

## TECHNICAL MEMORANDUM

**DATE:** February 24, 2017  
**TO:** Shanna Schultz, Andrew Webb, City of Albuquerque  
**FROM:** Karen Aspelin, P.E.  
**SUBJECT:** Monte Vista Boulevard Parking Study  
Draft Technical Memorandum

**PROJECT NUMBER:** 564-4354-013  
**PROJECT NAME:** Monte Vista Boulevard Parking Study

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This technical memorandum documents the findings of the Monte Vista Boulevard Parking Study, a task for the City of Albuquerque City Council. The purpose of this study is to identify and evaluate on-street parking options for Monte Vista Boulevard from the Girard Boulevard/Central Avenue intersection on the west to the Campus Boulevard intersection on the east.

### EXISTING CONDITIONS

Monte Vista Boulevard between Girard Boulevard/Central Avenue and Campus Boulevard is classified as a minor arterial with a posted speed limit of 35 miles per hour (mph). This section is approximately 0.24 miles long and spans four city blocks, with intersections at Dartmouth Drive, Richmond Drive, and Bryn Mawr Drive. The Girard Boulevard/Central Avenue intersection and the Campus Boulevard intersection are signalized, and the three intermediate intersections are stop-controlled on the intersecting street approaches. The Dartmouth Drive and Richmond Drive intersections are four-leg intersections, and the Bryn Mawr Drive intersection is a T-intersection.

The existing cross section of Monte Vista Boulevard generally includes one eastbound driving lane, one or two westbound driving lanes, parallel parking lanes and bike lanes on both sides of the street, and either a two-way left-turn lane or a raised median. There is a single westbound driving lane from Campus Boulevard to Richmond Drive, and two westbound driving lanes from Richmond Drive to the Girard Boulevard/Central Avenue intersection. At the Girard Boulevard/Central Avenue intersection there is a westbound right-turn lane along with the two driving lanes (left turns are not allowed), but the westbound bike lane and parking lane do not continue all the way to Girard-Central. At the Campus Boulevard intersection there is an eastbound right-turn lane, bike lane and an eastbound left-turn lane, with the eastbound parking lane dropped approximately 110 feet west of the intersection. Sidewalks extend the full length of the corridor on both sides of the road. The right-of-way is approximately 100 feet wide, and the curb-to-curb roadway width is 64 feet wide except for the Dartmouth Drive to Richmond Drive block where it is approximately 68.5 feet wide.

Driveway access along this roadway section is summarized in Table 1. There are no City bus stops in this section, and there is a school crossing zone for Monte Vista Elementary School at the east end between Bryn Mawr Drive and Campus Boulevard.

**Table 1. Driveways in the Study Corridor**

BLOCK	SIDE OF ROAD	PROPERTY DESCRIPTION	ACCESS TYPE
Girard – Dartmouth	North	Taco Bell	Right-in/Right-out
Girard – Dartmouth	North	Strip Shopping Center	Full
Girard – Dartmouth	North	Strip Shopping Center	Right-in/Right-out
Dartmouth – Richmond	South	HB Construction	Full
Richmond – Bryn Mawr	South	Professional Office	Full
Richmond – Bryn Mawr	South	Professional Office	Full
Richmond – Bryn Mawr	South	Goffe Visual Services	Full
Bryn Mawr – Campus	South	Monte Vista Day Nursery	Full (2 drives)
Bryn Mawr – Campus	South	Healing Gate	Full

Based on the Mid-Region Council of Governments (MRCOG) traffic flow map for 2014, the annual average daily traffic (AADT) for Monte Vista Boulevard is about 5,300 vehicles per day (vpd). MRCOG’s 2040 Metropolitan Transportation Plan (MTP) shows no plans for roadway widening in this section, and Monte Vista Boulevard is not planned for transit-related improvements. On-street bike lanes are shown as “existing” on this segment of Monte Vista Boulevard in the 2040 MTP.

