

City of Albuquerque Paseo del Norte and Unser Boulevard Cross Section Study

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Introduction

This study documents the Paseo del Norte and Unser Boulevard Cross Section Study – Roadway and Cross Section Plan for Paseo del Norte from Calle Norteña to Rainbow Boulevard, and Unser Boulevard from Kimmick Drive to Paradise Boulevard. The City of Albuquerque has requested a review and analysis of the existing facilities, alternatives for adding capacity and improving the functionality of the roadways (in the interim condition as well as the full build), and preparation of a summary report of options and actions for the City.

Project Area and Background

The Paseo del Norte and Unser Boulevard Cross Section Study area is located west of Golf Course Road and north of Rainbow Boulevard in Albuquerque, New Mexico. Paseo del Norte is a two-lane, urban principal arterial that runs east-west. Calle Norteña intersects Paseo del Norte on the east end of the study area at a T-intersection. Rainbow Boulevard intersects Paseo del Norte on the west end of the study area at a signalized cross-intersection. Unser Boulevard is a two-lane, urban principal arterial that runs north-south and intersects Paseo del Norte approximately one-mile north of Kimmick Drive. Kimmick Drive intersects Unser Boulevard on the south end of the study area at a T-intersection. Paradise Boulevard intersects Unser Boulevard on the north end of the study area at a signalized cross-intersection. See **Figure 1** for a map of the project study area.



Figure 1: Project Study Area

Existing Conditions

Typical Roadway Sections

The existing typical roadway sections for Paseo del Norte and Unser Boulevard are as described below.

Paseo del Norte

Paseo del Norte from Universe Boulevard to Calle Norteña is currently a two-lane roadway, while it is a four-lane roadway between Kimmick Drive to Calle Norteña. **Figure 2** illustrates the typical section segments, which are described below.



Figure 2: Paseo del Norte Existing Typical Section Segments

Paseo del Norte – Rainbow Boulevard to Universe Boulevard (Typical Section 1)

The existing typical section consists of the two 12-ft wide driving lanes with 1-ft to 3-ft wide shoulders on each side. The location of the existing driving lanes would be on the north half of the full-build roadway section, and would become the future westbound lanes. See **Figure 3**.

Existing Paseo del Norte Rainbow Boulevard to Universe Boulevard

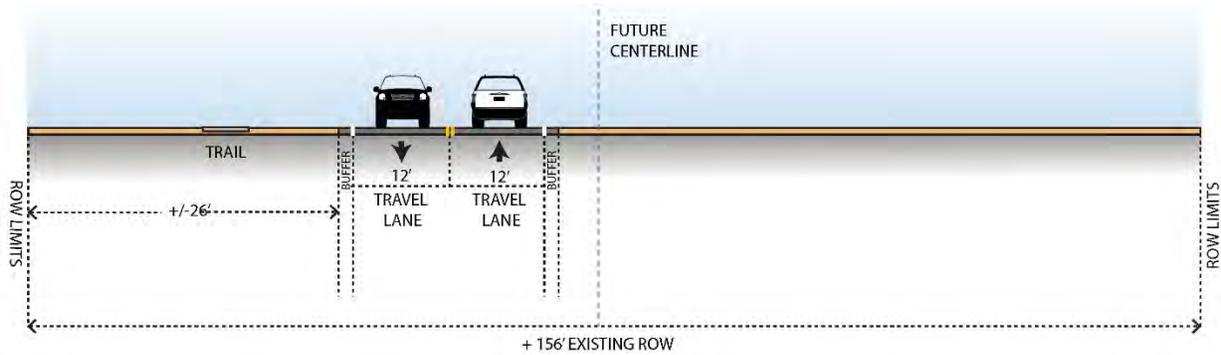


Figure 3: Paseo del Norte – Rainbow Boulevard to Universe Boulevard
Typical Section 1

Paseo del Norte – Universe Boulevard to Avenida de Jaimito (Typical Section 2)

The existing typical section consists of two 12-ft wide driving lanes with 1-ft wide shoulders on each side, separated by a 20-ft wide raised median. The City constructed the middle portion of the full-build roadway section, and this two-lane roadway is the inside eastbound and westbound lanes. It includes median curb and gutter, and a flexible pavement section (7" Superpave Asphalt, 10" Aggregate Base Course, 12" Subgrade Prep). See **Figure 4**.

Existing Paseo del Norte Universe Boulevard to Avenida de Jaimito

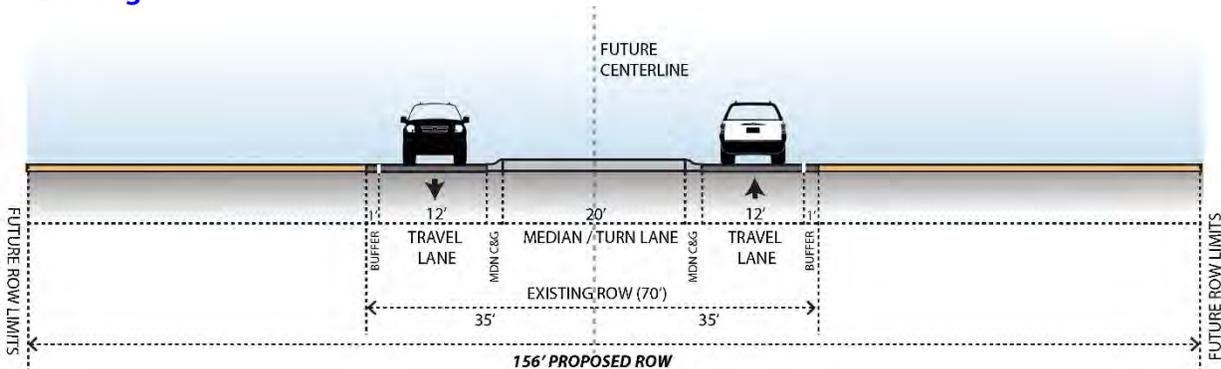


Figure 4: Paseo del Norte – Universe Boulevard to Avenida de Jaimito
Typical Section 2

Paseo del Norte – Avenida de Jaimito to Calle Norteña (Typical Sections 3 & 4)

The existing typical section consists of the two 12-ft wide driving lanes with 2-ft wide shoulders on each side. The location of the existing driving lanes would be on the south half of the full-build roadway section, and this two-lane roadway will become part of the future eastbound lanes. It includes a flexible pavement section (4" Superpave Asphalt, 12" Subgrade Prep). See **Figure 5**.

Approximately 850-ft west of Kimmick Drive, the typical section transitions into four 12-ft wide driving lanes with standard curb and gutter on the south side. See **Figure 6**.

Existing Paseo del Norte Avenida de Jaimito to Approx. 850-ft west of Kimmick Dr

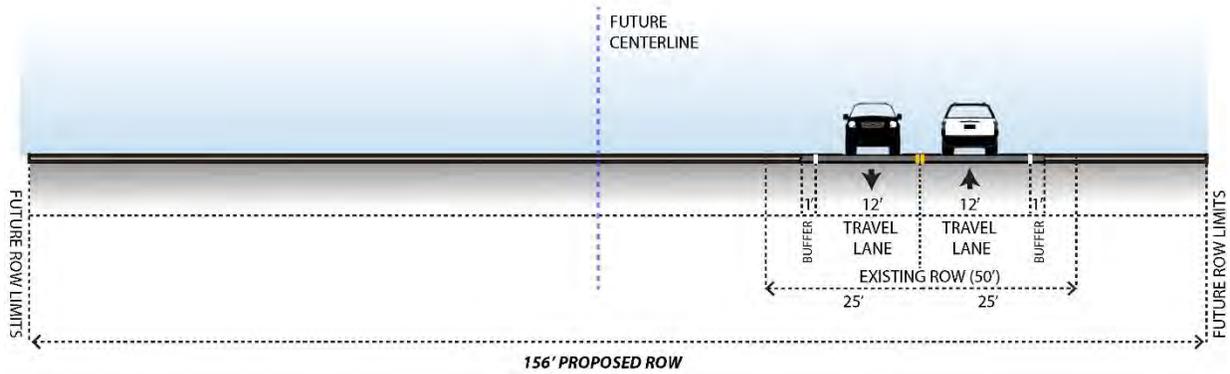


Figure 5: Paseo del Norte – Avenida de Jaimito to approximately 850-ft west of Kimmick Drive
Typical Section 3

Existing Paseo del Norte Approx. 850-ft west of Kimmick Dr to Calle Norteña

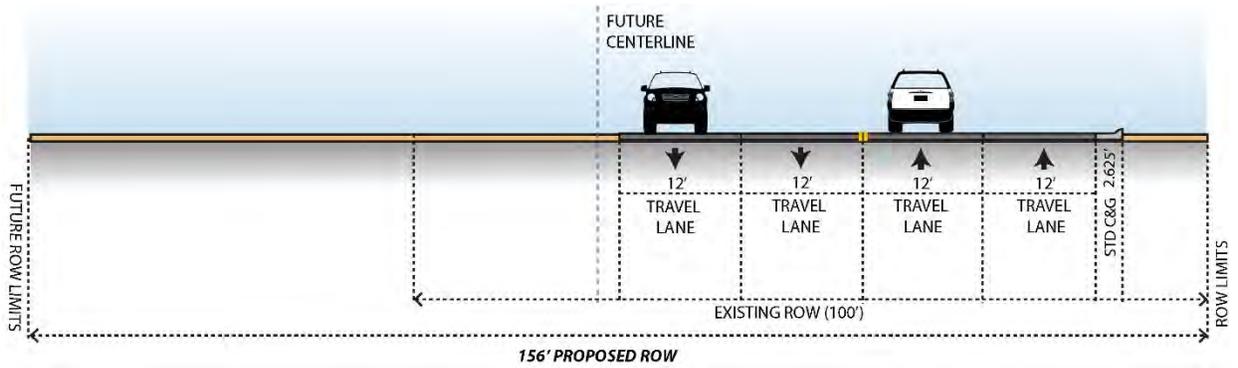


Figure 6: Paseo del Norte – Approximately 850-ft west of Kimmick Drive to Calle Norteña
Typical Section 4

Unser Boulevard

Unser Boulevard from Rainbow Boulevard to Kimmick Drive is currently a four-lane roadway with it transitioning to two-lanes just north of Kimmick Drive. The two-lane roadway continues from there to Paradise Boulevard. **Figure 7** illustrates the Unser Boulevard typical section segments, which are described below.



Figure 7: Unser Boulevard Existing Typical Section Segments

Unser Boulevard – Kimmick Drive to Avenida de Jaimito (Typical Section 1)

The existing typical section consists of the two 12-ft wide driving lanes with 5-ft wide shoulders on each side. The City constructed the east half of the full-build roadway section, and this two-lane roadway will become the future northbound lanes. It includes standard curb and gutter on the east side, and a flexible pavement section (5" Superpave Asphalt, 8" Aggregate Base Course, 12" Subgrade Prep). See **Figure 8**.

Existing Unser Blvd Kimmick Drive to Avenida de Jaimito

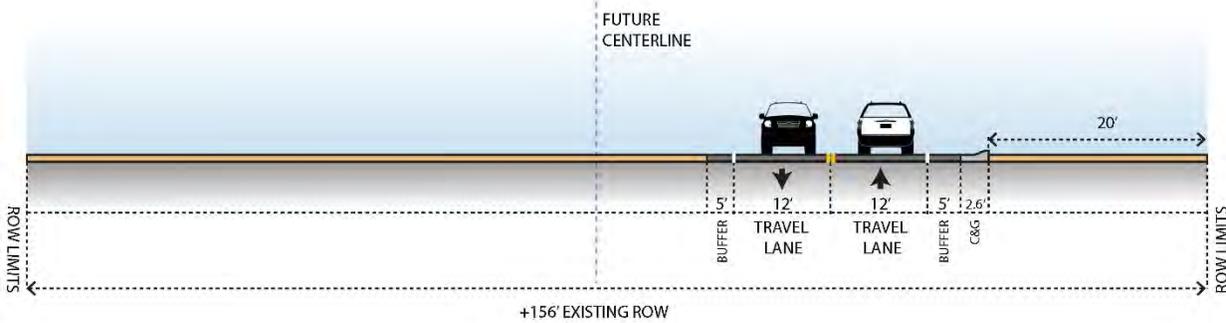


Figure 8: Unser Boulevard – Kimmick Drive to Avenida de Jaimito
Typical Section 1

Unser Boulevard – Avenida de Jaimito to Paseo del Norte (Typical Section 2)

The existing typical section consists of the two 12-ft wide driving lanes with 2-ft wide shoulders on each side, separated by a 27-ft wide raised median. The City constructed the middle portion of the full-build roadway section, and this two-lane roadway is the inside northbound and southbound lanes. It includes median curb and gutter, and a flexible pavement section (5" Superpave Asphalt, 8" Aggregate Base Course, 12" Subgrade Prep). See **Figure 9**.

