycle Lanes (if widening is elected)</p>	<ul style="list-style-type: none"> • Requires additional Striping and signage. • Specifically designated lane for bicycles. • Identifies corridor as a bicycle route. • Potentially encourages additional bicycle use. • Reference Exhibits 1, 9, 10, 11, 12
<p>Vegetated Medians</p>	<ul style="list-style-type: none"> • Potentially effects emergency vehicle access (BH Public Safety must review design). • Provides additional green space • Provides additional area to place signage and lighting. • Establishes physical separation of opposing traffic. • Establishes an identity for the corridor. • Visually Pleasing. • Diminishes storm water run-off. • Reference Exhibits 2, 3, 7, 8, 9, 11
<p>Parkway-Street Trees</p>	<ul style="list-style-type: none"> • Establishes physical delineation between Park/parkway and Street. • Establishes an identity for the corridor. • Visually Pleasing. • Reference Exhibits 9, 11
<p>Bus Turnouts</p>	<ul style="list-style-type: none"> • Metro does not prefer and will not use. • Increased potential for accidents when buses reenter traffic. • Would require 2,400 square feet of space from Park/parkway. • No available area on south side of street.
<p>Bus Shelters</p>	<ul style="list-style-type: none"> • Provides physical shelter from elements. • May select special design to identify the corridor. • Must be Accessible (conform to ADA/Title 24).

1. Topics

a. Do Bike Lanes Improve or Impede Traffic?

The following is a list of studies reviewed during the pre-design phase of this project:

- *Implications of Modifying State Aid Standards: Urban Construction or Reconstruction to Accommodate Various Roadway Users* – Minnesota DOT; December 2013.
- *Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study* – Kay Teschke et al.; American Journal of Public Health; 2012.
- *Power to the Pedalers* – Adam Arvidson; Planning; May/June 2012.
- *Evidence on why Bike-Friendly Cities are Safer for all Road Users* – Marshall, Wesley E., N. W. Garrick; Environmental Practice 13 (1); March 2011.
- *In Publication No. FHWA-RD-99-035* – The Federal Highway Administration (FHWA); October 1999.

Studies related to bicycle lanes were reviewed (see list) and most focus on the effect of the lanes on safety for both bicyclists and motorists and conclude that bicycle lanes improve safety. There were no studies identified that explicitly quantified the impact of bicycle lanes on traffic flow in the adjacent vehicular travel lanes. In our opinion, bicycle lanes should not impede the flow of traffic in adjacent lanes. On the contrary, by removing bicycles from the travel lanes and providing them with a designated lane, vehicles are able to pass bicyclists with little delay and they are more likely to stay in their lane rather straying into the adjacent lane and negatively impacting traffic flow in that adjacent lane. One study has noted that drivers tend to drive a bit slower when bicycle lanes are present (Arvidson 2012). This does not mean that their flow is impeded, but rather the drivers are being more cautious.

b. Recommended Bicycle Accommodation configuration (if widening is elected)

We recommend a Shared Roadway (No Bikeway Designation) as described in the Caltrans Highway Design Manual, Chapter 1000 Bicycle Transportation Design. This is consistent with California Vehicle Code (CVC) Section 21202 which requires that any person operating a bicycle upon a roadway at a speed less than the normal speed of traffic moving in the same direction at that time shall ride as close as practicable to the right-hand curb or edge of the roadway. This is also consistent with CVC Section 21760, the "Three feet for safety act."

With the proposed 16' wide curb lane and most bicyclists located 3' from the curb (assuming a 2' gutter), there will be 12' in which a vehicle can pass a bicyclist (see Exhibit 1, attached) leaving 3' of clearance. There would be few vehicles that could not move to the inside 10' of the lane and leave 3' of clearance when passing a bicyclist in the 16' lane. This is in contrast to the current lane widths where many vehicles have to move into the number 1 lane (i.e. the lane closest to the center) to safely pass a bicyclist, respecting the 3' clearance requirement.

c. Potential Median Cross Section Geometry/Width

Vegetated Medians are proposed in our Recommended Alternative for Blue Ribbon Committee Consideration with exact number, size and location of proposed medians shall be determined in the design process. Initial candidate locations have been identified based on existing striped median locations (see Exhibit 2, attached).

We will partner with the Police and Fire officials to evaluate which of the locations would be viable from a public safety perspective. Exhibit 3 illustrates the functionality of the roadway for emergency access. Exhibit 3 will be used in dialogue with Police and Fire. A meeting with the Police and Fire Chiefs, scheduled for January 21, 2014, will provide additional information that will be reported at the Blue Ribbon Committee Meeting #3 Continuation meeting.

Our team has developed a cost model based on all the available/candidate locations. We estimate that the 3' wide medians (including concrete, curb and gutter, trees, planting, irrigation, stamped concrete, and accent lighting) would add approximately \$216,000 (in hard construction cost) to the base cost of the project.

d. West Hollywood/Los Angeles Bike Lane Connectivity Coordination

Our team has touched base with Melissa Antol of the West Hollywood Community Development Department, and she will submit a letter on behalf of West Hollywood confirming their commitment to provide bicycle connectivity to Beverly Hills. We also reached out to Tim Fremaux of the City of Los Angeles Department of Transportation (LADOT) Bicycle Division. Tim has responded to Aaron Kunz via email to confirm LADOT's commitment to work with the City of Beverly Hills on implementation of a seamless bike lane connection. A copy of the email has been included in herewith as Appendix A.

e. Bus Stops and Shelters

The project will include a bus stop with ample space for amenities such as a shelter (if decided later). The project scope shall include design for infrastructure, such as electrical/data conduits, paving and an accessible path of travel to serve the bus stop. The specific details shall be determined in the design process.

f. Pavement Materials (Asphalt vs Concrete)

Committee members inquired regarding the potential of constructing the roadway of concrete instead of asphalt. A brief comparison of the two materials is included below.

Portland Cement Concrete (PCC):

PCC, known as "rigid" pavement, is a strong and durable pavement material. It typically requires a thinner section than asphalt concrete (AC) to achieve similar strength. For example, a 6" PCC section may be equivalent to a 10" of AC section. The section thickness and composition is determined by the soils engineer based on assumed traffic loads and existing soil characters. PCC is generally maintenance free for its 30 to 40 year lifespan, however, it is more expensive to construct than asphalt paving. PCC may be poured in one lift, and has a longer curing ("drying") time. Due to its rigidity, expansion joints are required for proper construction. The joints can contribute to bumpy road conditions. The color is light and has a lower heat gain, but the light color makes it difficult to see paint markings/stripping. White and yellow paint colors, typically require an additional black paint outline to be legible, increasing construction cost and maintenance of markings. If roadway maintenance or subsurface repairs are required, entire sections (areas within expansion joints) of PCC may need to be removed and re-poured.

Asphaltic Concrete (AC):

AC pavement is considered "flexible" pavement. It is less rigid than PCC and requires a thicker section to achieve a similar strength to PCC. With regular maintenance, including resurfacing mill and overlay approximately every ten years, AC pavement can last 30 to 40 years. It may be placed in multiple lifts, allowing flexibility for various construction phasing options. The first lift, called the "base course" may be driven on temporarily until the final lift (the wearing surface) is placed. AC pavement also has a shorter curing time, reducing construction duration. Proper placement with an even finish, free of cracks, bumps and dips, create a smooth driving condition. Due to the black color, various pavement markings and traffic indicators are easily visible to motorists. If roadway maintenance or repairs are required smaller sections of AC paving can be removed and patched. The entire pavement section does not always need to be removed and re-placed.

Pavement Acoustics:

There is abundant ongoing research (Caltrans and the University of California Pavement Research Center; Davis and Berkeley) regarding noise due to the tire/pavement interaction. The results of these studies are highly technical, but it is generally accepted that this noise emission from road traffic normally increases over time as the road pavements age and are exposed to traffic and weather. Much of this research is targeted toward development of quieter AC pavement. PCC does not deteriorate in the same way as AC, so the increase in noise emission over time is less of a concern.

Relative Cost:

We performed an evaluation of the cost difference between AC and PCC pavement based on similar recent projects and cost data available from Caltrans and Los Angeles County. It is anticipated that the cost for PCC would be approximately 35% to 50% greater than AC (paving option cost only).

g. Beverly Blvd/North Santa Monica Boulevard Intersection (approach to improve conditions)

The Beverly Boulevard/Santa Monica Boulevard intersection was a problematic intersection in the 1980's. In addition to the movement of vehicles on North Santa Monica Boulevard, Palm Drive and Beverly Boulevard, the intersection also included movements across Beverly Boulevard onto Civic Center Drive. There were more than 20 different movements at the intersection.

In the late 1990's, the City restricted movements on Civic Center Drive. The residential east side connection was disconnected and Civic Center Drive was capped by a new cul de sac. The west side was converted to right in/right out movements only. This reduced the number of movements controlled by the signal to 11.

In 2010, the City replaced the eastbound "No Right Turn on Red" with a right turn arrow which allows right turns to occur during the eastbound through phase as well as during 10 seconds of the Beverly Boulevard left turn phase. This reduced congestion and enhanced safety.

During the last three years, May 2010 through May 2013, there have only been four reported accidents at this intersection.

During the design phase, the Psomas team will consider additional improvements at the intersection. Improvements may include controlling left turns with “cat tracks” (i.e. dashed pavement markings indicating the turning movements within an intersection) from Beverly Boulevard onto Santa Monica Boulevard to keep vehicles in their lane. These left turns will also be facilitated by the widening (if elected) of Santa Monica Boulevard which will result in wider receiving lanes into which these left turns will be made (see Exhibit 4, attached). Other considerations that will be examined include the design of median islands, locations of stop bars, crosswalk location, curb return radii and lane widths.

APPENDIX A
Email Correspondence: LADOT Bicycle Division

From: Aaron Kunz [<mailto:akunz@beverlyhills.org>]
Sent: Thursday, January 16, 2014 7:48 AM
To: Jeff Chess; Sean Vargas
Subject: Fwd: Bike Lanes on Santa Monica

Here's the email from LA to add to the section about inter jurisdictions.

Sent from my iPad

Begin forwarded message:

From: Tim Fremaux <tim.fremaux@lacity.org>
Date: January 14, 2014 at 4:44:39 PM MST
To: Aaron Kunz <akunz@beverlyhills.org>
Cc: Martha Eros <meros@beverlyhills.org>, Teresa Revis
<trevis@beverlyhills.org>
Subject: Re: Bike Lanes on Santa Monica

No problem, you can include.