Parking improvements were recently constructed along the south side of Monte Vista Boulevard between Dartmouth Drive and Richmond Drive, and along the west side of Richmond Drive south of Monte Vista Boulevard. These include construction of ten back-in angle parking spaces along with sidewalk, curb and gutter, and landscape improvements. The new parking extends from approximately 120 feet east of Dartmouth Drive to the Richmond Drive intersection. The remaining portion of the south side of the road from Dartmouth Drive to the beginning of the back-in angle parking is reserved as a loading zone. Figure 1 illustrates the recently built parking improvements. Including the 10 spaces built with this new construction, Monte Vista currently has approximately 52 on-street parking spaces between Girard-Central and Campus Drive (number is approximate as parallel parking spaces along the street are not marked).

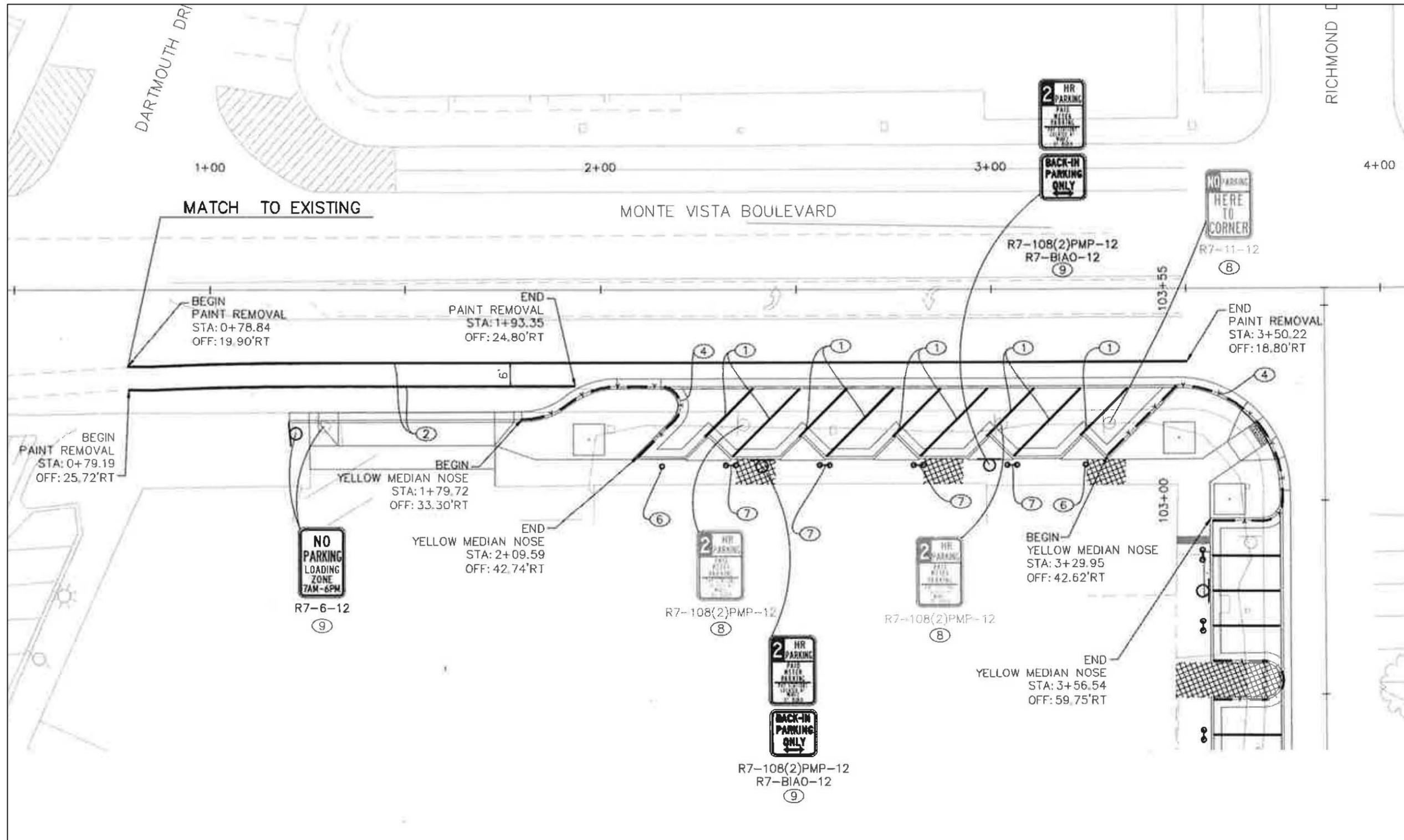
## ON-STREET PARKING OPTIONS

Four on-street parking options were evaluated and are shown in Figures 2 through 5:

- Option 1 – Diagonal parking within the median, but back-in angle parking on the south side between Dartmouth Drive and Richmond Drive
- Option 2 – All parallel parking, except for the newly constructed back-in angle parking area on the south side between Dartmouth Drive and Richmond Drive
- Option 3 – A combination of back-in angle parking and parallel parking on both sides of the road
- Option 4 – A different combination of back-in angle parking and parallel parking on both sides of the road

The conceptual layouts of the options were developed with consideration for the design guidelines provided in the City of Albuquerque Development Process Manual (DPM), the American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (“Green Book”), the City of Albuquerque Bikeways and Trails Facility Plan (Bikeways Plan), the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), and the National Committee on Uniform Traffic Laws and Ordinances’ (NCUTLO) Uniform Vehicle Code (UVC). The general design guidelines are provided in Table 2.

Figure 1. Plans for Recent Parking Improvements at Monte Vista/Richmond





MONTE VISTA BLVD  
PARKING STUDY

OPTION 1  
MEDIAN DIAGONAL PARKING





MONTE VISTA BLVD  
PARKING STUDY

OPTION 2  
PARALLEL PARKING BOTH SIDES



MONTE VISTA BLVD  
PARKING STUDY  
OPTION 2  
PARALLEL PARKING BOTH SIDES



MONTE VISTA BLVD  
PARKING STUDY

OPTION 3  
BACK-IN ANGLE/PARALLEL  
PARKING COMBINED



SCALE: 1"=50'

MONTE VISTA BLVD  
PARKING STUDY  
OPTION 3  
BACK-IN ANGLE/PARALLEL  
PARKING COMBINED



MONTE VISTA BLVD  
PARKING STUDY

OPTION 4  
BACK IN ANGLE/PARALLEL PARKING  
COMBINED



SCALE: 1"=50'

**MONTE VISTA BLVD  
PARKING STUDY**  
OPTION 4  
BACK IN ANGLE/PARALLEL PARKING  
COMBINED

**Table 2. Design Criteria Used**

CRITERION	SOURCE	GUIDELINE
Parking space width	DPM	8.5 feet
	AASHTO	8 feet minimum, 10 feet to 12 feet desirable (parallel parking)
	MUTCD	8 feet
Parking space length	DPM	20 feet
	AASHTO	22 feet to 26 feet (parallel parking)
	MUTCD	22 feet to 26 feet (parallel parking)
Bike lane width	DPM	6 feet
	Bikeways Plan	6 feet (adjacent to parallel parking)
	Bikeways Plan	5 feet (adjacent to angle parking)
Separation between bike lane and adjacent parking lane	Bikeways Plan	1.5 feet (adjacent to parallel parking)
	Bikeways Plan	2 feet (adjacent to angle parking)
Parking bumper requirement	DPM	2 feet from sidewalk to prevent vehicle overhang of sidewalk for angle or straight-in parking
Separation between intersection and parking stall	AASHTO MUTCD	20 feet minimum
		20 feet minimum in advance of crosswalk at approach to unsignalized intersection
		30 feet minimum in advance of crosswalk at approach to signalized intersection
Separation from fire hydrant	UVC	20 feet minimum past crosswalk on departure from intersections (signalized or unsignalized)
		15 feet
Separation from flashing signal or traffic control signal	UVC	30 feet

All options would maintain in place the newly-constructed back-in angle parking on the south side of Monte Vista between Dartmouth and Richmond. With the exception of the south side of Monte Vista between Girard-Central and Dartmouth under Option 4, which would require moving the curb and sidewalk back to allow for back-in angle parking along that block, all of the options could be achieved with restriping and minor modifications to the existing raised medians between Girard-Central and Dartmouth.

It should be noted that the first iteration of Option 3 involved moving the curb and sidewalk back for back-in angle parking between Girard-Central and Dartmouth as well as just east of Richmond, but these areas were changed to parallel parking to avoid disruption to the adjacent parcels.

Table 3 summarizes the type and number of parking spaces by block, and includes comments about each option. The parking space counts reflect parking restrictions that would be required at intersections, driveways, fire hydrants and the school zone.