Existing Unser Blvd Avenida de Jaimito to Paseo del Norte

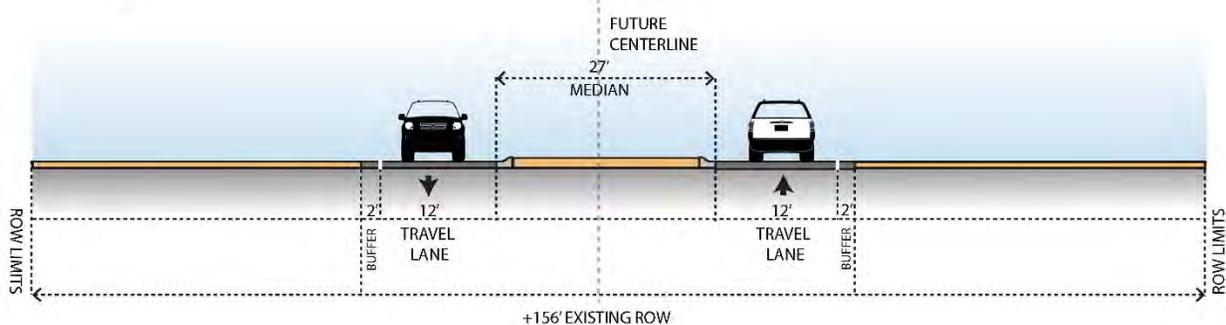


Figure 9: Unser Boulevard – Avenida de Jaimito to Paseo del Norte
Typical Section 2

Unser Boulevard – Paseo del Norte to Big Rock Drive/Cold Creek Avenue (Typical Section 3)

The existing typical section consists of the two 12-ft wide driving lanes with 2-ft wide shoulders on each side. This portion of Unser Boulevard was constructed as a temporary roadway at the center of the proposed right of way. It may be able to be used as part of the future roadway typical section, possibly as the Median/BRT lane. It includes a temporary flexible pavement section (3" Superpave Asphalt, 12" Subgrade Prep). See **Figure 10**. *Note:* While Unser Boulevard does not intersect with Big Rock Drive or Cold Creek Avenue, we have used these roadways as the limit to describe this existing typical section. Big Rock Drive is located at the south end of the Boulder’s residential development. The Boulder’s is located on the west side of Unser Boulevard and south of Paradise Boulevard. Cold Creek Avenue is located at the south end of the Sundance Estates residential development. Sundance Estates is located on the east side of Unser Boulevard and south of Paradise Boulevard. Big Rock Drive/Cold Creek Avenue is located approximately 900-ft south of Boulder Trail Place/Blue Feather Avenue.

Existing Unser Blvd Paseo del Norte to Big Rock Dr/Cold Creek Ave, and 1500-ft south of Paradise Blvd to Paradise Blvd

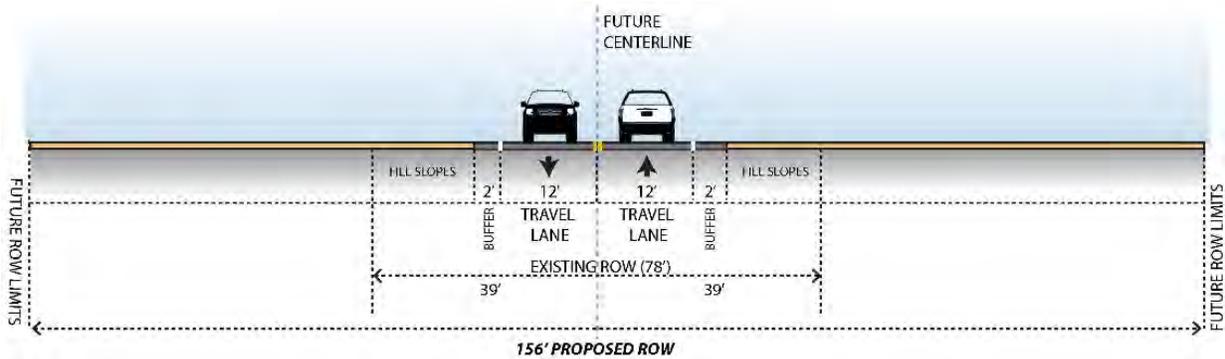


Figure 10: Unser Boulevard – Paseo del Norte to Big Rock Drive/Cold Creek Avenue; Approximately 1500-ft south of Paradise Boulevard to Paradise Boulevard
Typical Section 3

Unser Boulevard – Big Rock Drive/Cold Creek Avenue to Paradise Boulevard (Typical Sections 4 & 3)

From Big Rock Drive/Cold Creek Avenue to approximately 1500-ft south of Paradise Boulevard, the existing typical section consists of the two 12-ft wide driving lanes with 5-ft wide shoulders on each side. The Developer constructed the east half of the full-build roadway section, and this two-lane roadway will become the future northbound lanes. It includes standard curb and gutter on the east side and median curb and gutter on the west side. See **Figure 11**. Approximately 1500-ft south of Paradise Boulevard, the typical section transitions into two 12-ft wide driving lanes with 2-ft wide shoulders on each side. It includes a temporary flexible pavement section (3" Superpave Asphalt, 12" Subgrade Prep). See **Figure 10**.

Existing Unser Blvd Big Rock Dr/Cold Creek Ave to 1500-ft south of Paradise Blvd

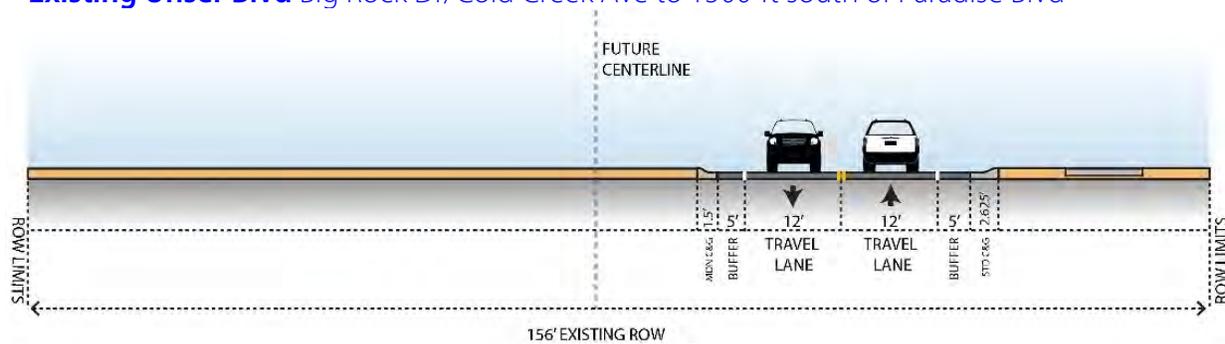


Figure 11: Unser Boulevard. – Big Rock Drive/Cold Creek Avenue to Approx. 1500-ft south of Paradise Boulevard
Typical Section 4

Intersection Geometry

Paseo del Norte

Paseo del Norte has several side street intersections, four (4) of which are signalized along the corridor. The signalized intersections at Rainbow Boulevard, Universe Boulevard, and Unser Boulevard all include left turn and right turn lanes, and are cross intersections.

The signalized intersection at Kimmick Drive includes only left turn lanes and is a T intersection. The signal equipment is in place but the signal itself is not in operation. It is our understanding that the signal will be put into operation once it is warranted.

The remaining unsignalized intersections include Calle Plata with stop control, and Calle Norteña is a right-in/right-out T intersection, with stop control.

Unser Boulevard

Unser Boulevard has several side street intersections along the corridor that both improved (paved) and unimproved, two (2) of which are signalized along the corridor. The signalized intersection at Paseo del Norte includes left turn and right turn lanes. The signalized intersection at Paradise Boulevard includes left turn lanes on all legs, but right turn lanes only on the east and north approaches. Both signalized intersections are cross intersections.

The remaining unsignalized intersections are stop controlled on the side street. The intersection at Kimmick Drive is a right-in/right-out T intersection, and the intersection at Rosa Parks Road is a full access T intersection without left turn lanes. The intersection at Boulder Trail Place/Blue Feather Avenue is a cross intersection.

Several platted roadways in this area have been bladed and these dirt roads are used by property owners and other entities. Some intersect Unser Boulevard and include Avenida de Jaimito and Junipero Road.

Right of Way

The existing right of way (ROW) for each roadway varies along the corridor as described in **Table 1** and as shown in the existing typical roadway sections in the previous section.

Table 1: Existing Roadway Right of Way

From	To	Existing ROW Width	Discussion
Paseo del Norte			
Rainbow Blvd	Universe Blvd	156-ft	Existing PDN Typical Section 1
Universe Blvd	Unser Blvd	70-ft	Existing PDN Typical Section 2 *ROW east of Universe Blvd varies (134-ft to 70-ft).
Unser Blvd	1400-ft west of Calle Plata	70-ft	Existing PDN Typical Section 2
1400-ft west of Calle Plata	Calle Plata	80-ft to 50-ft	Existing PDN Typical Section 3
Calle Plata	Calle Norteña	80-ft	Existing PDN Typical Sections 4
Unser Boulevard			
Kimmick Dr	Avenida de Jaimito	+156-ft	Existing Unser Typical Section 1 *ROW varies from 156-ft to +182.5-ft
Avenida de Jaimito	Paseo del Norte	+156-ft	Existing Unser Typical Section 2
Paseo del Norte	Big Rock Dr/Cold Creek Ave	78-ft	Existing Unser Typical Section 3
Big Rock Dr/Cold Creek Ave	Paradise Blvd	156-ft	Existing Unser Typical Sections 3 and 4

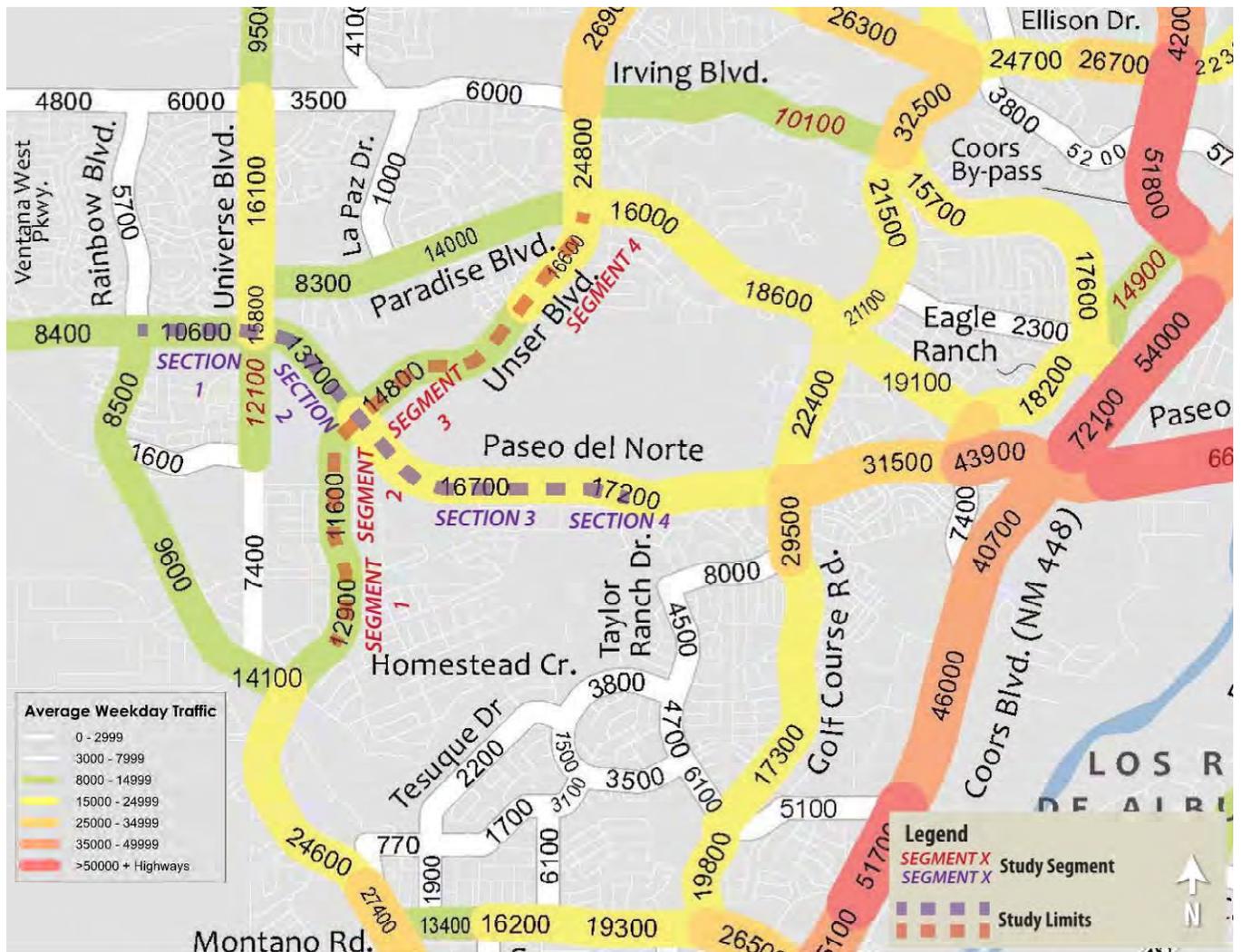
Speed

Within the study area, both Paseo del Norte and Unser Boulevard have posted speed limits of 35 mph.



Traffic Conditions

2017 Average Weekday Traffic (AWDT) volumes were obtained from the Mid-Region Council of Government (MRCOG), shown in **Figure 12**. Within the study area, the AWDT volumes on Paseo del Norte range from 10,600 to 17,200 and the AWDT volumes on Unser Boulevard range from 11,600 to 16,600.



Source: MRCOG 2017 Traffic Flow Map

Figure 12: 2017 Average Weekday Traffic Volumes

Traffic Analysis

The *Florida Department of Transportation (FDOT) Quality/Level of Service Handbook* was used as a planning level guide to determine what the level of service (LOS) is for both corridors. This can be found in **Appendix A**. The estimated LOS of the Paseo del Norte and Unser Boulevard corridors are summarized in **Table 2**.