On Tue, Jan 14, 2014 at 3:42 PM, Aaron Kunz <akunz@beverlyhills.org> wrote:
Thanks Tim

I am out of town. Are you ok with us including your email with the Committee packet? Please let Martha and Teresa know .

Sent from my iPhone

> On Jan 14, 2014, at 4:08 PM, "Tim Fremaux" <tim.fremaux@lacity.org> wrote:
>
> Hi Aaron,
>
> I understand that the City of Beverly Hills is considering bike lanes (or at least widening for future bike lanes) on Santa Monica Blvd. within the Beverly Hills City Limits. I also understand via Michael Meyer that there is a desire to interface with the neighboring cities of West Hollywood and Los Angeles to ensure optimal regional bikeway connectivity as it pertains to the Santa Monica Blvd. corridor. On behalf of the City of Los Angeles, I would like to confirm that we are committed to working with the City of Beverly Hills to design and implement a

seamless connection between our respective existing and planned bike lanes at the western Beverly Hills/Los Angeles City Limit.

>

> Presently, the bike lanes on Santa Monica Blvd. within the City of Los Angeles terminate at Avenue of the Stars. The section from Avenue of the Stars to the Beverly Hills City Limit is identified on our adopted 2010 Bicycle Plan for future bike lanes. We are currently working on an easterly extension to Century Park East that is achievable without removing the existing number of vehicular lanes.

>

> Extending the lanes up to the City Limit is contingent upon a more developed understanding of the configuration proposed in Beverly Hills, and then analyzing and determining what if any changes to the lane configurations would be required. We are committed to working with you as these facilities are being developed in an effort to come up with an optimal solution. If you have any questions or would like to discuss further, please don't hesitate to contact me.

>

> Sincerely,

>

> --

> Tim Fremaux, P.E.

> Transportation Engineering Associate III

> City of Los Angeles Department of Transportation

> Project Delivery Division - Bikeways Section

> 100 S. Main St., 9th Floor

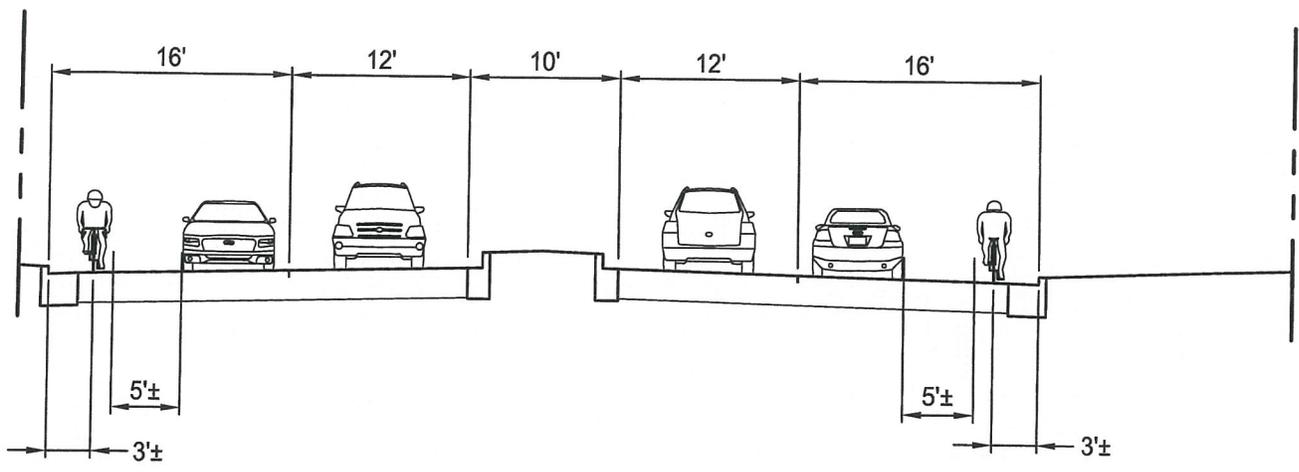
> Los Angeles, CA 90012

> Tel.: (213) 972-4957

> Fax: (213) 972-8610

The City keeps a copy of all E-mails sent and received for a minimum of 2 years. All retained E-mails will be treated as a Public Record per the California Public Records Act, and may be subject to disclosure pursuant to the terms, and subject to the exemptions, of that Act.

W:\041000\ENGR\EXHIB\NSMB-019_66ft-Sect-w-Bike-Lane.dwg Wed, 15 Jan 2014 - 1:15pm ed by: dhewlett



IMPROVED 66' ROADWAY SECTION
Increased Road Width (Curb to Curb)
LOOKING WEST

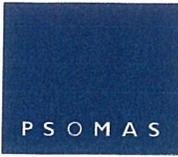


EXHIBIT 1
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
BICYCLE CLEARANCE EXHIBIT



c:\aest2012\tempfiles\tempdraw\4604\NSUB-024-00_Corin-Medion-Corin.dwg Fri, 17 Jun 2014 - 3:21pm Printed by: drawlett

PROJECT LIMITS

CITY OF LOS ANGELES
CITY OF BEVERLY HILLS

MORENO DR

SANTA MONICA BLVD (NORTH)

727

726

725

724

TR
MB 8.3

PA
PM
PMB 31



SHEET 1 of 17

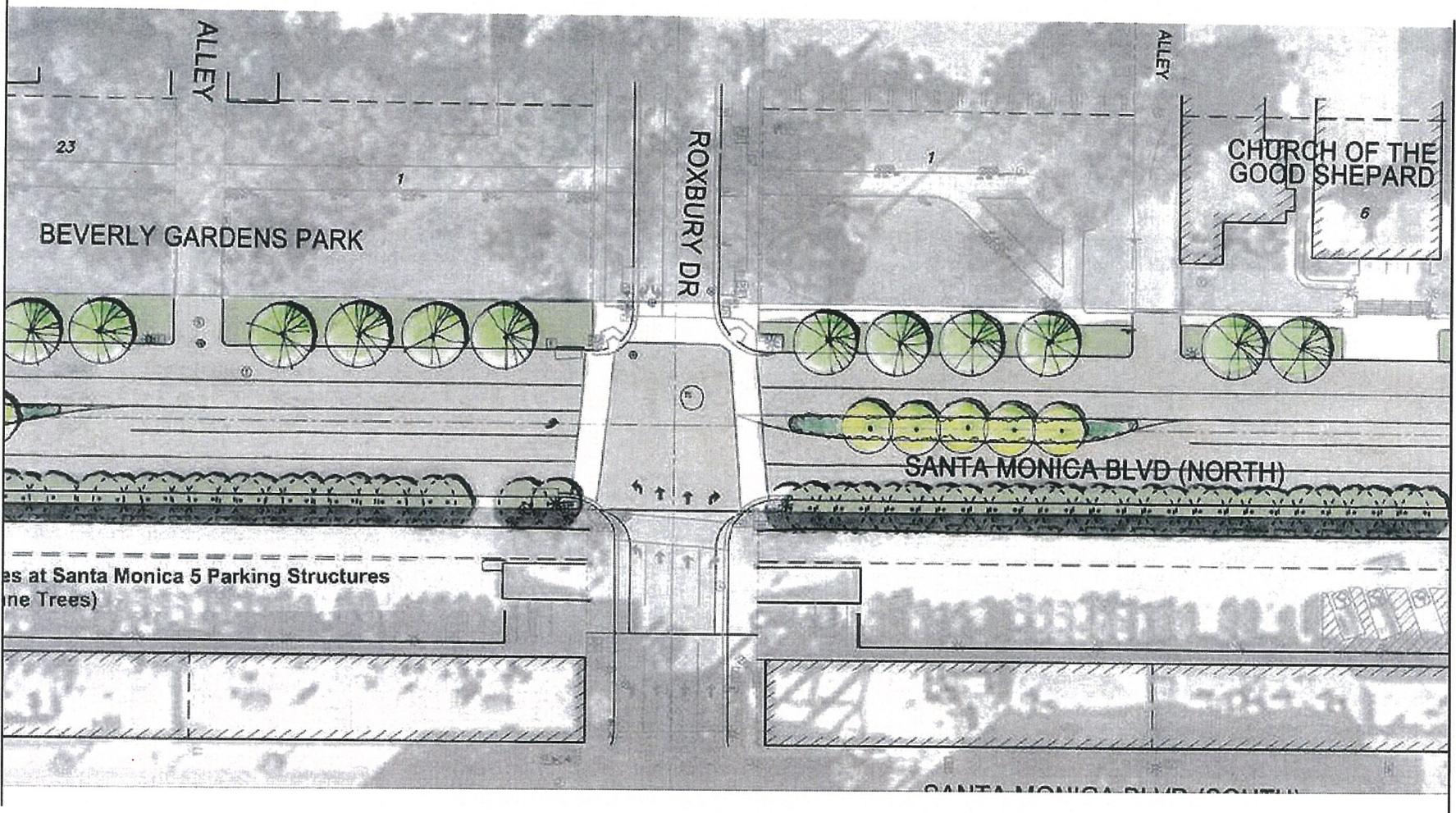
EXHIBIT 2
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
CANDIDATE MEDIAN LOCATIONS EXHIBIT