Table 3. Summary of Parking Options

Alternative	No. of Parking Spaces on Monte Vista <sup>1</sup>	Girard - Dartmouth	Dartmouth - Richmond	Richmond – Bryn Mawr	Bryn Mawr – Campus	Notes
<b>Option 1 – Median Diagonal Parking</b>	23	North - No parking Center – Angle parking (5) South – No parking	North – No parking Center – No parking South – Back-in angle parking (10)	North – No parking Center – Angle parking (8) South – No parking	North – No parking Center – No parking South – No parking	More center spaces could be added between Richmond-Bryn Mawr if left-in access is not provided to driveways.
<b>Option 2 – Parallel Parking Both Sides</b>	60	North – Parallel parking (3) Center – No parking South – Parallel parking (9)	North – Parallel parking (7) Center – No parking South – Back-in angle parking ( 10, + 1 parallel spot)	North – Parallel parking (12) Center – No parking South – Parallel parking (7)	North – Parallel parking (8) Center – No parking South – Parallel parking (3)	Parallel parking could be switched with same-side bike lane to create a buffered bike lane in some blocks.
<b>Option 3 – Back-In Angle/Parallel Parking Combined</b>	80	North – Parallel parking (3) Center – No parking South – Parallel parking (9)	North – Back-in angle parking (13) Center – No parking South – Back-in angle parking (10, + 1 parallel spot)	North – Back-in angle parking (30) Center – no parking South – Parallel parking (7)	North – Parallel parking (5) Center – No parking South – Parallel parking (2)	This option was modified from an initial version shown to the City.
<b>Option 4 – Back-In Angle/Parallel Parking Combined</b>	66	North – Parallel parking (3) Center – No parking South – Back-in angle parking (15)	North – Parallel parking (7) Center – No parking South Back-in angle parking (10, + 1 parallel spot)	North – Parallel parking (12) Center – No parking South – Parallel parking (7)	North – Parallel parking (8) Center – No parking South – Parallel parking (3)	Requires reconstruction of curb on south side between Girard and Dartmouth.

<sup>1</sup>Existing on-street parking space count on Monte Vista = 52

## ON-STREET PARKING OPTIONS

After reviewing the first draft of the parking options, the City had the following questions. Each question is followed by a response from Parametrix:

**Question:** For all options that have parking at what we call the “triangle park” on the south side of Central and Monte Vista, do you foresee a problem with people stopping and backing in so close to the oddly-shaped intersection? If someone is moving Eastbound on Central to Monte Vista, at what we estimate a 30-degree turn, will they see a driver backing into a parking space too late? We are concerned that the driver backing into a space would not be immediately in their line of sight because of the odd turn from Central to Monte Vista. (Note: after making the revisions to Option 3, this question applies only to Option 4.)

**Response:** The line of sight may actually be better than what would exist at a conventional (90 degree left turn) intersection and would certainly be better than what would be available for right-turning vehicles at a conventional intersection.

**Question:** The parking spots at the triangle park impede into the sidewalk pretty far (which you did note on your matrix). There’s a nice wall and several trees that would need to be removed to accommodate the parking – we don’t think this is very feasible. (Note: after making the revisions to Option 3, this question applies only to Option 4.)

**Response:** Agreed; the back-in angle parking between Central and Dartmouth in Option 4 does impact the triangle park considerably. These spaces were positioned so the eastbound driving lane from Girard to Richmond would align. The newly constructed back-in angle parking between Dartmouth and Richmond sets the alignment of the eastbound driving lane, and consequently the position of the back-in angle parking along the triangle park.

**Question:** For options (Option 1) that have angled parking in the median, how do cars exit their parking spots? Do they back out to exit or do they pull through the spot and make a sharp left turn? Can cars enter these spots from either direction? For the median parking closest to Central, we have the same concern as outlined in the first question with drivers’ line of sight. For the median parking just east of Richmond, would this mean that cars would have to back out into the intersection of Richmond and Monte Vista? Does the parking in the median need to be angled? Given the funky configuration of Monte Vista and Central, would straight parking spaces that people could pull through to exit make more sense?

**Response:** The turning template shows that if a driver tried pulling out forward from the angled median space the left-turning vehicle would hit the car parked next to it and/or drive over the far-side curb on its way out. The turning templates are shown in Figures 6 and 7, and the 90 degree center parking would have the same issue. So, in the center parking option vehicles would have to back out of the center parking spaces.