Paseo del Norte, as a two-lane roadway east of Unser Boulevard, is operating at an estimated LOS F with 2017 AWDT volumes. Unser Boulevard, north of Paseo del Norte, is operating at an estimated LOS F with 2017 AWDT volumes as well.

Table 2: 2017 Estimated LOS

	Number of Lanes	Speed Limit (mph)	Median Type	Exclusive Left Turns	Exclusive Right Turns	Median & Turn Lane Adjustments	FDOT LOS Table			2017 Existing LOS	
							LOS	Volume	Volume with Adjustment	2017 AWDT Volume	LOS
Paseo del Norte											
Segment 1	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	10,600	D
Segment 2	2	35	Divided	Yes	Yes	+5%	C	7,300	7,665	13,700	D
Segment 3	2	35	Divided	Yes	Yes	+5%	E	15,600	16,380	16,700	F
Segment 4	4	35	Divided	Yes	No	---	D	32,400	32,400	17,200	D
Unser Boulevard											
Segment 1	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	12,900	D
Segment 2	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	11,600	D
Segment 3	2	35	Undivided	No	No	-20%	E	15,600	12,480	14,800	F
Segment 4	2	35	Undivided	Yes	Yes	+5%	E	15,600	16,380	16,600	F

Proposed Conditions

2040 Traffic Conditions

MRCOG provided the 2040 Travel Demand Model output for the study area. In the model, it is assumed that both, Paseo del Norte and Unser Boulevard would be four-lane facilities in 2040. It is noted that transit is not fully considered in the model. The 2040 Travel Demand Model output can be found in **Appendix B**.

Traffic Analysis

No-Build Level of Service

The No-Build LOS describes how the roadway would operate in the future without improvements. Because a 2040 model with Paseo del Norte and Unser Boulevard as two-lane facilities was not available from the MRCOG, we elected to use the 2040 Travel Demand Model output for the No-Build LOS analysis. While this is not ideal, it provides a starting point for the approximation of the LOS for the No-Build. The caveats to this are that the 2040 model includes improvements to the roadway network that may or may not be constructed, including Paseo del Norte and Unser Boulevard as four (4) lane roadways, construction of Loop Road and Transit Boulevard, among others. Because of these assumptions, the volumes on Unser Boulevard actually go down. The following LOS are determined using the estimated 2040 Daily Volume from the MRCOG Travel Demand Model.

Table 3: No-Build 2040 Level of Service

	Number of Lanes	Speed Limit (mph)	Median Type	Exclusive Left Turns	Exclusive Right Turns	Median & Turn Lane Adjustments	FDOT LOS Table			2040 Existing LOS	
							LOS	Volume	Volume with Adjustment	2040 Daily Volume	LOS
Paseo del Norte											
Segment 1	2	35	Undivided	Yes	Yes	+5%	E	15,600	16,380	16,660	F
Segment 2	2	35	Divided	Yes	Yes	+5%	E	15,600	16,380	31,550	F
Segment 3	2	35	Divided	Yes	Yes	+5%	E	15,600	16,380	31,050	F
Segment 4	4	35	Divided	Yes	No	---	E	33,800	33,800	34,997	F
Unser Boulevard											
Segment 1	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	14,560	D
Segment 2	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	14,420	D
Segment 3	2	35	Undivided	No	No	-20%	C	7,300	5,840	11,080	D
Segment 4	2	35	Undivided	Yes	Yes	+5%	C	7,300	7,665	12,490	D

Under this no-build scenario with the caveats described previously with regard to the traffic volumes shown, all segments of Paseo del Norte operate at an unacceptable LOS F in 2040.

Under this no-build scenario with the caveats described previously and noting that the volumes on Unser Boulevard go down, all segments of Unser Boulevard appear to operate at an acceptable LOS D in 2040, though Segments 1 and 2 are near volumes for LOS E (15,540, after +5% adjustment).

Build Level of Service – 35 mph Posted Speed

The Build LOS describes how the roadway would operate in the future with improvements that include four driving lanes (two driving lanes in each direction), exclusive left turn and right turn lanes, a raised median, and a maintenance of the 35 mph posted speed. Based on the *FDOT Quality/Level of Service Handbook*, the estimated 2040 LOS of the Paseo del Norte and Unser Boulevard corridors, with a posted speed limit of 35 mph, are summarized in **Table 4** and shown in **Figure 13**.

Table 4: 2040 Estimated Build LOS – 35 mph Posted Speed

	Number of Lanes	Speed Limit (mph)	Median Type	Exclusive Left Turns	Exclusive Right Turns	Median & Turn Lane Adjustments	FDOT LOS Table			2040 4-Lane LOS	
							LOS	Volume	Volume with Adjustment	2040 Daily Volume	LOS
Paseo del Norte											
Segment 1	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	16,660	D
Segment 2	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	31,550	D
Segment 3	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	31,050	D
Segment 4	4	35	Divided	Yes	Yes	+5%	D	32,400	34,020	34,997	E
Unser Boulevard											
Segment 1	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	14,560	C
Segment 2	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	14,420	C
Segment 3	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	11,080	C
Segment 4	4	35	Divided	Yes	Yes	+5%	C	14,500	15,225	12,490	C

In 2040, Paseo del Norte east of Kimmick Drive (Segment 4) is anticipated to operate at an estimated LOS E, but is close to the threshold for LOS D. The remaining segments of Paseo del Norte are anticipated to operate at an acceptable LOS D. Unser Boulevard is anticipated to operate at an estimated LOS C in 2040. If transit is present within the study area in 2040, the volumes may decrease, which would improve the LOS.

Build Level of Service – 40 mph Posted Speed

The Build LOS describes how the roadway would operate in the future with improvements that include four driving lanes (two driving lanes in each direction), exclusive left turn and right turn lanes, a raised median, and an increase in the posted speed to 40 mph. Based on the *FDOT Quality/Level of Service Handbook*, the estimated 2040 LOS of the Paseo del Norte and Unser Boulevard corridors, with a posted speed limit of 40 mph, are summarized in **Table 5** and shown in **Figure 13**.

Table 5: 2040 Estimated Build LOS – 40 mph Posted Speed

	Number of Lanes	Speed Limit (mph)	Median Type	Exclusive Left Turns	Exclusive Right Turns	Median & Turn Lane Adjustments	FDOT LOS Table			2040 4-Lane LOS	
							LOS	Volume	Volume with Adjustment	2040 Daily Volume	LOS
Paseo del Norte											
Segment 1	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	16,660	C
Segment 2	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	31,550	C
Segment 3	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	31,050	C
Segment 4	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	34,997	C
Unser Boulevard											
Segment 1	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	14,560	C
Segment 2	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	14,420	C
Segment 3	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	11,080	C
Segment 4	4	40	Divided	Yes	Yes	+5%	C	37,900	39,795	12,490	C

In 2040, both the Paseo del Norte and Unser Boulevard corridors are anticipated to operate at LOS C, with a posted speed limit of 40 mph.



Figure 13: 2040 Estimated LOS – 35 mph and 40 mph Posted Speed

Proposed Roadway Improvement Alternatives

Based on the MRCOG 2040 Travel Demand model and the traffic analysis completed in the previous section, both the Paseo del Norte and Unser Boulevard corridors will need to be four-lane facilities to manage the traffic needs.

Pertinent Regional/Local Planning Documents

The design of major roadways such as Paseo del Norte and Unser Blvd is defined by several regional and municipal planning documents, including MRCOG's MTP and the Albuquerque-Bernalillo County Comprehensive Plan as well as the City's Integrated Development Ordinance (IDO). In addition, the Volcano Heights Section Development Plan and Volcano Cliffs Sector Development Plan have been approved and included as part of the IDO. It includes street standards for Paseo del Norte and Unser Boulevard and is therefore used as the basis of design for the proposed roadway improvement alternatives. See **Appendix C** for additional information on the pertinent regional/local planning documents.

The groundwork for the Proposed Alternative Roadway Sections began with the following studies and documents:

- Volcano Heights and Volcano Cliffs Sector Development Plans and the Street Standard sections presented in the respective plans
- Mid-Region Council of Governments (MRCOG) Long-Range Transportation System (LRTS) Guide
- Albuquerque-Bernalillo County Comprehensive Plan (Comp Plan)
- City of Albuquerque Development Process Manual (DPM) - lays out the specific policies supporting the recommendations of the Comp Plan.

In each sector plan (Volcano Heights Sector Development Plan and the Volcano Cliffs Sector Development Plan) the Street Standards are consistent, and they are presented in the following section.

Paseo del Norte and Unser Boulevard are classified as Regional Principal Arterial roadways per the MRCOG 2015 Long Range Transportation System Guide (LRTS Guide). Paseo del Norte, from the east end of the study area to the future Transit Boulevard, and Unser Boulevard, from the future Transit Boulevard to Paradise Boulevard, are designated as Bus Rapid Transit (BRT) also per the LRTS Guide. See **Figure 15** for the location of the future Transit Boulevard.

Volcano Heights Sector Development Plan

The Volcano Heights Sector Development Plan – Amended November 5, 2014 (VHSDP) provides a map of the proposed Street Standard sections for the study area (**Figure 14**); and they include ST7.1 – Urban Boulevard A, ST7.3 – Urban Boulevard C, and ST7.4 – Urban Boulevard D. See **Figures 15, 16, and 17**.

CHAPTER III: STREET AND STREETScape STANDARDS

Paradise Boulevard 10.0 STREET STANDARDS

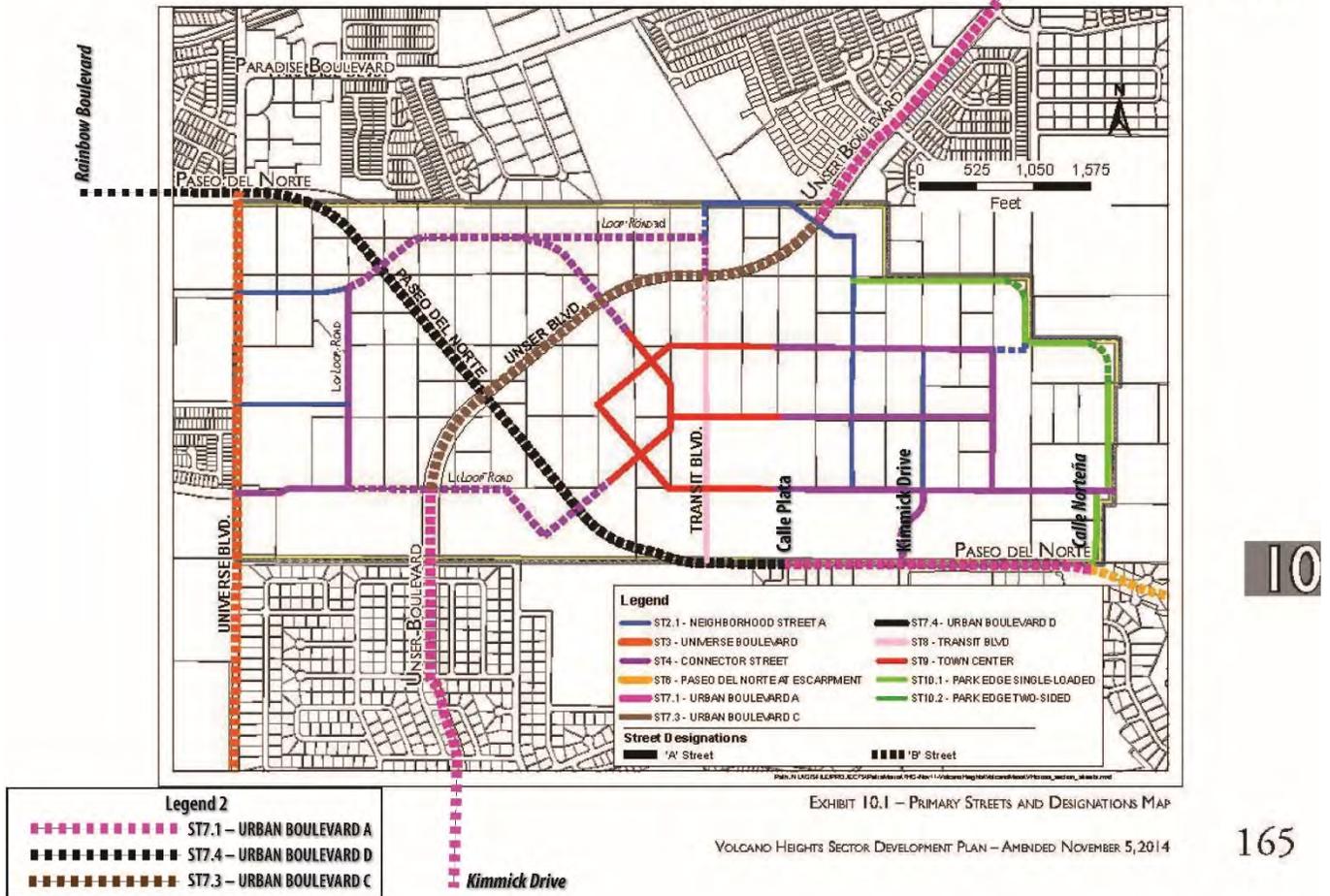


Figure 14: VHSDP 10.0 Street Standards

[Amended November 5, 2014]