MATCHLINE - SEE SHEET 2

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MATCHLINE - SEE SHEET 4

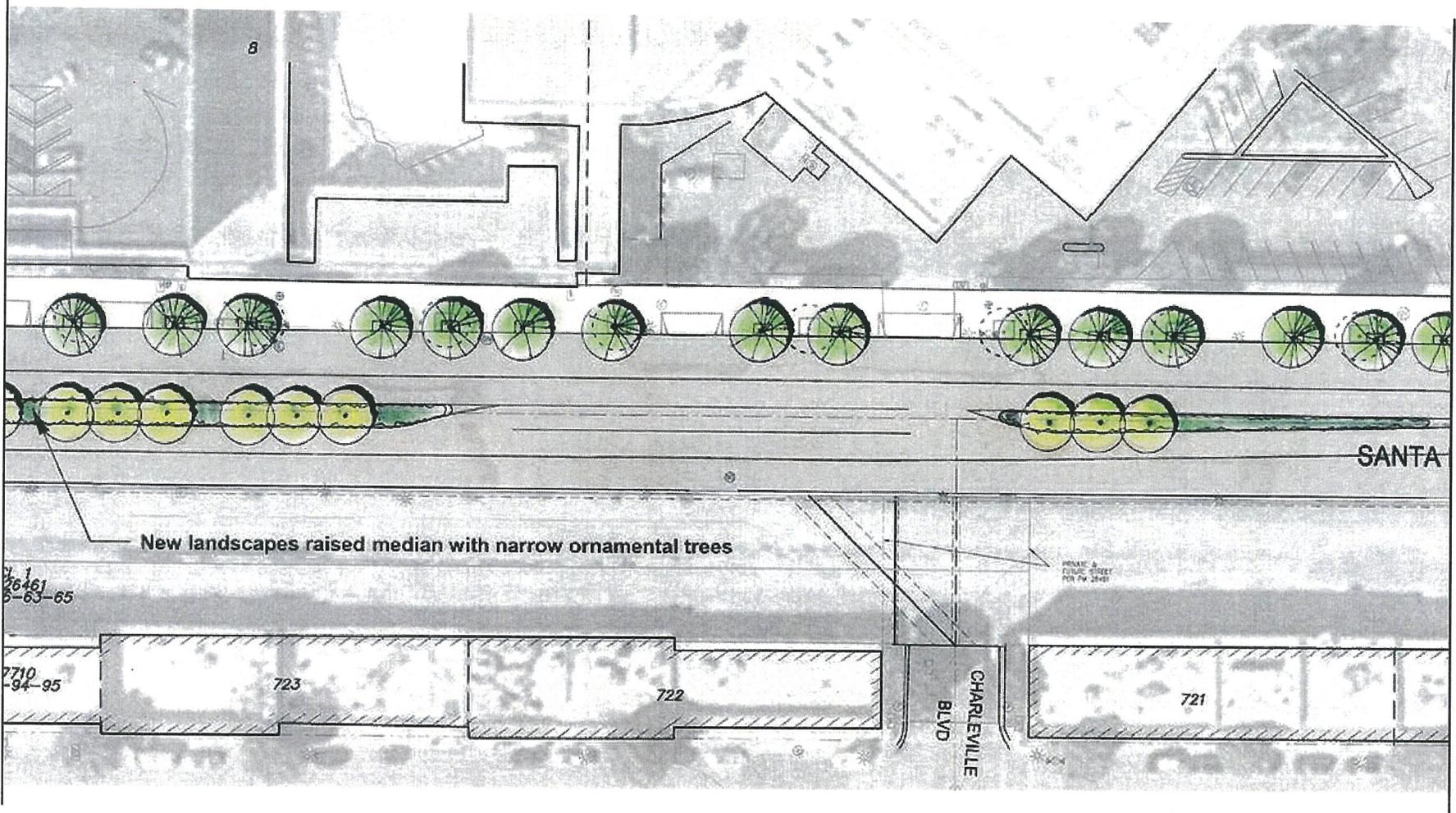


MATCHLINE - SEE SHEET 6



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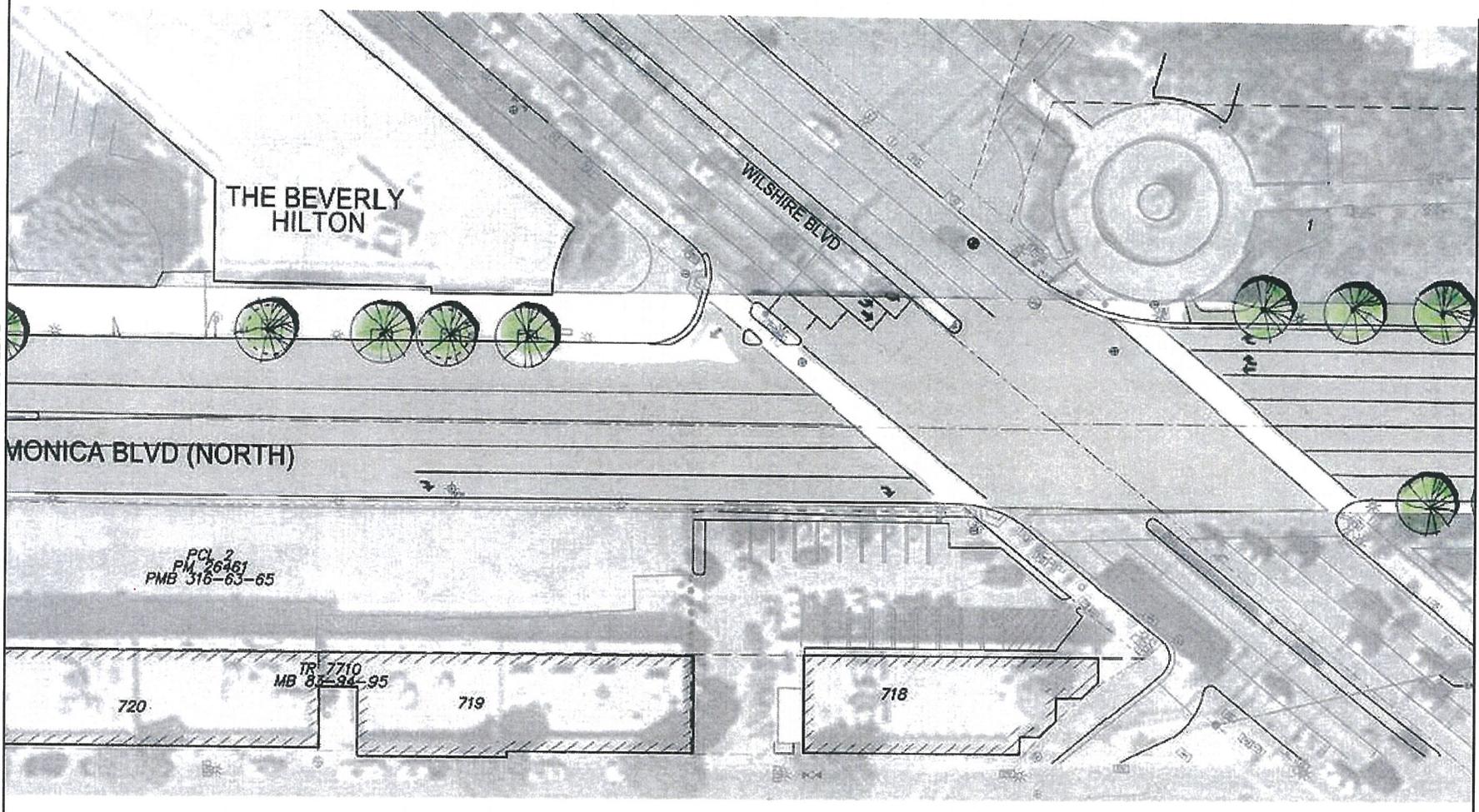
MATCHLINE - SEE SHEET 1



MATCHLINE - SEE SHEET 3



C:\vd\2012\Veronika\Veronika\4504\NSMB-024-00_Corpus-Median-Corpus\Fri,17 Jun 2014 - 3:21pm Plotted by ghewett
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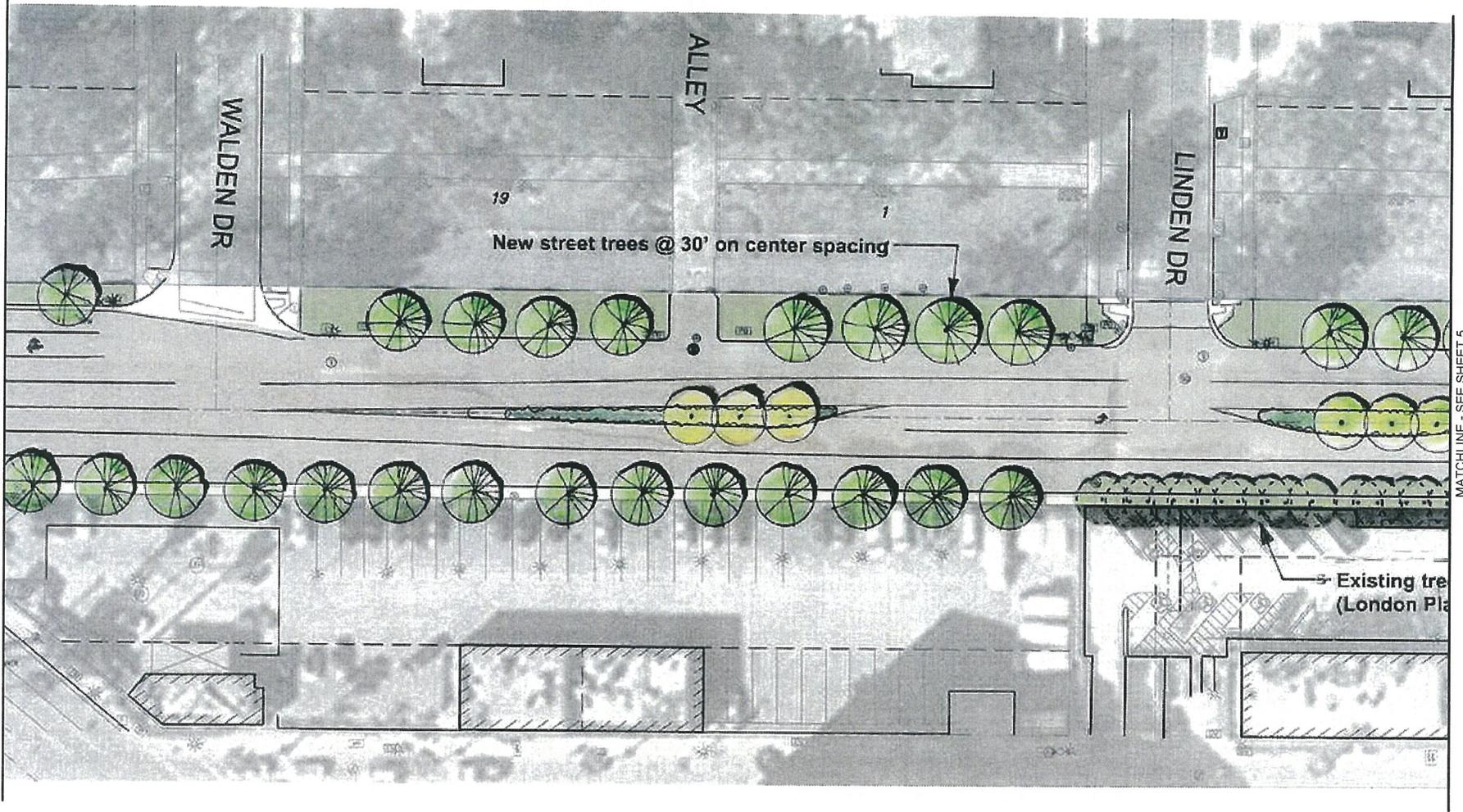