Figure 6. Forward Turning Template from Angled Median Parking Space

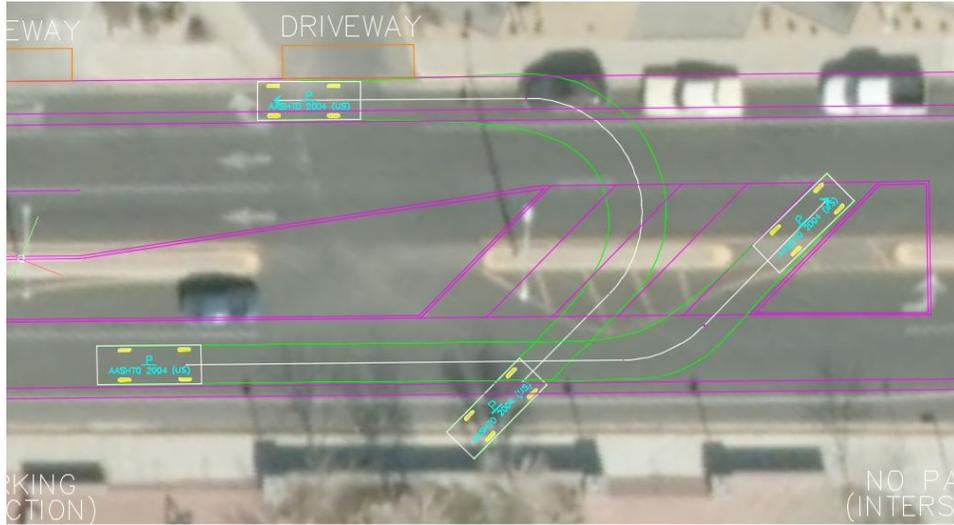
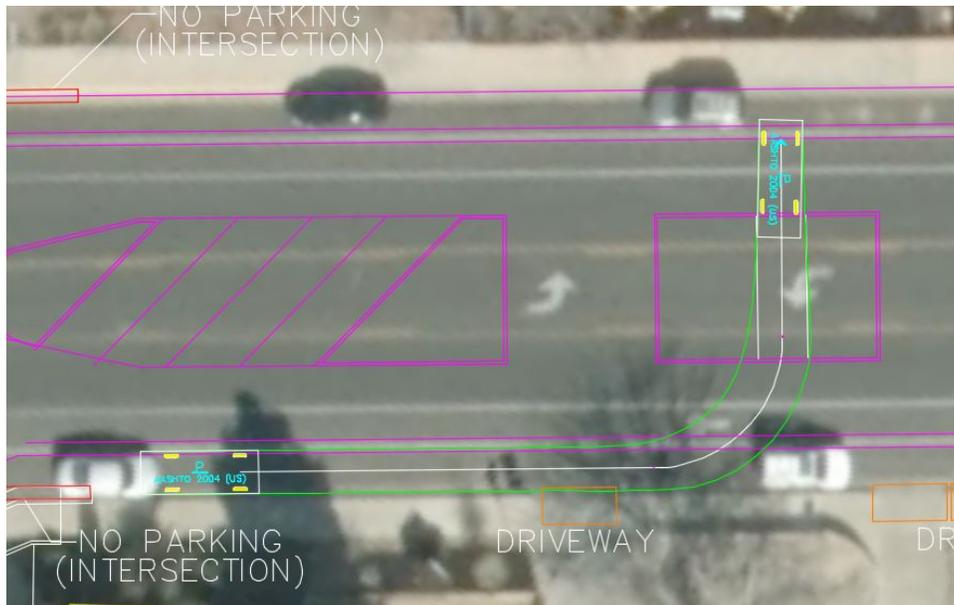


Figure 7. Forward Turning Template from 90 Degree Median Parking Space



## PUBLIC INPUT

Staff from the City Council office presented the findings above to the Nob Hill Neighborhood Association, who had no comments, and Albuquerque Public Schools (APS). APS has an interest in the study because of Monte Vista Elementary School's location at the intersection of Monte Vista and Campus Boulevard. Listed below are the comments and questions from APS and responses to each.