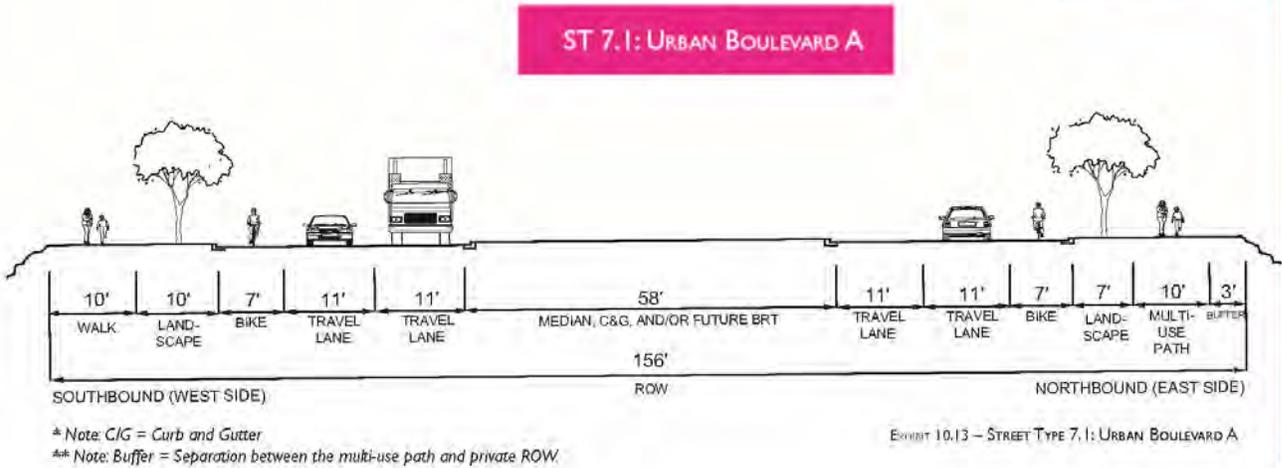


Figure 15: VHSDP ST7.1 Urban Boulevard A (Paseo del Norte & Unser Boulevard)

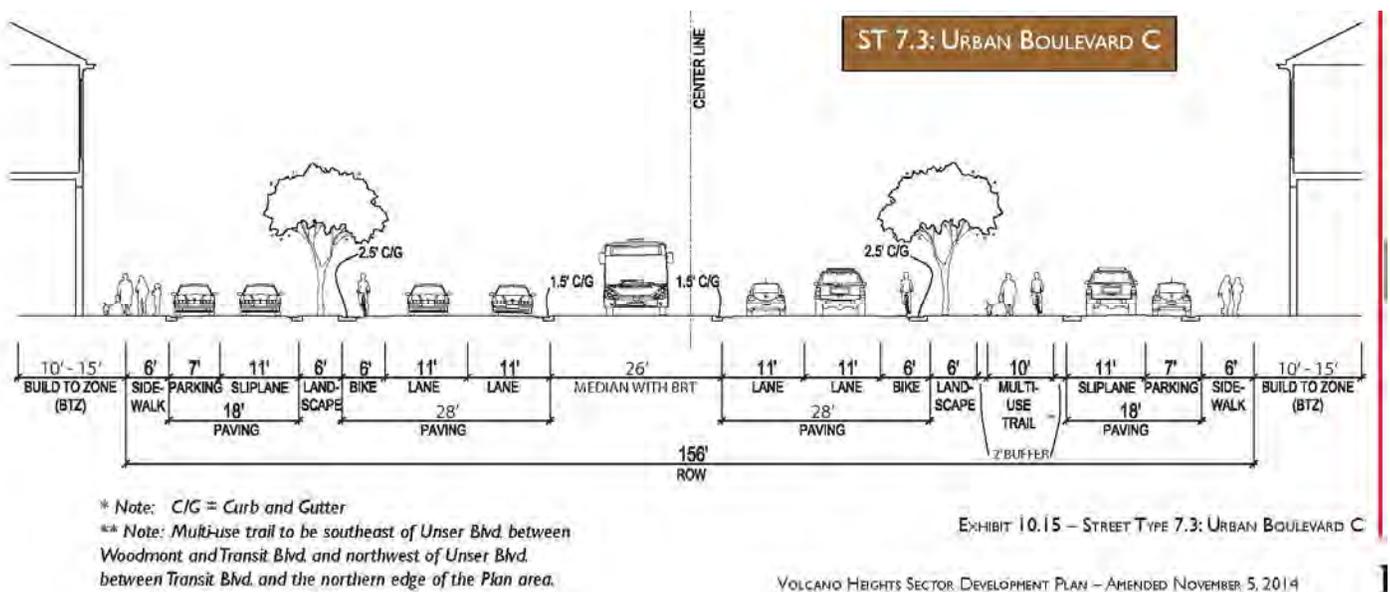
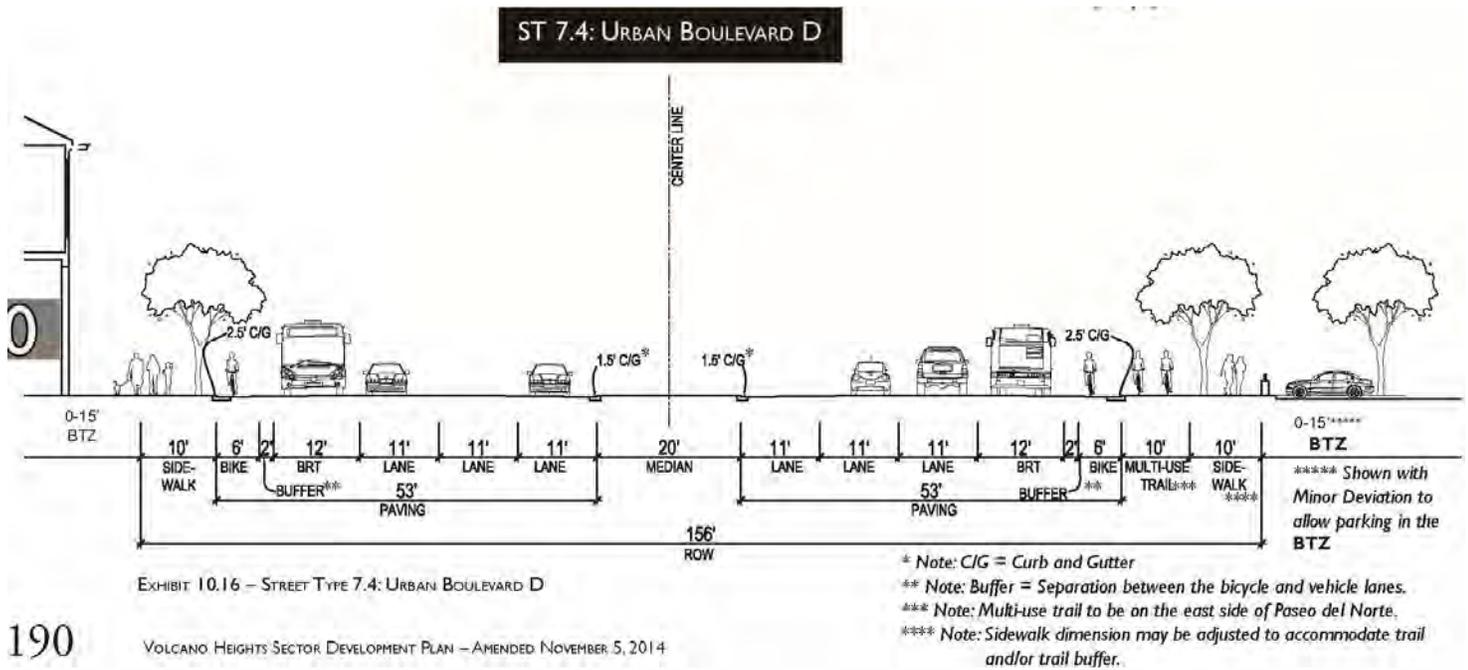


Figure 16: VHSDP ST7.3 Urban Boulevard C (Unser Boulevard)



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VOLCANO HEIGHTS SECTOR DEVELOPMENT PLAN – AMENDED NOVEMBER 5, 2014

Figure 17: VHSDP ST7.4 Urban Boulevard D (Paseo del Norte)

Proposed Alternative Roadway Sections

The proposed alternative roadway sections include No-Build, Interim-Build and Full-Build alternatives. The Interim-Build Alternative is included to achieve the needs of the corridors (pedestrians, cyclists, transit riders and motorists), and take into account the funding restraints, as well as the desire of the City to allow for completion of each corridor with development.

No-Build Alternatives

Paseo del Norte

The No-Build Alternative for Paseo del Norte will be considered through this study and evaluation. This alternative assumes that Paseo del Norte will remain in its existing configuration. Improvements would be limited to routine maintenance. See Existing Typical Sections - **Figures 3, 4, 5, and 6.**

Unser Boulevard

The No-Build Alternative for Unser Boulevard will be considered through this study and evaluation. This alternative assumes that Unser Boulevard will remain in its existing configuration. Improvements would be limited to routine maintenance. See Existing Typical Sections - **Figures 8, 9, 10, and 11.**

Full-Build Alternatives

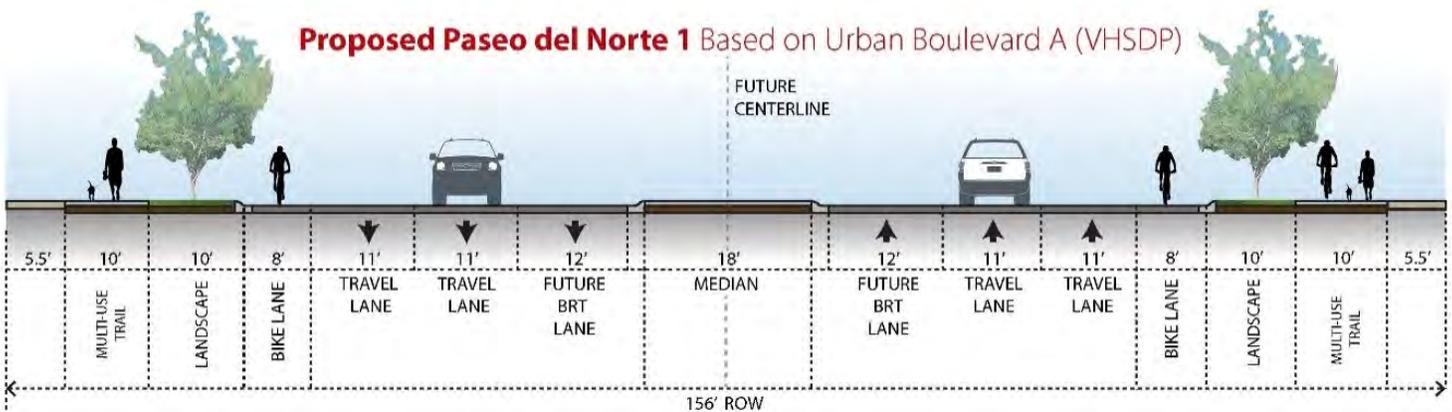
Paseo del Norte

Paseo del Norte Full-Build 1 (Based on ST7.1 – Urban Boulevard A)

The Paseo del Norte Full-Build 1 would entail constructing two 11-ft travel lanes with one 12-ft future BRT lane in each direction on Paseo del Norte between Calle Plata and Calle Norteña. The driving lanes would be separated by an 18-ft wide raised median. An 8-ft on-street bicycle lane would be provided in each direction in addition to the driving lanes. The roadway would have curb and gutter on both sides, and a 10-ft multi-use trail on each side. See **Figure 18**.

The changes included in the Paseo del Norte Full-Build 1 from the Street Standard section include the following:

- The 58-ft wide raised median that was reserved for median, curb and gutter, and/or future BRT is now a 42-ft wide section that includes a 12-ft wide future BRT lane in each direction and an 18-ft wide raised median.
- The 7-ft wide bicycle lane is now an 8-ft wide bicycle lane.



Calle Plata to Calle Norteña

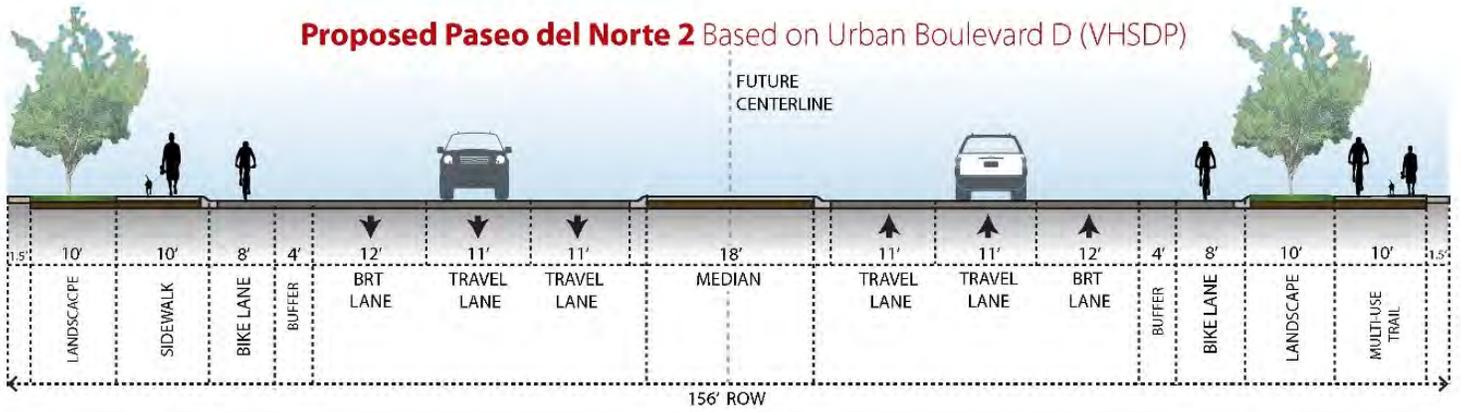
Figure 18: Paseo del Norte Alternative 1 (Based on ST7.1 – Urban Boulevard A)

Paseo del Norte Full-Build 2 (Based on ST7.4 – Urban Boulevard D)

The Paseo del Norte Full-Build 2 would entail constructing two 11-ft travel lanes with one 12-ft BRT lane in each direction on Paseo del Norte between Rainbow Boulevard and Calle Plata. The driving lanes would be separated by an 18-ft wide raised median. An 8-ft on-street bicycle lane with a 4-ft wide buffer would be provided in each direction in addition to the driving lanes. The roadway would have curb and gutter on both sides, and a 10-ft multi-use trail on each side. See **Figure 19**.