MATCHLINE - SEE SHEET 4



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MATCHLINE - SEE SHEET 3

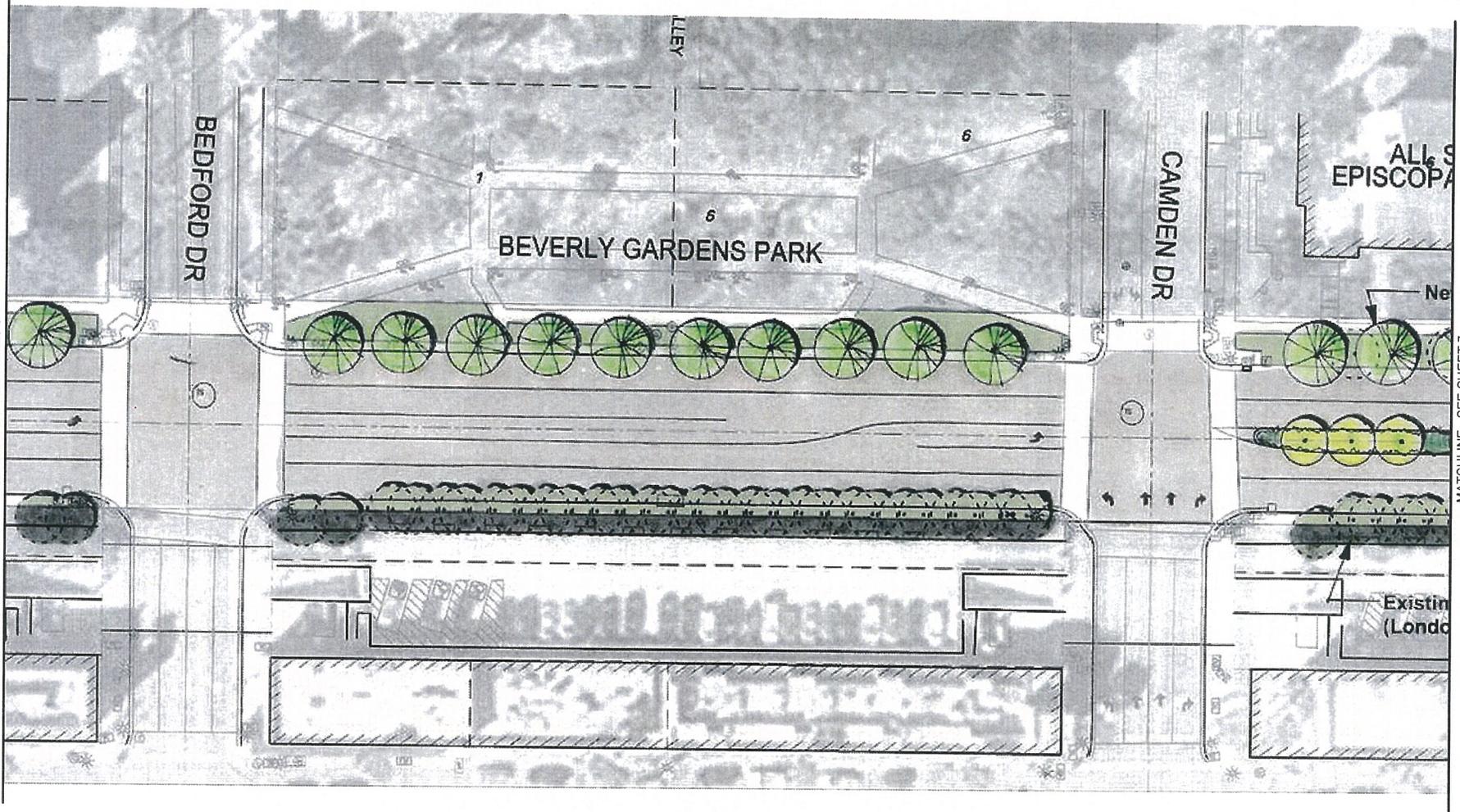


MATCHLINE - SEE SHEET 5



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MATCHLINE - SEE SHEET 5



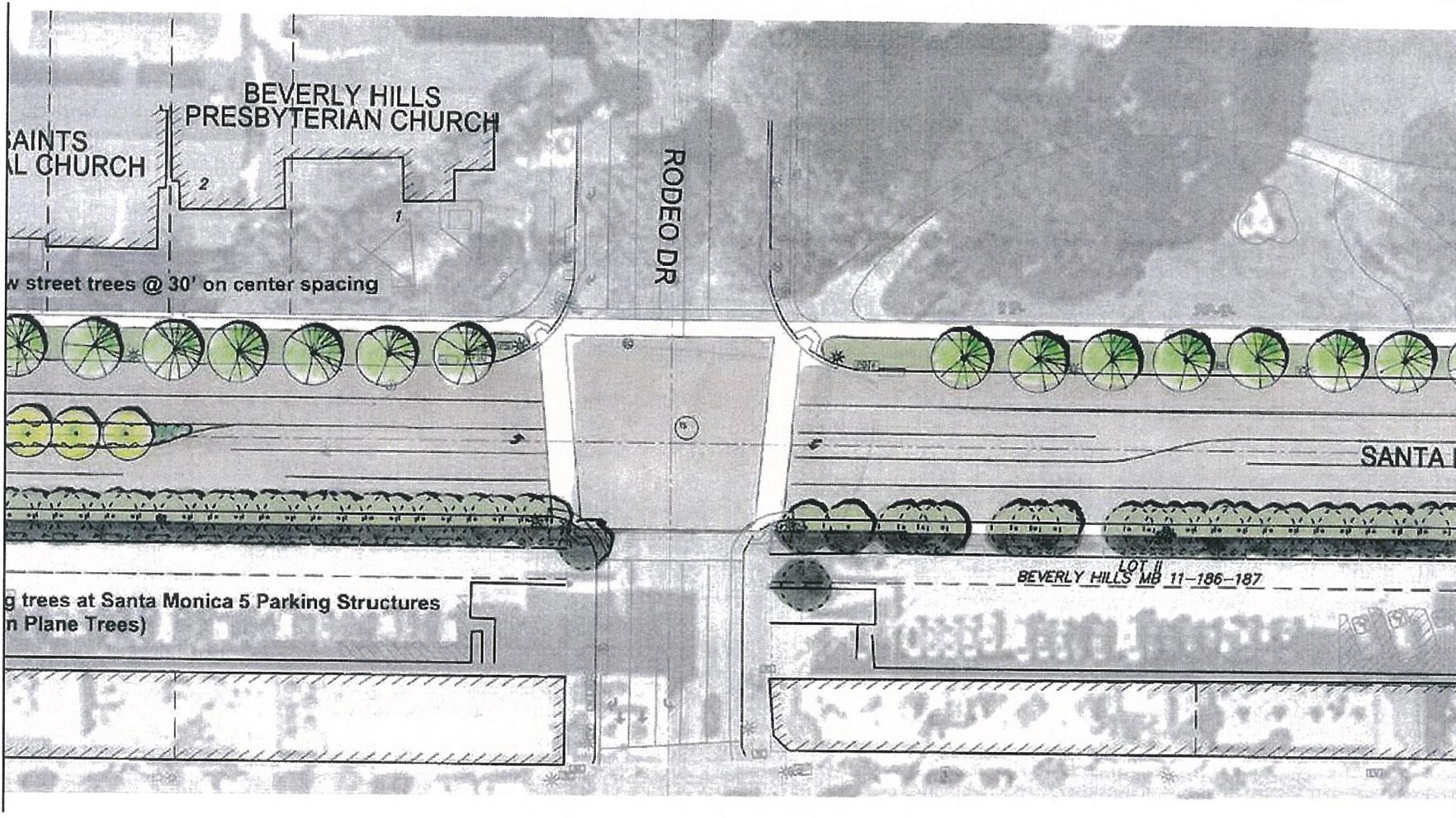
MATCHLINE - SEE SHEET 7



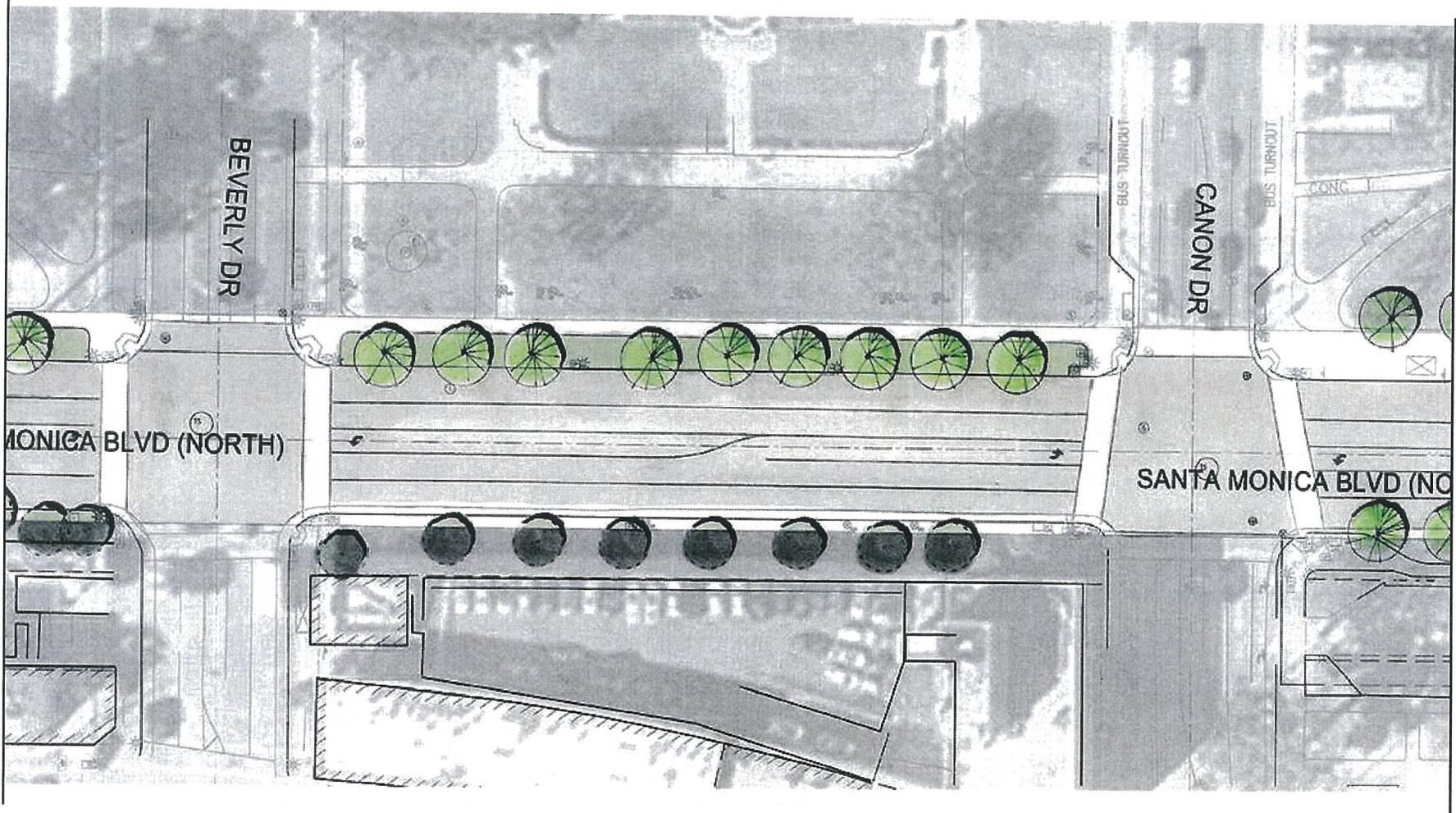
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MATCHLINE - SEE SHEET 6