**Concern for the Removal of the Westbound Left-Turn Waiting Area at Monte Vista/Richmond**

In response to this concern, traffic volumes were counted at the Monte Vista/Richmond intersection at two periods typical of a school day. The counts occurred from 8:30 to 9:00 am on Wednesday, February 15, 2017, and from 3:30 to 4:00 pm on Thursday, February 16, 2017. These traffic volumes were used along with the proposed intersection geometry to determine the impacts to traffic if the two-way left-turn were removed. The conclusion was that no congestion or queueing problems would be expected with the left turns sharing a lane with the through and right-turn movements. Worksheets for these traffic analyses are appended to this memo.

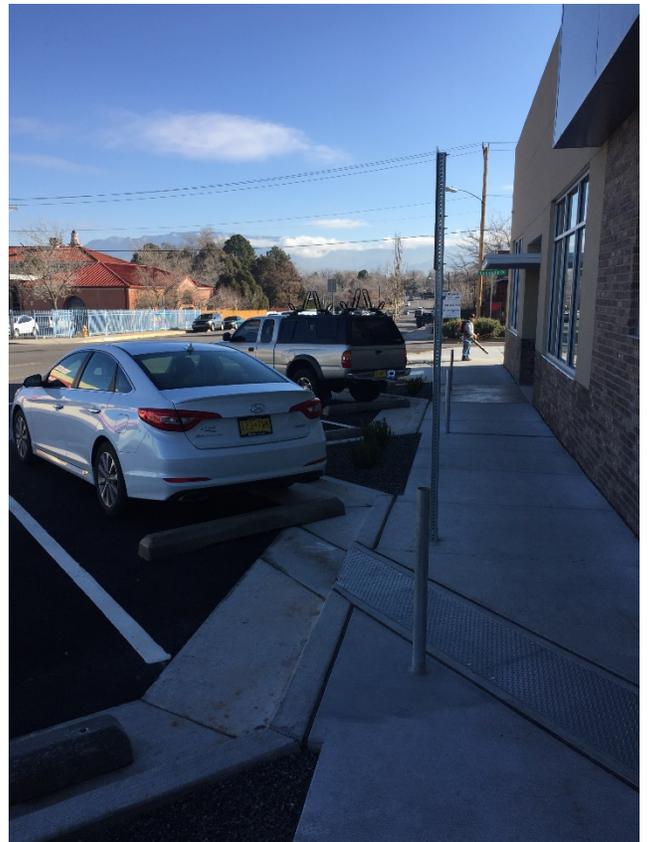
There would not be enough space to provide a left-turn waiting area if back-in angle parking is constructed on the north side of Monte Vista on either side of Richmond.

**Cost Estimates for Curb Modifications at Monte Vista/Richmond and Monte Vista/Campus**

APS requested a cost estimate to build curb bulbouts at the northeast and southeast corners of the Monte Vista/Richmond intersection and to modify the curb radius at the northwest corner of the Monte Vista/Campus intersection. A spreadsheet showing these rough costs is appended to this memo. The total for the work at the three intersection corners is estimated at about \$90,000.

**Will Backed-In Vehicles Hang Over the Sidewalk?**

Vehicles backed-in to the parking spaces are prevented from hanging over the sidewalk by concrete parking bumpers. The photos below show how this is working on the south side of Monte Vista near Richmond.



### **How is Back-In Angled Parking Safer for Cyclists than Other Types of Parking?**

The following explanation is from the website [www.pedbikeinfo.org](http://www.pedbikeinfo.org):

*Back-in angle parking provides motorists with better vision of bicyclists, pedestrians, cars and trucks as they exit a parking space and enter moving traffic. Back-in angle parking also eliminates the risk that is present in parallel parking situations, that a motorist may open the car door into the path of a bicyclist. Back-in angle parking also removes the difficulty that drivers, particularly older drivers, have when backing into moving traffic.*

### **CONCLUSIONS**

The City expressed a preference for Option 3, after it was revised from an initial version, because it provides the most on-street parking spaces. Also, back-in angle parking is preferable to parallel parking on streets with bike lanes because it avoids the issue of “dooring” (when a driver getting out of a parallel-parked vehicle opens his door into a bike lane and hits a cyclist) and makes it easier for drivers leaving their parking spaces to see cyclists in the bike lane. During final design, green thermoplastic pavement markings should be considered in conflict areas to make the on-street bike lanes more conspicuous.