The changes included in the Paseo del Norte Full-Build 2 from the Street Standard section include the following:

- The section included three 11-ft travel lanes along with the 12-ft BRT lane each direction for an 8-lane section. One travel lane was deleted in each direction for a 6-lane section.
- The 6-ft bicycle lane with a 2-ft wide buffer are now an 8-ft wide bicycle lane with a 4-ft wide buffer.



Rainbow Boulevard to Calle Plata

Figure 19: Paseo del Norte Alternative 2 (Based on ST7.4 – Urban Boulevard D)

Unser Boulevard

Unser Boulevard Full-Build 1 (Based on ST7.1 – Urban Boulevard A)

The Unser Boulevard Full-Build 1 would entail constructing two 11-ft travel lanes with one 12-ft future BRT lane in each direction on Unser Boulevard between Kimmick Drive and Loop Road (approximately 650-ft north of Avenida de Jaimito). See **Figure 15** for the location of the future Loop Road. The driving lanes would be separated by an 18-ft wide raised median. An 8-ft on-street bicycle lane with a 2-ft wide buffer would be provided in each direction in addition to the driving lanes. The roadway would have curb and gutter on both sides, and a 10-ft multi-use trail on each side. See **Figure 20**.

The changes included in the Unser Boulevard Full-Build 1 from the Street Standard section include the following:

- The 58-ft wide raised median that was reserved for median, curb and gutter, and/or future BRT is now a 42-ft wide section that includes a 12-ft wide future BRT lane in each direction and an 18-ft wide raised median.
- The 7-ft wide bicycle lane is now an 8-ft wide bicycle lane with a 2-ft wide buffer.

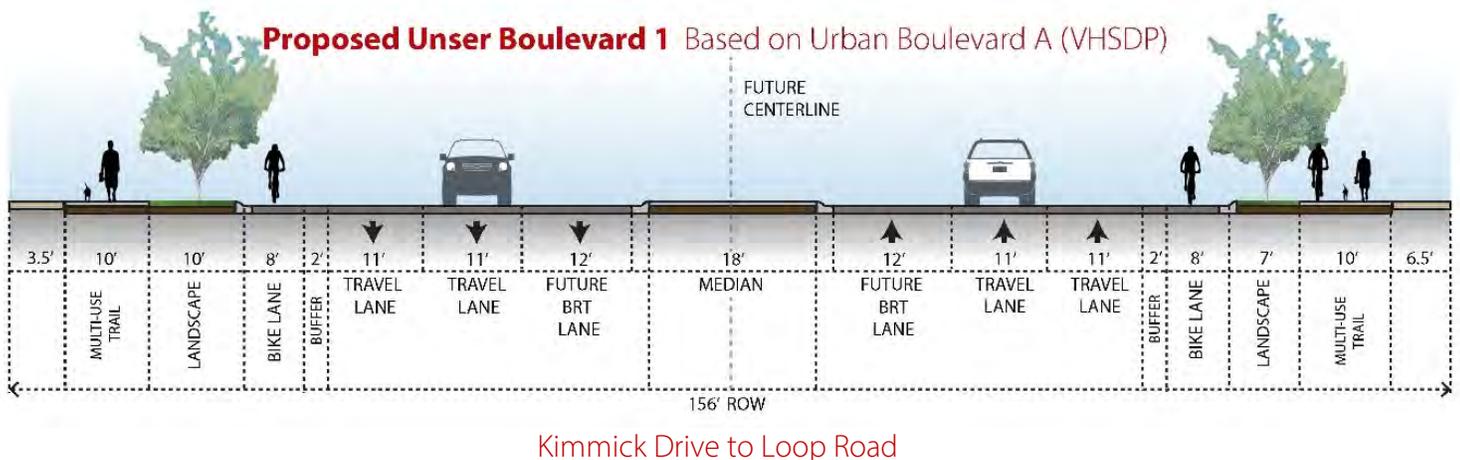


Figure 20: Unser Boulevard Alternative 1 (Based on ST7.1 – Urban Boulevard A)

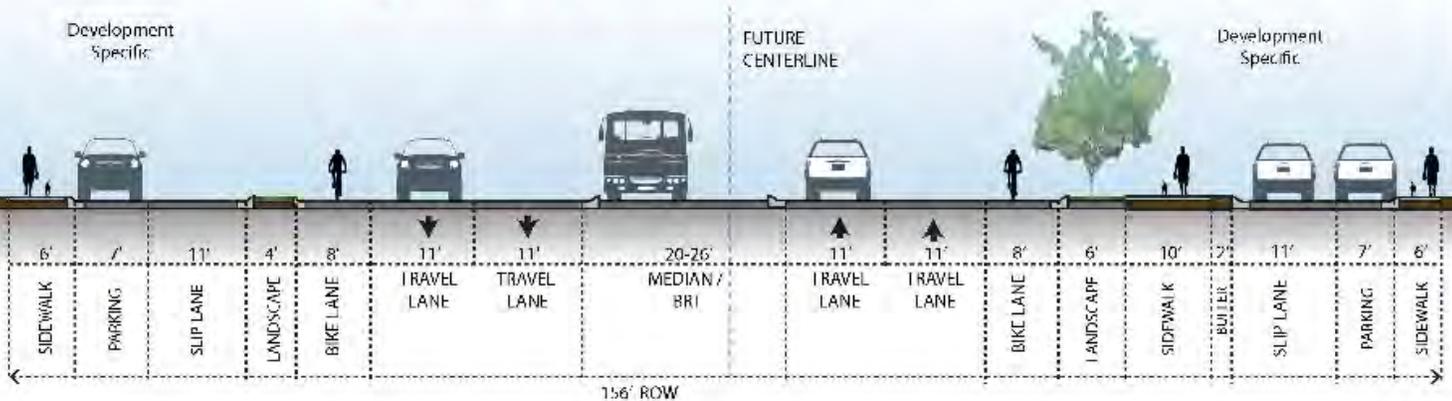
Unser Boulevard Full-Build 2 (Based on ST7.3 – Urban Boulevard C)

The Unser Boulevard Full-Build 2 would entail constructing two 11-ft travel lanes in each direction, with a 20-ft to 26-ft wide median / BRT on Unser Boulevard between Loop Road (approximately 650-ft north of Avenida de Jaimito to Big Rock Drive/Cold Creek Avenue. See **Figure 15** for the location of the future Loop Road. An 8-ft on-street bicycle lane would be provided in each direction in addition to the driving lanes. The roadway would have curb and gutter on both sides. On the west side of Unser Boulevard, the section would entail a 6-ft sidewalk, 7-ft parallel parking lane, and an 11-ft slip lane separated from the roadway by a 4-ft landscape buffer. On the east side of Unser Boulevard, the section would entail a 6-ft sidewalk, 7-ft parallel parking lane, and an 11-ft slip lane separated from the roadway by a 18-ft buffer that includes a 10-ft sidewalk. See **Figure 21**.

The changes included in the Unser Boulevard Full-Build 2 from the Street Standard section include the following:

- The section included a 26-ft median / BRT. It has been modified to range from 20-ft wide to 26-ft wide to coincide with the existing medians. The existing median between Avenida de Jaimito and just north of Loop Road is 20-ft wide. The remainder of Unser Boulevard, just north of Loop Road to Big Rock Drive/Cold Creek Avenue, would be 26-ft wide.
- The 6-ft bicycle lane is now an 8-ft wide bicycle lane.

Proposed Unser Boulevard 2 Based on Urban Boulevard C (VHSDP)



Loop Road to Big Rock Drive/Cold Creek Avenue

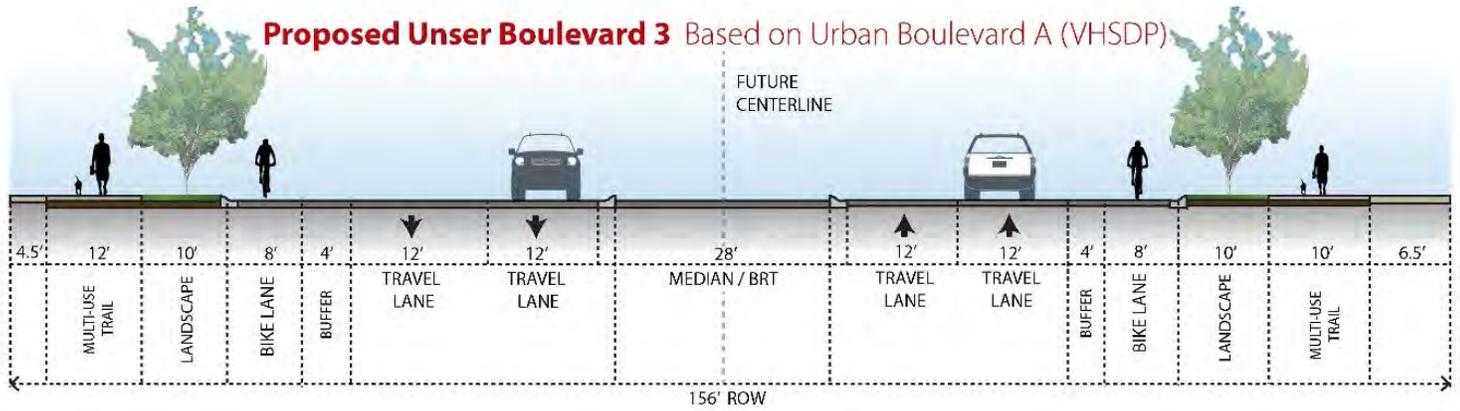
Figure 21: Unser Boulevard Alternative 2 (Based on ST7.3 – Urban Boulevard C)

Unser Boulevard Full-Build 3 (Based on ST7.1 – Urban Boulevard A)

The Unser Boulevard Full-Build 3 would entail constructing two 12-ft travel lanes in each direction, with a 28-ft wide median / BRT on Unser Boulevard, between Big Rock Drive/Cold Creek Avenue and Paradise Boulevard. An 8-ft on-street bicycle lane with a 4-ft wide buffer would be provided in each direction in addition to the driving lanes. The roadway would have curb and gutter on both sides, and a 10-ft to 12-ft multi-use trail on each side. See **Figure 22**.

The changes included in the Unser Boulevard Full-Build 3 from the Street Standard section include the following:

- The 58-ft wide raised median that was reserved for median, curb and gutter, and/or future BRT is now a 28-ft wide median / BRT. This is more similar to Unser Boulevard Alternative 2.
- The 7-ft wide bicycle lane is now an 8-ft wide bicycle lane with a 4-ft wide buffer.



Big Rock Drive/Cold Creek Avenue to Paradise Boulevard
 Figure 22: Unser Boulevard Alternative 3 (Based on ST7.1 – Urban Boulevard A)

Interim-Build Alternatives

Paseo del Norte Interim-Build 1A

The Paseo del Norte Interim-Build 1A is based on Paseo del Norte Full-Build 1 and would entail using the existing roadway infrastructure to provide two 12-ft travel lanes in each direction on Paseo del Norte between Avenida de Jaimito and Calle Norteña. A 10-ft multi-use trail would be provided on at least one side of the section (shown on the south side of the section for display). See **Figure 23**.

- Continue to use the existing pavement width with four-driving lanes, and the existing ROW (100-ft wide).
- Construct a multi-use trail(s) to provide multi-modal infrastructure.
- Additional ROW would need to be secured between Avenida de Jaimito to just east of Calle Plata.

Paseo del Norte Interim-Build 2A

The Paseo del Norte Interim-Build 2A is based on Paseo del Norte Full-Build 2 and would entail using the existing roadway infrastructure plus new construction to provide two 12-ft travel lanes and an 8-ft bicycle lane with a 4-ft buffer in each direction on Paseo del Norte between Rainbow Boulevard and Universe Boulevard. A 10-ft multi-use trail would be provided on at least one side of the section. The existing multi-use trail on the north side could remain in place. See **Figure 25**.

- Continue to use the existing multi-use trail and landscape buffers on the north side.
- Continue to use the existing two westbound travel lanes (24-ft). This asphalt would be widened and a curb and gutter constructed to include the two travel lanes and an 8-ft bicycle lane with a 4-ft buffer. The existing section does not have a curb and gutter between the westbound driving lane and multi-use trail.
- Construct the two 12-ft eastbound travel lanes along with an 8-ft bicycle lane and 4-ft buffer.