MATCHLINE - SEE SHEET 8



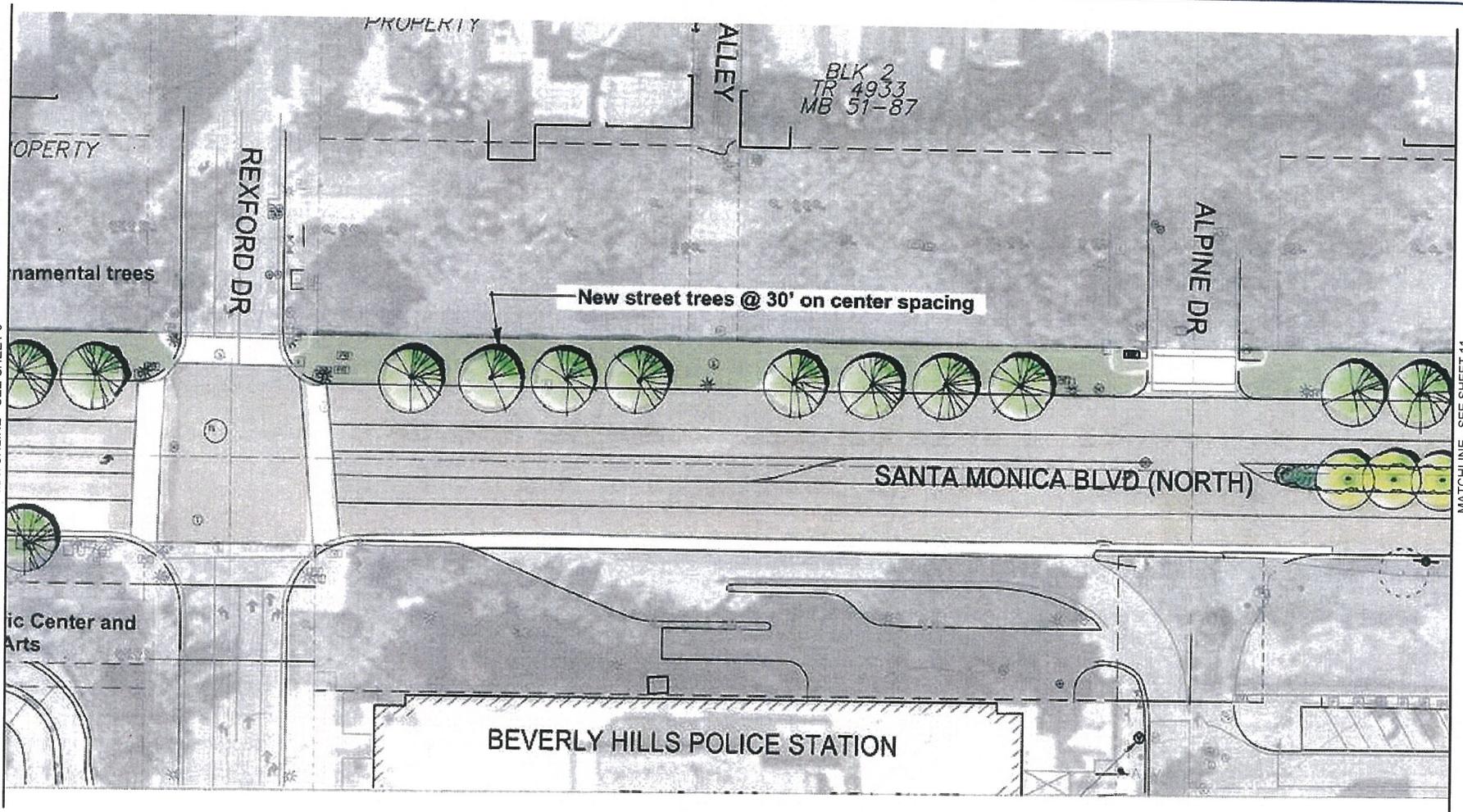
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MATCHLINE - SEE SHEET 7



MATCHLINE - SEE SHEET 9



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MATCHLINE - SEE SHEET 9

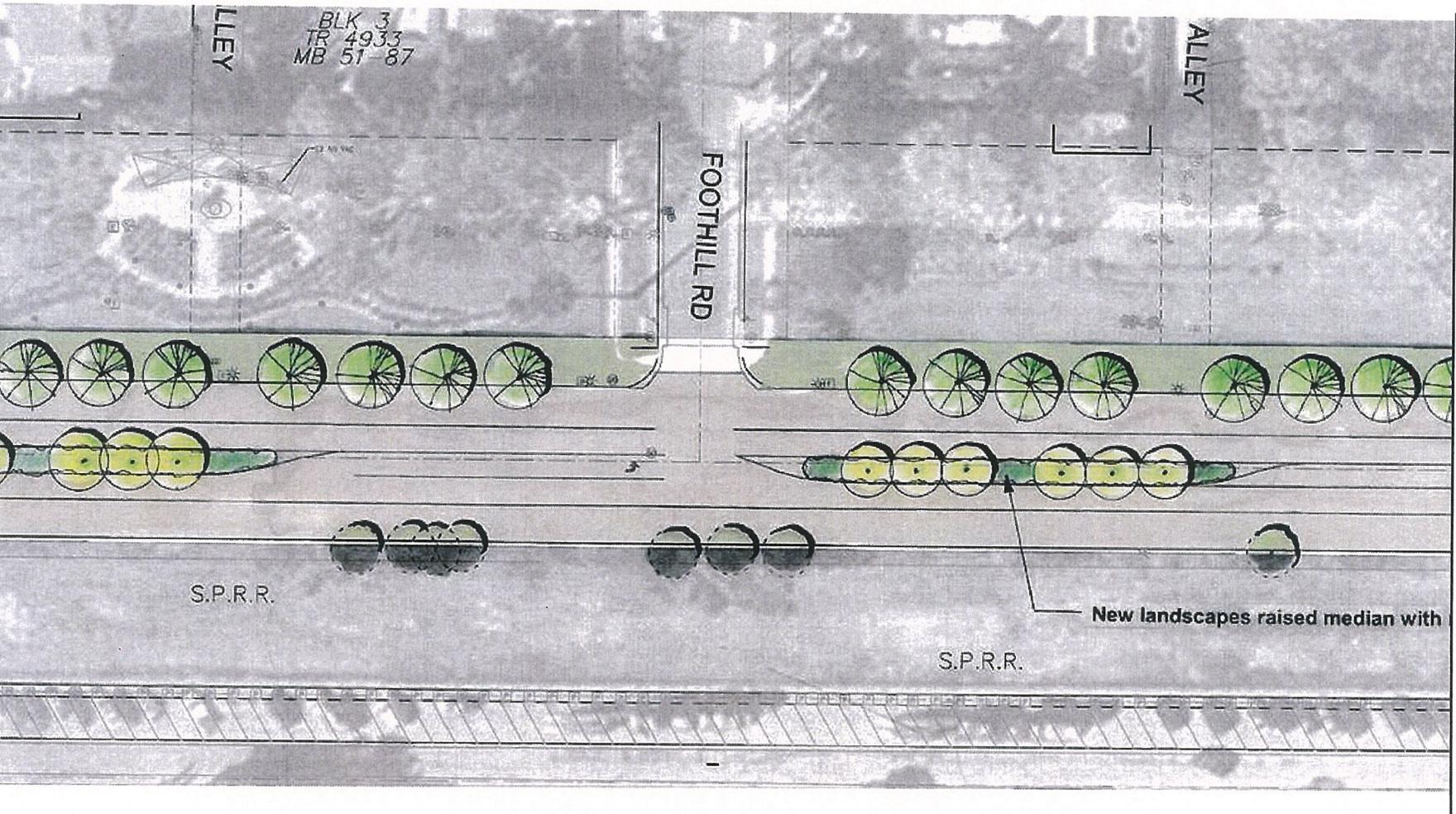


MATCHLINE - SEE SHEET 11



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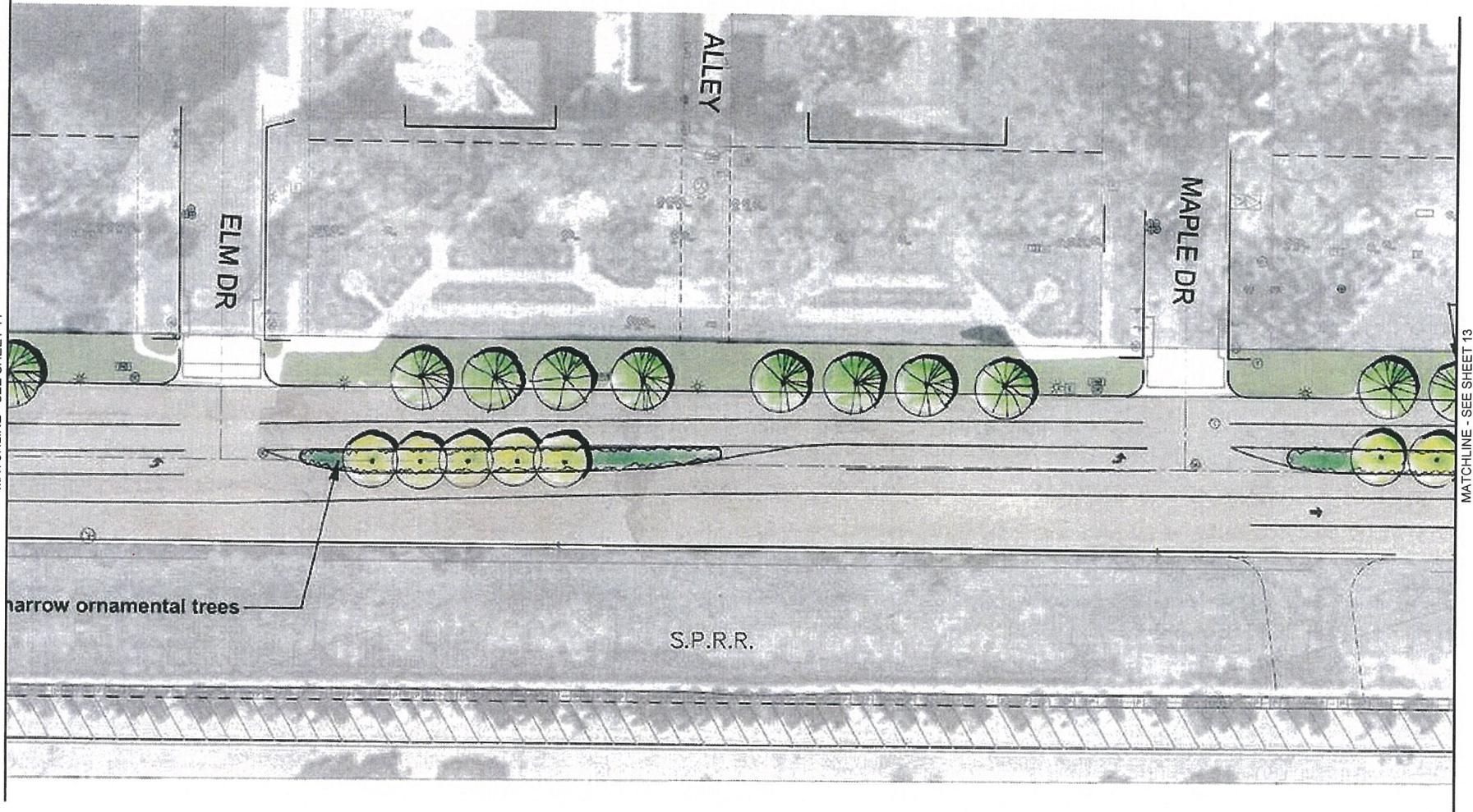
MATCHLINE - SEE SHEET 10



MATCHLINE - SEE SHEET 12



MATCHLINE - SEE SHEET 11



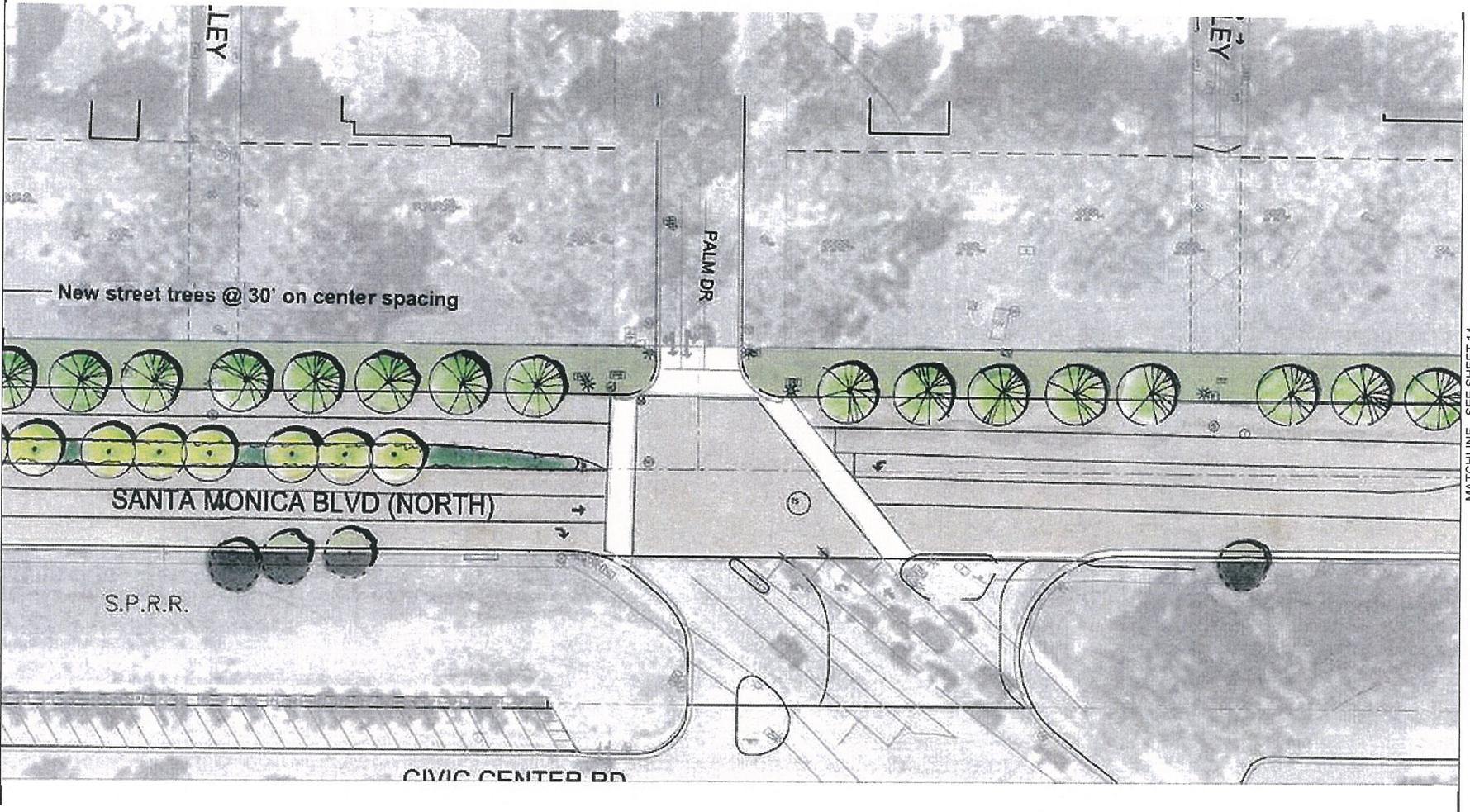
narrow ornamental trees

S.P.R.R.