Paseo del Norte Interim-Build 2B

The Paseo del Norte Interim-Build 2B is based on Paseo del Norte Full-Build 2 and would entail using the existing roadway infrastructure to provide two 11-ft travel lanes and an 8-ft bicycle lane in each direction on Paseo del Norte between Universe Boulevard and Avenida de Jaimito. A 10-ft multi-use trail would be provided on at least one side of the section (shown on the south side of the section for display). See **Figure 24**.

- Continue to use the existing median and pavement (currently one travel lane each direction). Widen the roadway section to include two travel lanes and an 8-ft bicycle lane each direction.
- Construct a trail/walkway along the south side to provide multi-modal infrastructure.
- Additional ROW would need to be secured between Universe and Avenida de Jaimito.

Proposed Paseo del Norte Full-Build 1 | Based on Urban Boulevard A (VHSDP)

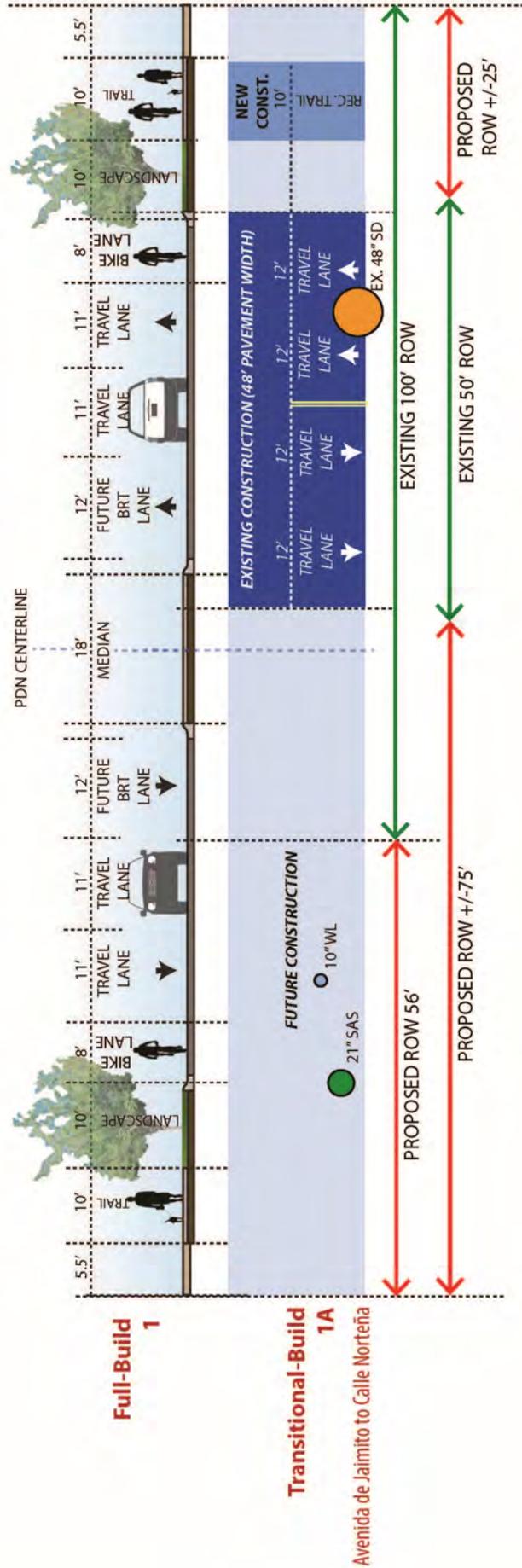


Figure 23: Paseo del Norte Interim-Build 1A

Proposed Paseo del Norte Full-Build 2 | Based on Urban Boulevard D (VHSDP)

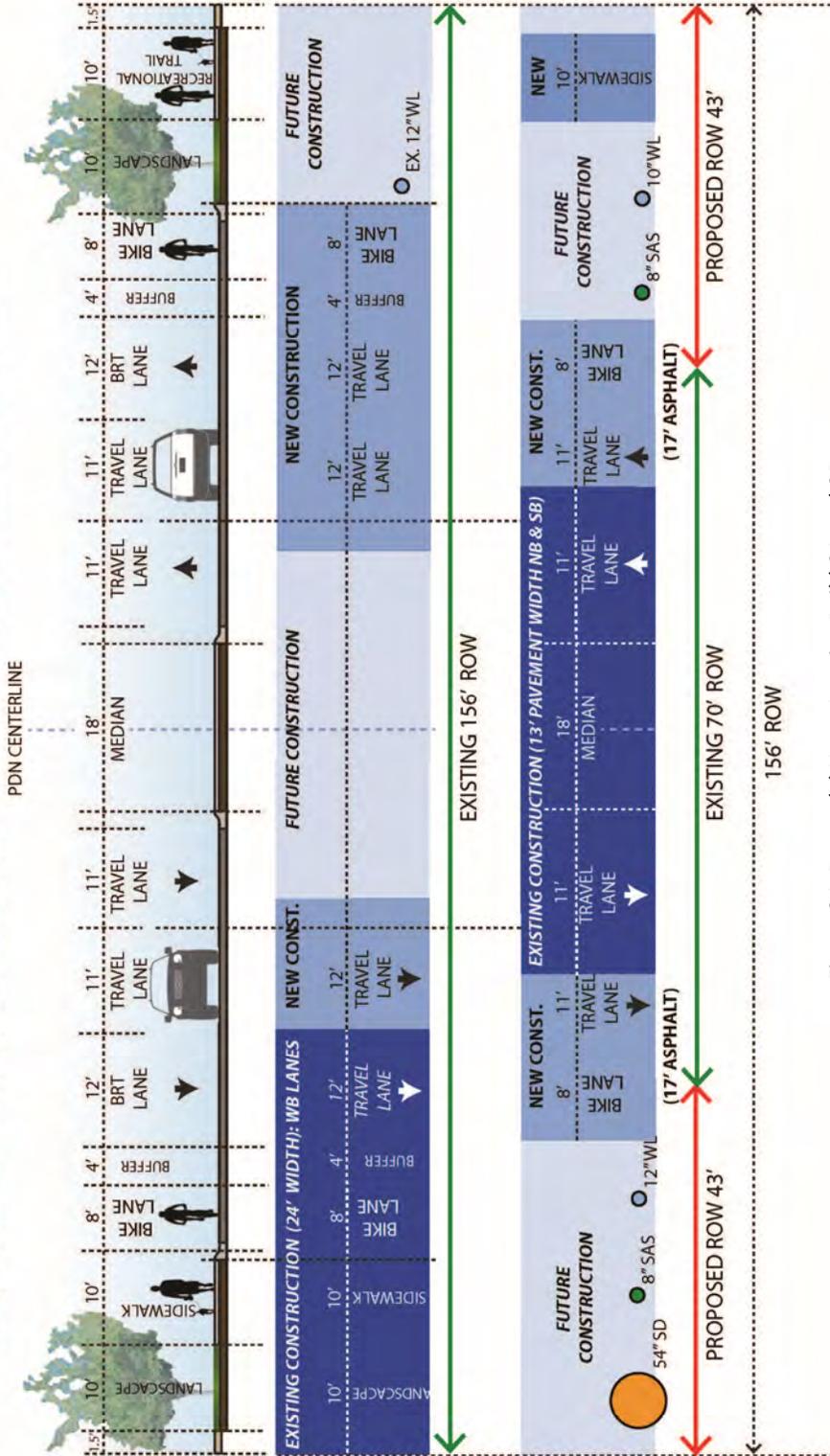


Figure 24: Paseo del Norte Interim-Build 2A and 2B

Unser Boulevard Interim-Build 1A

The Unser Boulevard Interim-Build 1A is based on Unser Boulevard Full-Build 1 and would entail using the existing roadway infrastructure plus new construction to provide two 11-ft travel lanes in each direction on Unser Boulevard between Kimmick Drive and Avenida de Jaimito. A 10-ft multi-use trail would be provided on the east side of the section. See **Figure 25**.

- Continue to use the existing curb and gutter (east side of section) and pavement (34-ft wide). Widen the roadway section to include two travel lanes each direction.
- Construct a multi-use trail along the east side to provide multi-modal infrastructure.

Unser Boulevard Interim-Build 1B

The Unser Boulevard Interim-Build 1B is based on Unser Boulevard Full-Build 2 and would entail using the existing roadway infrastructure plus new construction to provide two 11-ft travel lanes and 8-ft bicycle lane in each direction on Unser Boulevard between Avenida de Jaimito to Loop Road. See **Figure 14** for the location of the future Loop Road. A 10-ft multi-use trail would be provided on the east side of the section. See **Figure 25**.

- Continue to use the existing median and pavement (currently one travel lane in each direction). Widen the roadway section to include two travel lanes and an 8-ft bicycle lane in each direction.
- Construct a multi-use trail along the east side to provide multi-modal infrastructure.

Unser Boulevard Interim-Build 2A

The Unser Boulevard Interim-Build 2A is based on Unser Boulevard Full-Build 2 and would entail constructing two 11-ft travel lanes and an 8-ft bicycle lane in each direction on Unser Boulevard between Paseo del Norte and Big Rock Drive/Cold Creek Avenue. A 10-ft multi-use trail would be provided on the east side of the section. See **Figure 26**.

- New construction of two travel lanes in each direction and an 8-ft bicycle lanes each direction. The existing 28-ft of roadway would likely become the median/BRT.
- Construct a multi-use trail along the east side to provide multi-modal infrastructure.
- Additional ROW would need to be secured between Paseo del Norte and Big Rock Drive/Cold Creek Avenue. Current width is 78-ft.

Unser Boulevard Interim-Build 2B

The Unser Boulevard Interim-Build 2B is based on Unser Boulevard Full-Build 2 and would entail using the existing roadway infrastructure plus new construction to provide two 11-ft travel lanes and an 8-ft bicycle lane in each direction on Unser Boulevard between Loop Road and Paseo del Norte. See **Figure 14** for the location of the future Loop Road. A 10-ft multi-use trail would be provided on the east side of the section. See **Figure 26**.

- Continue to use the existing median and pavement (currently one travel lane each direction). Widen the roadway section to include two travel lanes and an 8-ft bicycle lane each direction.
- Construct a multi-use trail along the east side to provide multi-modal infrastructure.

Unser Boulevard Interim-Build 3A

The Unser Boulevard Interim-Build 3A is based on Unser Boulevard Full-Build 3 and would entail using the existing roadway infrastructure plus new construction to provide two 12-ft travel lanes and an 8-ft bicycle

lane with a 4-ft buffer in each direction on Unser Boulevard between Big Rock Drive/Cold Creek Avenue and 1500-ft south of Paradise Boulevard. The existing 6-ft sidewalk on the east side could remain in place or it could be replaced by the future multi-use trail. See **Figure 27**.

- Continue to use the existing sidewalk and landscape buffers on the east side.
- Continue to use the existing northbound lanes. This would become the northbound travel and bicycle lanes. Widen the roadway section to include two travel lanes and an 8-ft bicycle lane with a 4-ft buffer in each direction.

Unser Boulevard Interim-Build 3B

The Unser Interim-Build 3B is based on Unser Boulevard Full-Build 3 and would entail constructing two 12-ft travel lanes and an 8-ft bicycle lane with a 4-ft buffer in each direction on Unser Boulevard between 1500-ft south of Paradise Boulevard and Paradise Boulevard. A 10-ft trail/walkway would be provided on the east side of the section. See **Figure 27**.

- New construction of two travel lanes and 8-ft bicycle lane with 4-ft buffer in each direction. The existing 28-ft of roadway would likely become the median/BRT.
- Construct a trail/walkway along the east side to provide multi-modal infrastructure.