MATCHLINE - SEE SHEET 13



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MATCHLINE - SEE SHEET 12

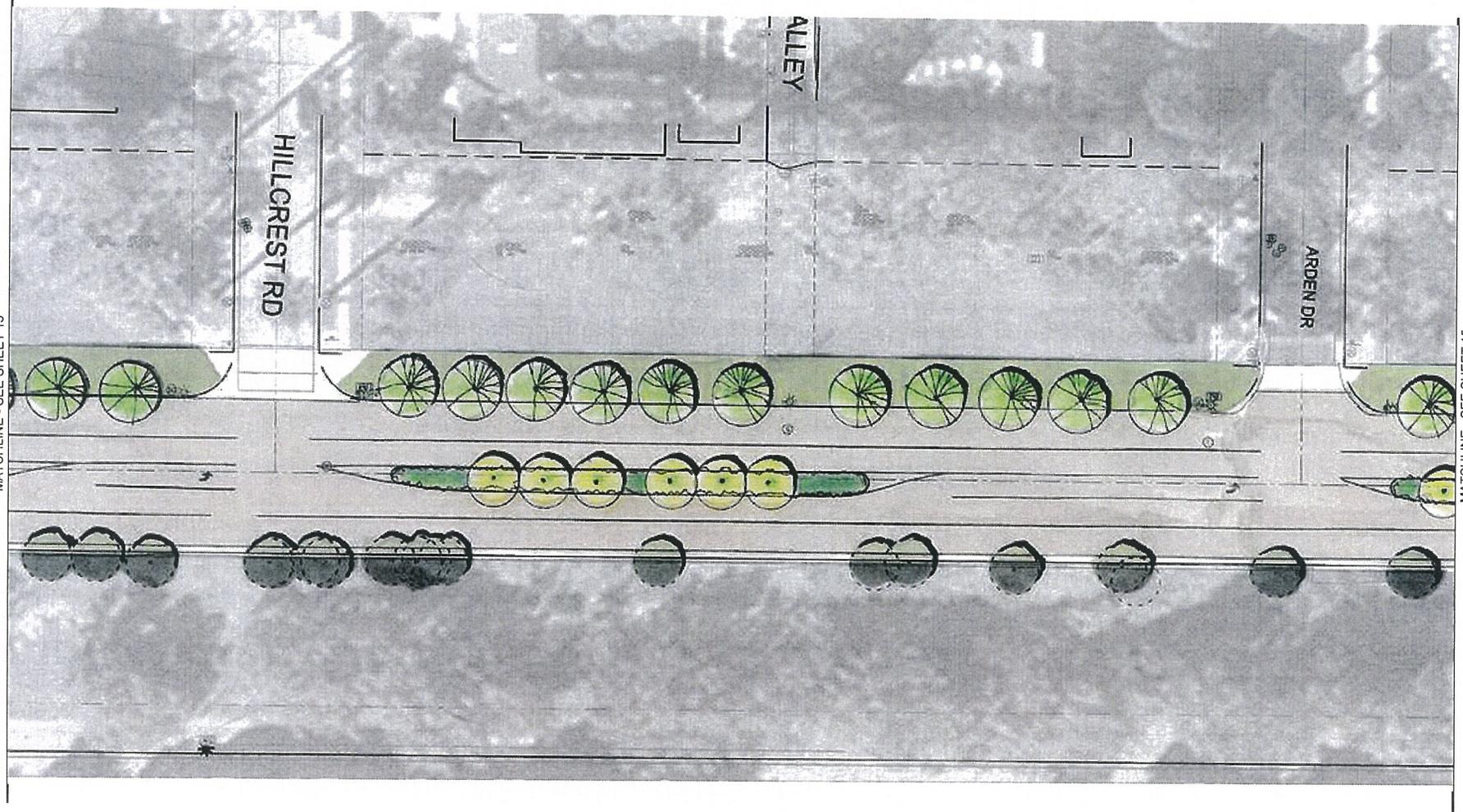


MATCHLINE - SEE SHEET 14



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MATCHLINE - SEE SHEET 13

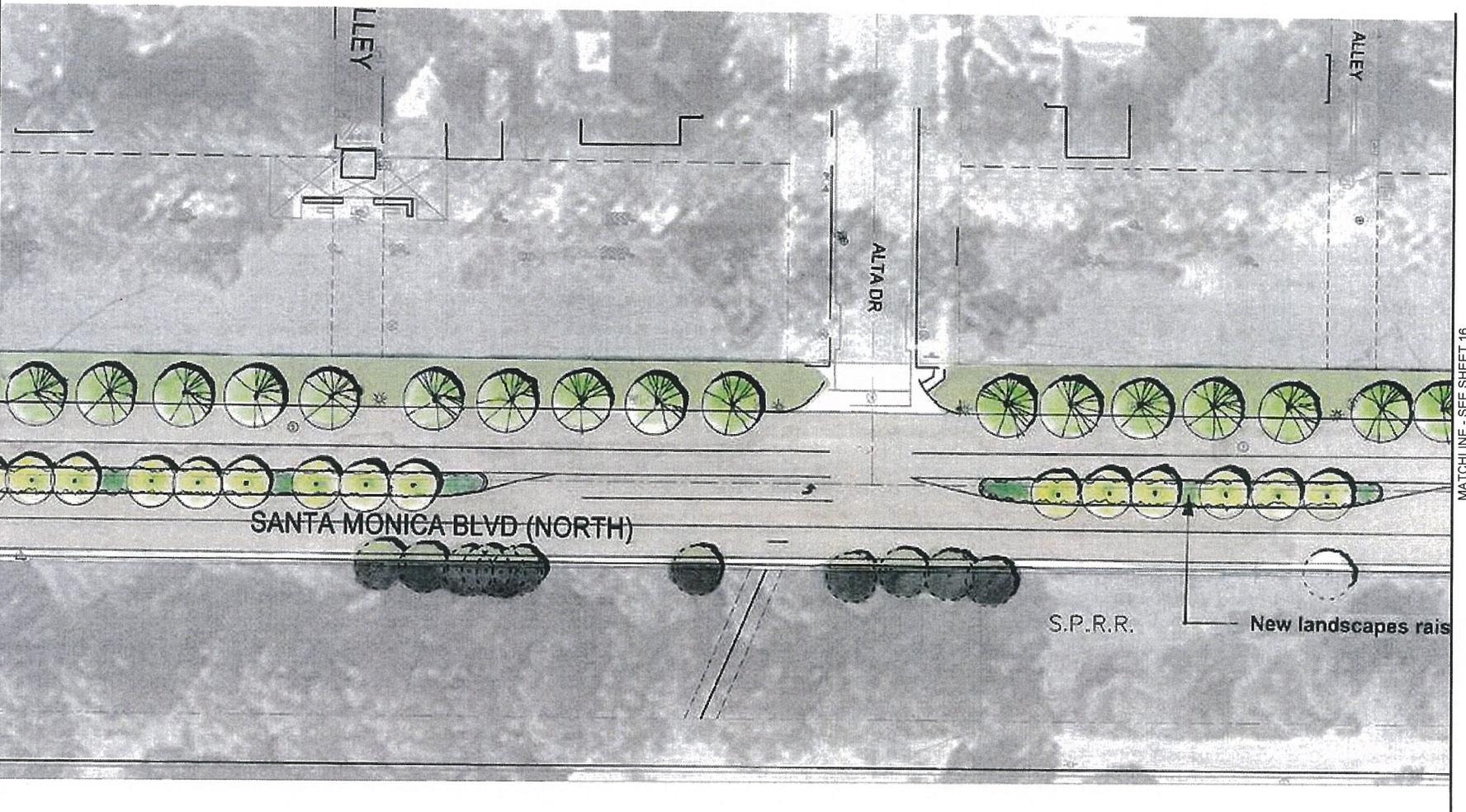


MATCHLINE - SEE SHEET 15



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MATCHLINE - SEE SHEET 14

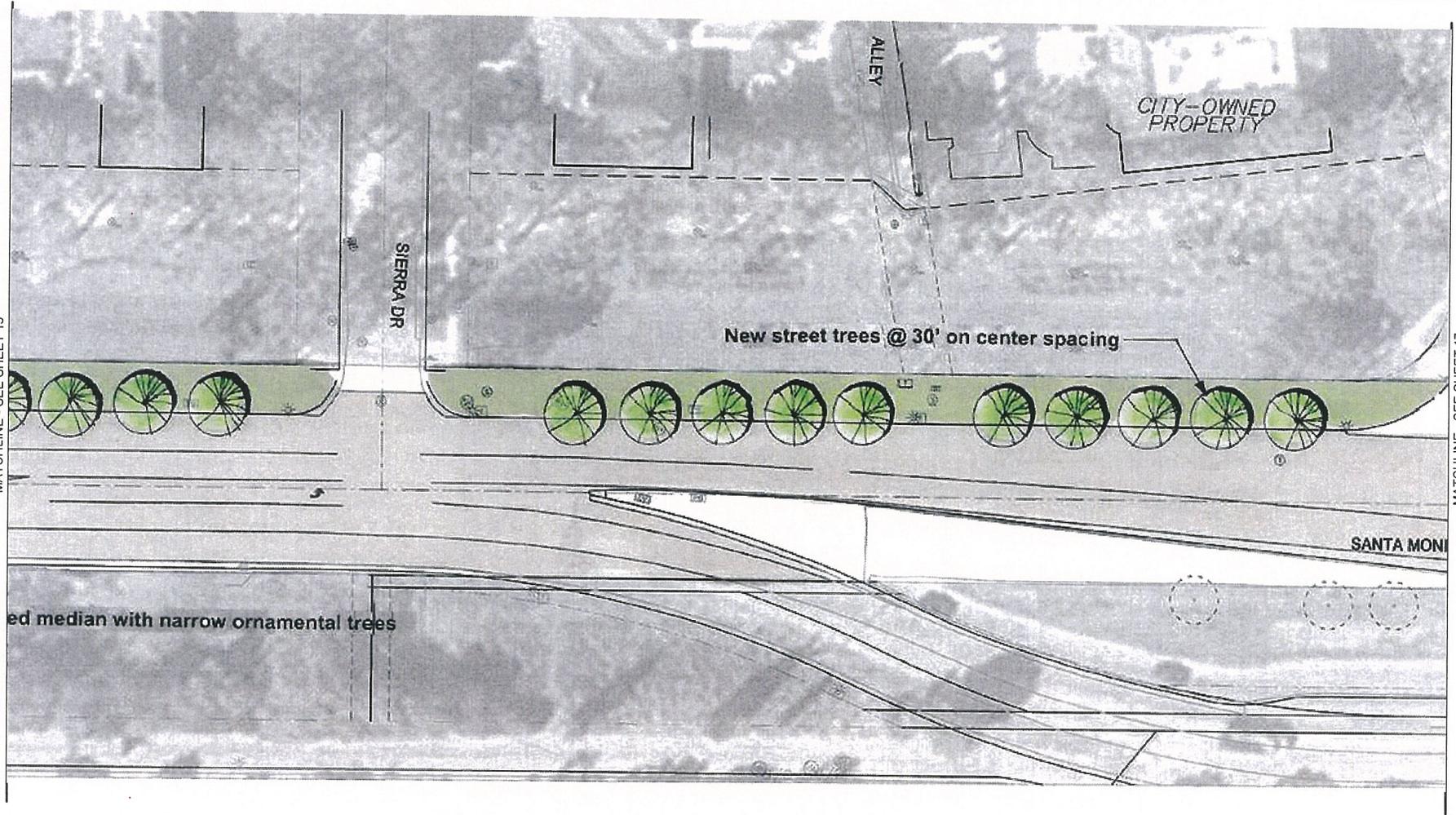


MATCHLINE - SEE SHEET 16



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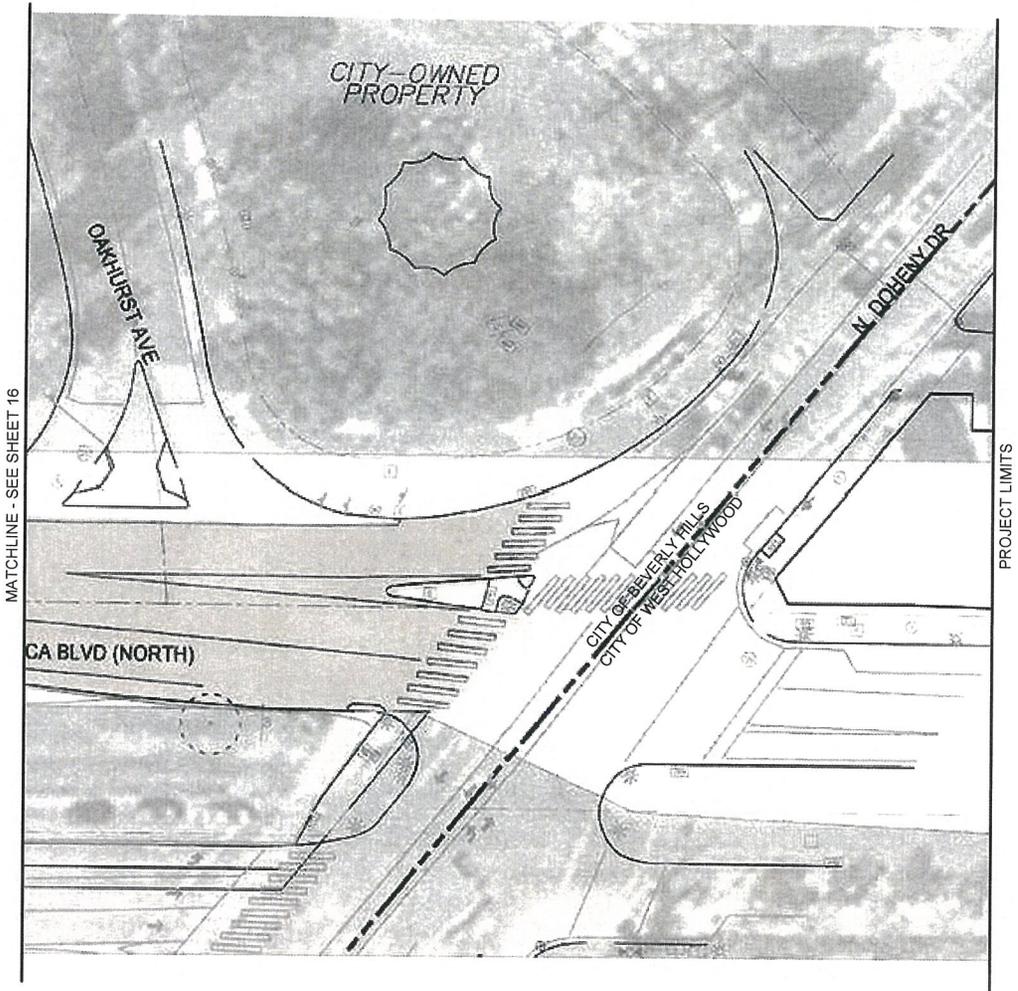
MATCHLINE - SEE SHEET 15



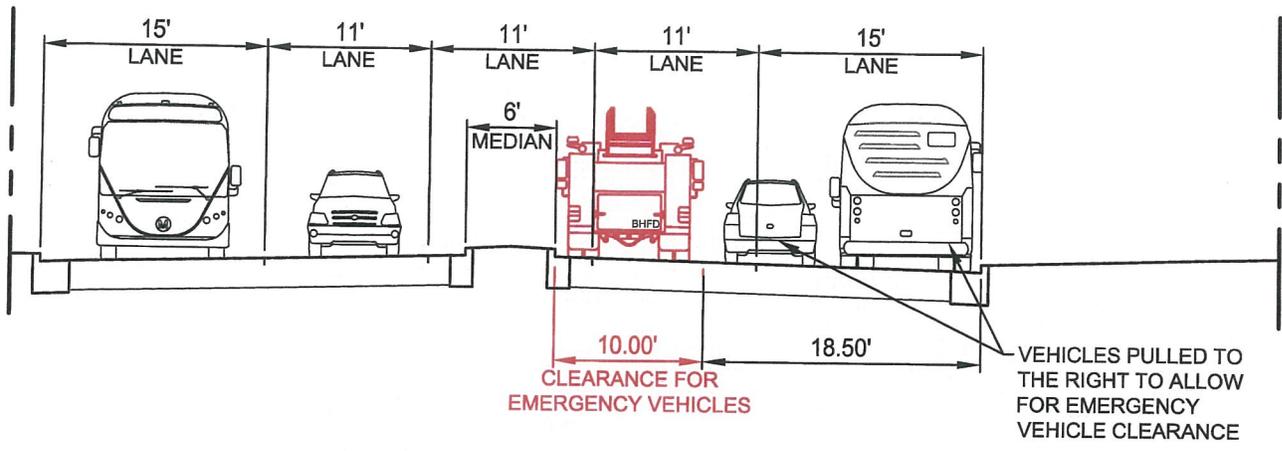
MATCHLINE - SEE SHEET 17



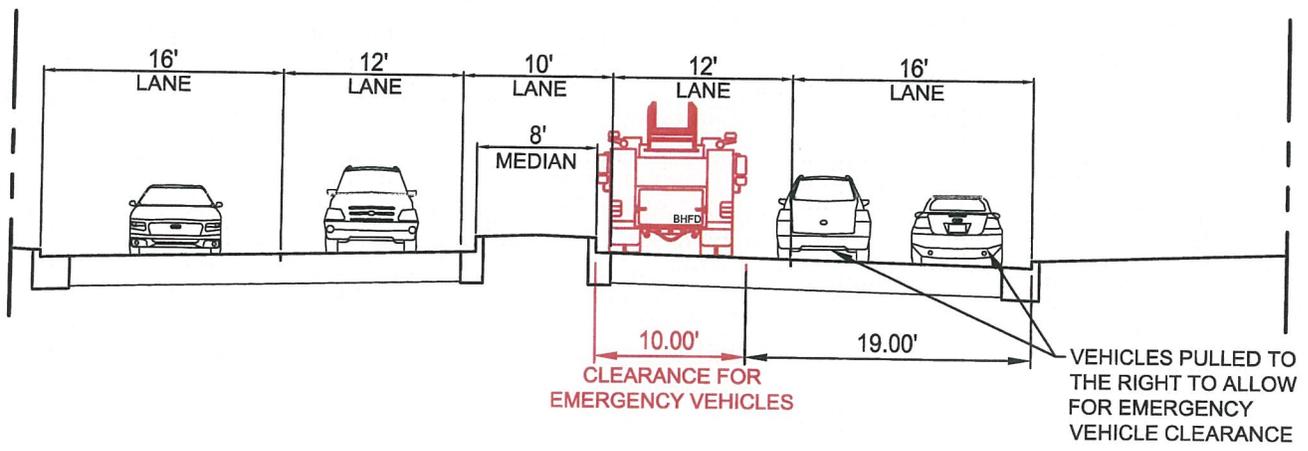
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W:\041000\ENGR\EXHIB\NSMB-020_Emergency Vehicle Sections.dwg Fri, 17 Jan 2014 - 4:15pm created by: dhewlett



IMPROVED 63' ROADWAY SECTION
 Maintain Existing Width (Curb to Curb)
 LOOKING WEST



IMPROVED 66' ROADWAY SECTION
 Increase Road Width (Curb to Curb)
 LOOKING WEST



EXHIBIT 3
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
EMERGENCY ACCESS CLEARANCE EXHIBIT



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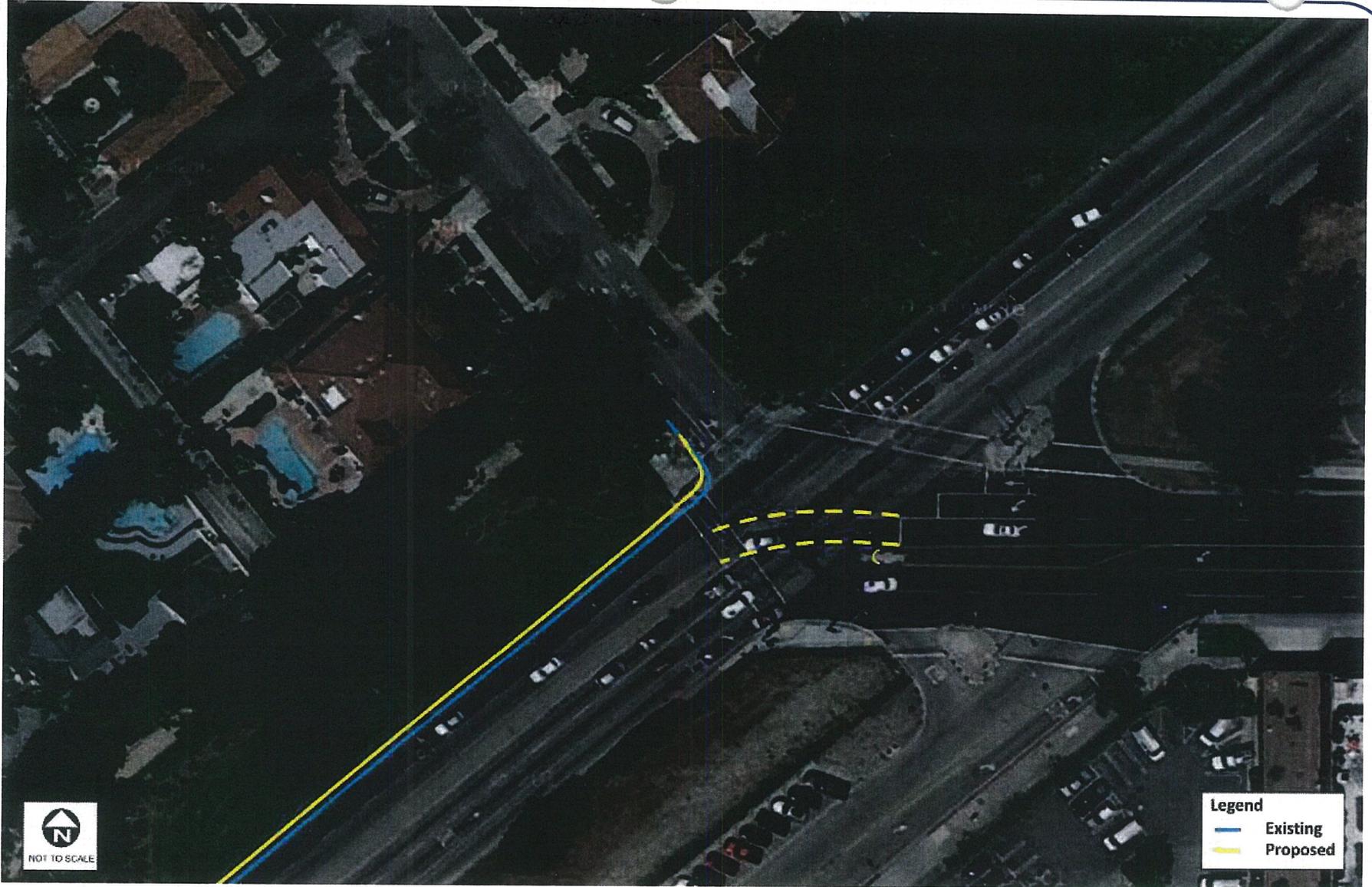


EXHIBIT 4
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
BEVERLY BLVD/NORTH SANTA MONICA BLVD
INTERSECTION EXHIBIT



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EXHIBIT 5
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
PHOTO RENDERING - (NO MEDIAN) 60' CURB TO CURB WIDTH



W:\BEVERLYHILLS\ENG\EXHIBITS\MB-024-06_No-Median_63ft.dwg, Fri, 17 Jun 2014, - 3:31pm, Plotted by: dshawatt



EXHIBIT 6
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
PHOTO RENDERING - (NO MEDIAN) 63' CURB TO CURB WIDTH



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EXHIBIT 7
NORTH SANTA MONICA BLVD.
RECONSTRUCTION

PHOTO RENDERING - (VEGETATED MEDIAN) 60' CURB TO CURB WIDTH



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EXHIBIT 8
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
PHOTO RENDERING - (VEGETATED MEDIAN) 63' CURB TO CURB WIDTH



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EXHIBIT 9
NORTH SANTA MONICA BLVD.
RECONSTRUCTION

PHOTO RENDERING - (VEGETATED MEDIAN AND STREET TREES)
INCREASED WIDTH AT EXISTING 60' CURB TO CURB LOCATION



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EXHIBIT 10
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
PHOTO RENDERING - (VEGETATED MEDIAN AND STREET TREES ARE NOT SHOWN FOR CLARITY)
INCREASED WIDTH AT EXISTING 60' CURB TO CURB LOCATION



W:\BREV041000\ENGR\EXHIB\NSMB-024-08_Medison_Trees_63'-to-65ft.dwg, Fri, 17 Jun 2014, - 3:50pm, Plotted by: chawett



EXHIBIT 11
NORTH SANTA MONICA BLVD.
RECONSTRUCTION
PHOTO RENDERING - (VEGETATED MEDIAN AND STREET TREES)
INCREASED WIDTH AT EXISTING 63' CURB TO CURB LOCATION



W:\BEV041000\ENGR\EXHIB\NSMB-024-04_Curbs-66ft-No-Median.dwg, Fri, 17 Apr 2014, 3:53pm. Plotted by: dbewett



EXHIBIT 12
NORTH SANTA MONICA BLVD.
RECONSTRUCTION

PHOTO RENDERING - (VEGETATED MEDIAN AND STREET TREES ARE NOT SHOWN FOR CLARITY)
INCREASED WIDTH AT EXISTING 63' CURB TO CURB LOCATION