Proposed Unser Boulevard Full-Build 1 | Based on Urban Boulevard A (VHSDP)

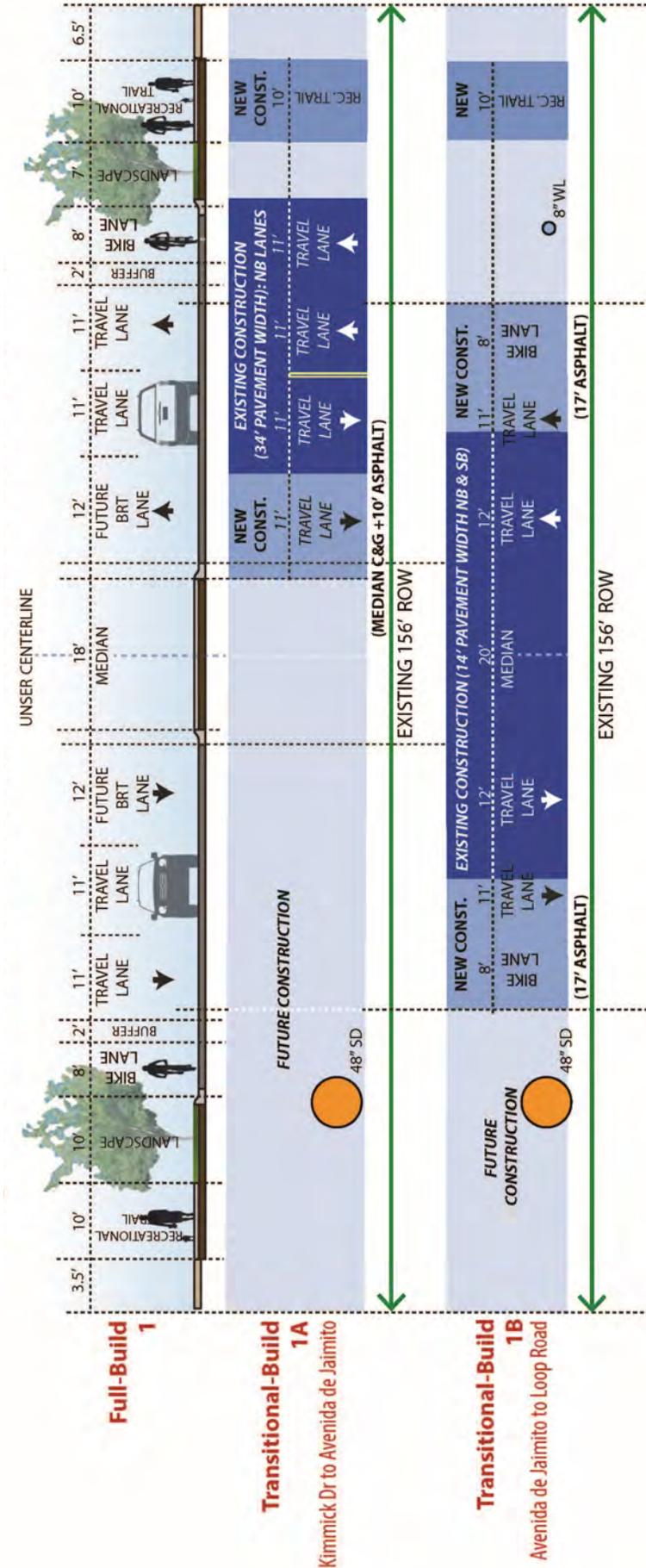


Figure 25: Unser Boulevard Interim-Build 1A and 1B

Proposed Unser Boulevard Full-Build 2 | Based on Urban Boulevard C (VHSDP)

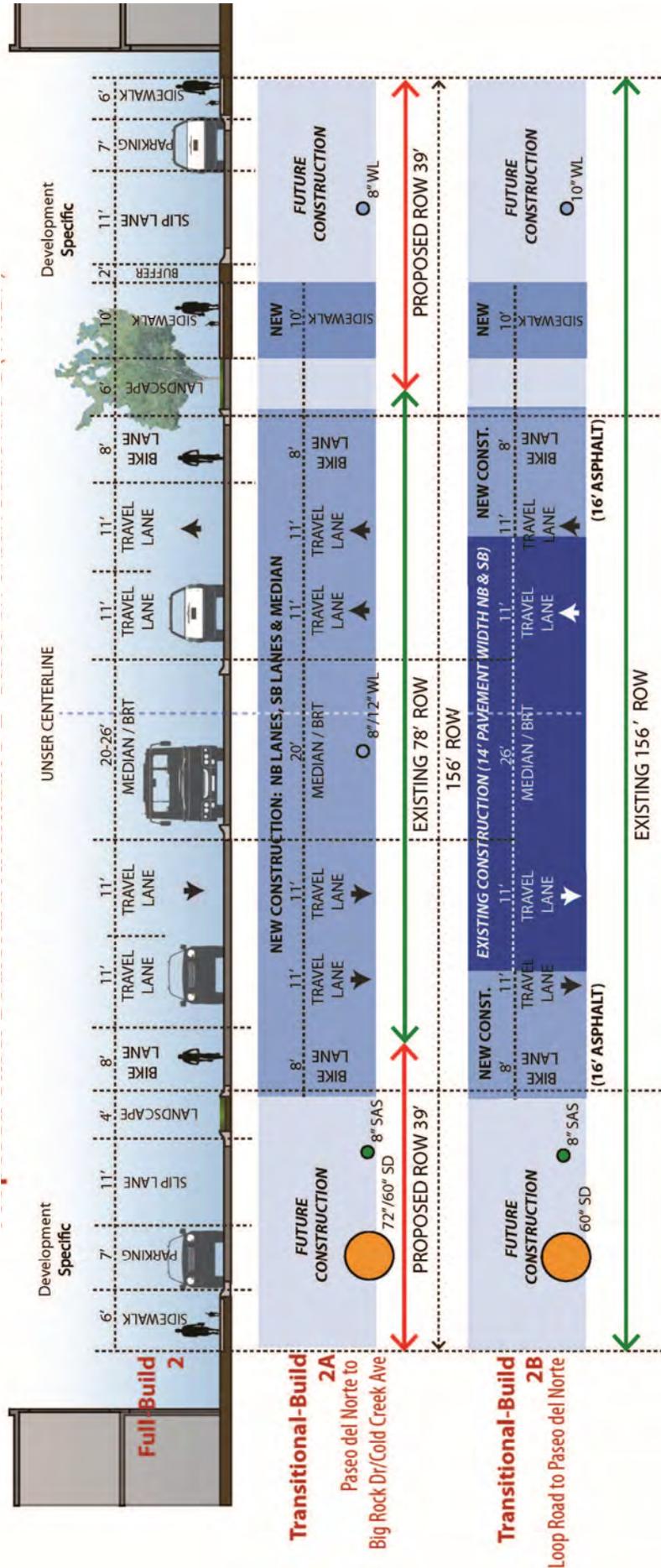


Figure 26: Unser Boulevard Interim-Build 3A and 3B

Proposed Unser Boulevard Full-Build 3 | Based on Urban Boulevard A (VHSDP)

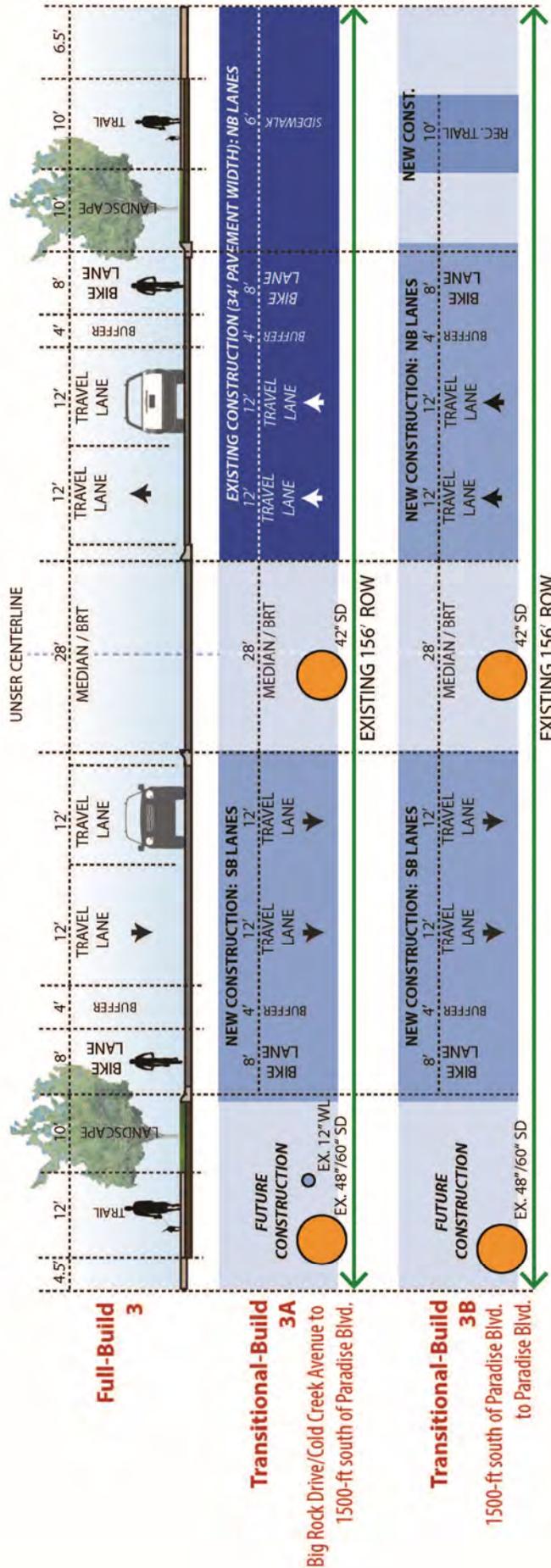


Figure 27: Unser Boulevard Interim-Build 3A and 3B

Intersection Geometry

This planning level study does not include individual intersection Level of Service analyses, but based on field observations each signalized intersection could be enhanced. The widening of Paseo del Norte and Unser Boulevard to four lanes, as well as longer/additional left turn lanes and right turn lanes will likely reduce delay and bring the intersections to an appropriate Level of Service.

Analysis of Proposed Alternatives

Evaluation Criteria

The evaluation of alternatives is based on the following criteria:

- Traffic Operations: Capacity/LOS
- Safety
- Complete Streets (Multi-Modal Benefits)
- Plan Compliance
- Supports Future Development
- Environmental Considerations
- Right of Way (ROW)
- Costs (Construction and Right of Way)
- Utilities

Traffic Operations: Capacity/LOS

As described in the Traffic Analysis sections of this study, each roadway currently includes segments operating at an estimated LOS F with the 2017 AWDT volumes.

- Paseo del Norte, as a two-lane roadway east of Unser Boulevard, is operating at an estimated LOS F with 2017 AWDT volumes.
- Unser Boulevard, north of Paseo del Norte, is operating at an estimated LOS F with 2017 AWDT volumes.

No-Build Alternatives

Under this No-Build scenario with the caveats described previously with regard to the traffic volumes shown, all segments of Paseo del Norte operate at an unacceptable LOS F in 2040.

Under this No-Build scenario with the caveats described previously and noting that the volumes on Unser Boulevard go down, all segments of Unser Boulevard appear to operate at an acceptable LOS D in 2040, though Segments 1 and 2 are near volumes for LOS E (15,540, after +5% adjustment).

Full-Build Alternatives

The Build LOS describes how the roadway would operate in the future with Full-Build improvements that include four driving lanes (two driving lanes in each direction), exclusive left turn and right turn lanes, and raised medians.

In 2040, with a posted speed limit of 35 mph, Paseo del Norte east of Kimmick Drive is anticipated to operate at an estimated LOS E, but is close to the threshold for LOS D. The remaining segments of Paseo del Norte are anticipated to operate at an acceptable LOS D. Unser Boulevard is anticipated to operate at an estimated LOS C in 2040. If transit is present within the study area in 2040, the volumes may decrease, which would improve the LOS.

In 2040, with a posted speed limit of 40 mph, both the Paseo del Norte and Unser Boulevard corridors are anticipated to operate at LOS C.

Interim-Build Alternatives

The Interim-Build alternatives are similar to the Full-Build alternatives in that the improvements would include four driving lanes (two driving lanes in each direction), exclusive left turn and right turn lanes, and raised medians. The LOS would be the same as described above in the full-build.

Safety

A crash analysis was not part of the scope of this study. The Full-Build and Interim-Build Alternatives include design-related techniques that have historically reduced the total crashes.

No-Build Alternatives

There would be no change to the roadway characteristics that may affect safety.

Full-Build Alternatives

With the addition of design-related techniques identified in the Full-Build alternatives each roadway may see a reduction in total crashes (ITE Traffic Engineering Handbook, 6th Edition).

- Add nontraversable median – 35% reduction in total crashes
- Add right turn bay – 20% reduction in total crashes
- Add left turn bay – 25-50% reduction in crashes on 4-lane roads

Interim-Build Alternatives

With the addition of design-related techniques identified in the Interim-Build alternatives each roadway may see a reduction in total crashes (ITE Traffic Engineering Handbook, 6th Edition).

- Add nontraversable median – 35% reduction in total crashes
- Add right turn bay – 20% reduction in total crashes
- Add left turn bay – 25-50% reduction in crashes on 4-lane roads

Complete Streets (Multi-Modal Benefits)

The Complete Streets Ordinance was adopted in February 2015 and requires streets that are designed and built to efficiently serve all users, including pedestrians, cyclists, transit riders and motorists.

No-Build Alternatives

A majority of the roadways do not currently include any multi-modal infrastructure, with the exception of a short section of multi-use trail on Paseo del Norte (Rainbow Boulevard to Universe Boulevard) and sidewalk on Unser Boulevard (along the Boulders Residential Development). There would be no change to the roadway characteristics that benefit Complete Streets.

Full-Build Alternatives

The full-build alternatives include multi-modal infrastructure that would serve all users, including BRT infrastructure, bicycle lanes, sidewalk, and multi-use trails.

Interim-Build Alternatives

The Interim-Build alternatives include multi-modal infrastructure but not to the degree of the Full-Build alternatives. The Interim-Build alternatives include:

- Multi-use trail, on at least one side of the roadway*
- Bicycle lanes, except on Paseo del Norte between Avenida de Jaimito to Calle Norteña, and Unser Boulevard between Kimmick Drive to Avenida de Jaimito
- Transit infrastructure (BRT) is not included but transit stops could be included as part of the Interim-build alternatives

**During the working sessions with the City of Albuquerque, the inclusion of a second paved multi-use trail was considered so that both sides of the roadway will have access to the multi-modal infrastructure. Because of the varying locations that the second multi-use trail, the final location of the second multi-use trail will be refined as the design of the improvements commences. At this time, the construction costs for the second multi-use trail are included in the cost estimates.*

Plan Compliance

The full-build and Interim-build alternatives are based on the pertinent plans (See **Appendix C**), with the Interim-build alternatives achieving the needs of the corridors (pedestrians, cyclists, transit riders and motorists), and taking into account the funding restraints, as well as the desire of the City to allow for completion of each corridor with development.

No-Build Alternatives

There would be no change to the roadway characteristics that may bring them into compliance with the pertinent plans.

Full-Build Alternatives

The Full-Build alternatives would comply with the appropriate plans.

Interim-Build Alternatives

The Interim-Build alternatives would provide infrastructure that complies with the appropriate plans.

Supports Future Development

No-Build Alternatives

The No-Build alternatives would not preclude future development.

Full-Build Alternatives

The Full-Build alternatives would support future development.

Interim-Build Alternatives

The Interim-Build alternatives would support future development.

Environmental Considerations

Environmental conditions should be reviewed further for either the Full-Build or Interim-Build alternatives as compared to the No-Build alternative as the preliminary engineering and final design proceeds.

Utilities

According to the *Volcano Heights Sector Development Plan – Infrastructure Needs Assessment Report*, dated January 2018, prepared by Wilson & Company for the City of Albuquerque; proposed water, sanitary sewer, and storm drain infrastructure have been identified for the Paseo del Norte and Unser Boulevard corridors.

- Paseo del Norte includes 10” and 12” water lines, 8” sanitary sewer branch lines and 21” sanitary sewer interceptor line, and 48” to 54” storm drain lines.
- Unser Boulevard includes 8” to 12” water lines and PRV, 8” sanitary sewer branch lines, and 48” to 72” storm drain lines.

No-Build Alternatives

The No-Build alternative does not include any utility infrastructure.

Full-Build Alternatives

The Full-Build alternatives include the proposed water, sanitary sewer and storm drain utility infrastructure.

Interim-Build Alternatives

The Interim-Build alternatives include the proposed water, sanitary sewer and storm drain utility infrastructure.

Right of Way (ROW)

The proposed right of way width for Paseo del Norte needed for the full-build alternatives and the Interim-build alternatives includes a total width of 156-ft. In a majority of the corridor the right of way acquired ranges from 50-ft to 100-ft. The only segment of Paseo del Norte in which the full width has previously been acquired is between Rainbow Boulevard and Universe Boulevard.

The proposed right of way width for Unser Boulevard needed for the full-build alternatives and the Interim-build alternatives includes a total width of 156-ft. In approximately two-thirds of the corridor the full 156-ft of right of way has previously been acquired. The segment of Unser Boulevard between Paseo del Norte and Big Rock Drive/Cold Creek Avenue only includes an existing right of way width of 78-ft.

During working sessions with the City of Albuquerque, the consensus was that right of way acquisition should include the remaining width to obtain the 156-ft of right of way. Because each roadway is elevated, the constructability would be affected if only a portion of the remaining right of way was acquired. The need for slope easements is highly likely, and their cost is near the cost for acquisition.

No-Build Alternatives

The No-Build alternatives would not require any additional right of way.

Full-Build Alternatives

The Full-Build alternatives would require the right of way acquisition. See **Figure 28**.

Interim-Build Alternatives

The Interim-Build alternatives would require the right of way acquisition. See **Figure 28**.

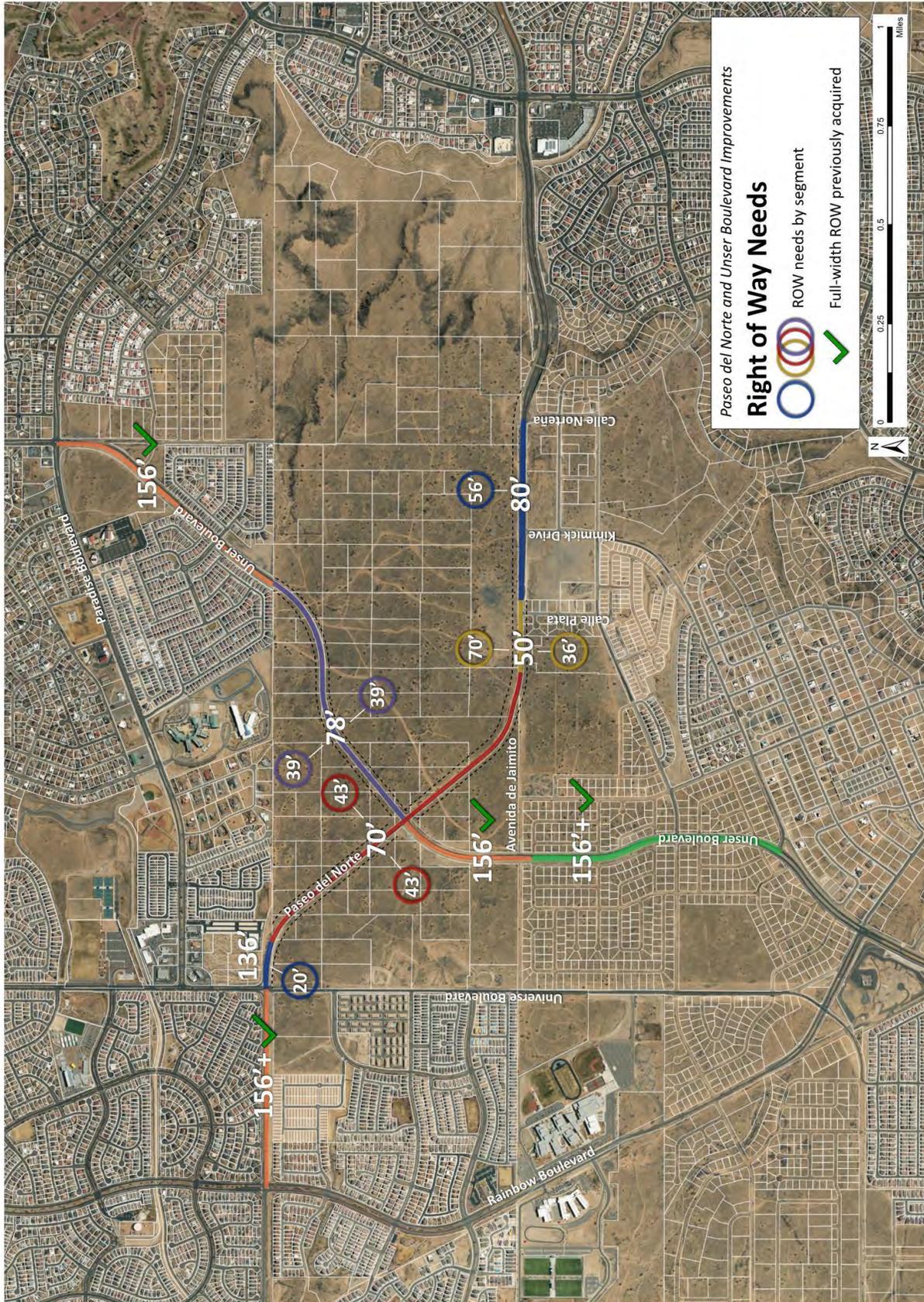


Figure 29: Paseo del Norte and Unser Boulevard Right of Way Needs

Costs (Construction and Right of Way)

Table 6, Table 7, and Table 8, summarize the cost estimates for the Full-Build and Interim-Build alternatives considered. The cost estimates were developed conceptual/planning level estimating techniques. Water, sanitary sewer, and drainage utility infrastructure, as per the *Volcano Heights Sector Development Plan – Infrastructure Needs Assessment Report*, are included. Costs could change substantially depending on the rock excavation required for the installation of underground infrastructure. Cost savings could be realized from recommendations made from the Value Engineering efforts that may be carried out in the Design phase of the project.

Table 6: Full-Build Conceptual Cost Estimate

Alternative	Cost (\$) / mile	Miles	Total Cost
Paseo del Norte			
Full-Build			
PDN Alternative 1	\$14,000,000.00	0.5075	\$7,106,060.61
PDN Alternative 2	\$14,000,000.00	1.7272	\$24,181,818.18
Subtotal Cost Full-Build Paseo del Norte Corridor			\$31,287,878.79
30% Contingency			\$40,674,242.42
Total Cost Full-Build Paseo del Norte Corridor			\$41,000,000.00
Unser Boulevard			
Full-Build			
Unser Alternative 1	\$14,000,000.00	0.8143	\$11,401,515.15
Unser Alternative 2	\$14,000,000.00	0.9280	\$12,992,424.24
Unser Alternative 3	\$14,000,000.00	0.6818	\$9,545,454.55
Subtotal Cost Full-Build Unser Boulevard Corridor			\$33,939,393.94
30% Contingency			\$44,121,212.12
Total Cost Full-Build Unser Boulevard Corridor			\$44,500,000.00

Table 7: Interim-Build Conceptual Cost Estimate

Alternative	Cost (\$) / mile	Miles	Total Cost
Paseo del Norte			
Interim-Build			
PDN Alternative 1A	\$2,500,000.00	0.6628	\$1,657,196.97
PDN Alternative 2A	\$8,000,000.00	0.5303	\$4,242,424.24
PDN Alternative 2B	\$8,000,000.00	1.0416	\$8,333,333.33
Subtotal Cost Interim-Build Paseo del Norte Corridor			\$14,232,954.55
30% Contingency			\$18,502,840.91
Total Cost Interim-Build Paseo del Norte Corridor			\$19,000,000.00
Unser Boulevard			
Interim-Build			
Unser Alternative 1A	\$4,000,000.00	0.6818	\$2,727,272.73
Unser Alternative 1B	\$8,000,000.00	0.1136	\$909,090.91
Unser Alternative 2A	\$14,000,000.00	0.7196	\$10,075,757.58
Unser Alternative 2B	\$8,000,000.00	0.2272	\$1,818,181.82
Unser Alternative 3A	\$6,000,000.00	0.3787	\$2,272,727.27
Unser Alternative 3B	\$14,000,000.00	0.3030	\$4,242,424.24
Subtotal Cost Interim-Build Unser Boulevard Corridor			\$22,045,454.55
30% Contingency			\$28,659,090.91
Total Cost Interim-Build Unser Boulevard Corridor			\$29,000,000.00

Table 8: Right of Way Acquisition Conceptual Cost Estimate

<i>Alternative</i>	Width (ft)	Length (ft)	Area (sf)	Cost (\$) per sf	Amount
<i>Paseo del Norte</i>					
<i>Interim-Build</i>					
<i>Paseo del Norte Interim-Build 1A</i>	75	3,500	262,500	\$3.94	\$1,034,250.00
<i>Paseo del Norte Interim-Build 2B</i>	86	5,500	473,000	\$3.94	\$1,863,620.00
<i>Unser Boulevard</i>					
<i>Interim-Build</i>					
<i>Unser Boulevard Interim-Build 2A</i>	78	3,800	296,400	\$3.94	\$1,167,816.00

These costs are based on previous transactions in the area, including condemnations. These costs do not include title costs, legal fees, etc. and are to be used for estimating purposes only.

Summary and Recommendations

Capacity improvements are needed to better accommodate current volumes. Paseo del Norte and Unser Boulevard within the project area currently operate at LOS D or LOS F, depending on the segment. LOS D represents significant congestion, though with steady traffic flow, while LOS F represents the highest level of congestion, with the worst comfort for motorists and worst traffic flow.

The 2040 MRCOG model shows that a four-lane section would provide for an acceptable LOS C on both Paseo del Norte and Unser Boulevard, with a speed limit of 40 mph.

Based on the analysis of the proposed alternatives,

- The No-Build Alternative does not provide improvements to the existing corridor and does not address the needs identified within the corridor, both in the near and longer term.
- The Full-Build Alternatives are based on the preferred cross-sections determined during community planning efforts for the areas surrounding the intersection of Paseo del Norte and Unser Boulevard. These planning efforts defined the vision for future development for the adjacent areas. The preferred cross sections are the roadway designs intended to support the high-intensity development envisioned for the area in the longer term. These full-build sections would accommodate the volumes predicted by the 2040 MRCOG model, but would also include additional infrastructure – such as lanes for high-frequency transit, bicycle-pedestrian amenities, and landscaping – that would be more appropriate for the eventual higher activity development planned for the area.
- The Interim-Build Alternatives would meet current traffic needs as well as the estimated 2040 Daily Volume from the MRCOG Travel Demand Model. They provide the first step to achieve the needs of the corridors (pedestrians, cyclists, transit riders and motorists), and take into account the funding restraints, as well as the desire of the City to allow for completion of each corridor with development.

Available Funding

Funding sources have been identified to begin the right of way acquisition and preliminary design.

- Paseo del Norte has available a total of \$3.1 million of Capital Outlay (non-federal) funding.
- Unser Boulevard has \$7 million in federal funding programmed for 2024, and this would likely require the Unser Boulevard corridor to follow the federal process for the design and implementation of the improvements.

Recommendations

Based on the analysis and available funding, project recommendations include:

- Implementation of Interim-Build 1A, 2A, and 2B for the improvements to Paseo del Norte, along with associated improvements to the four (4) signalized intersections.
- Implementation of Interim-Build 1A, 1B, 2A, 2B, 3A, and 3B for the improvements to Unser Boulevard, along with associated improvements to the two (2) signalized intersections and one full access intersection.

Implementation Plan

The implementation of the improvements for each corridor should begin with the acquisition of the remaining right of way to achieve the 156-ft wide right of way.

Paseo del Norte

Because the funding available for the Paseo del Norte infrastructure is non-federal, the preliminary design would be the first step for implementing the project(s). The preliminary design would allow for a refinement of the construction costs and begin the stakeholder coordination needed with property owners, agencies, utility companies, and others.

Unser Boulevard

Because the funding available for the Unser Boulevard is federal, NMDOT Location Study Procedures process including the Phase IA-B Detailed Alternatives Analysis and Phase IC Environmental Documentation would be the first steps for implementing the project(s).

Appendix A – FDOT Quality/Level of Service Handbook Tables

Generalized **Annual Average Daily** Volumes for Florida's
Urbanized Areas

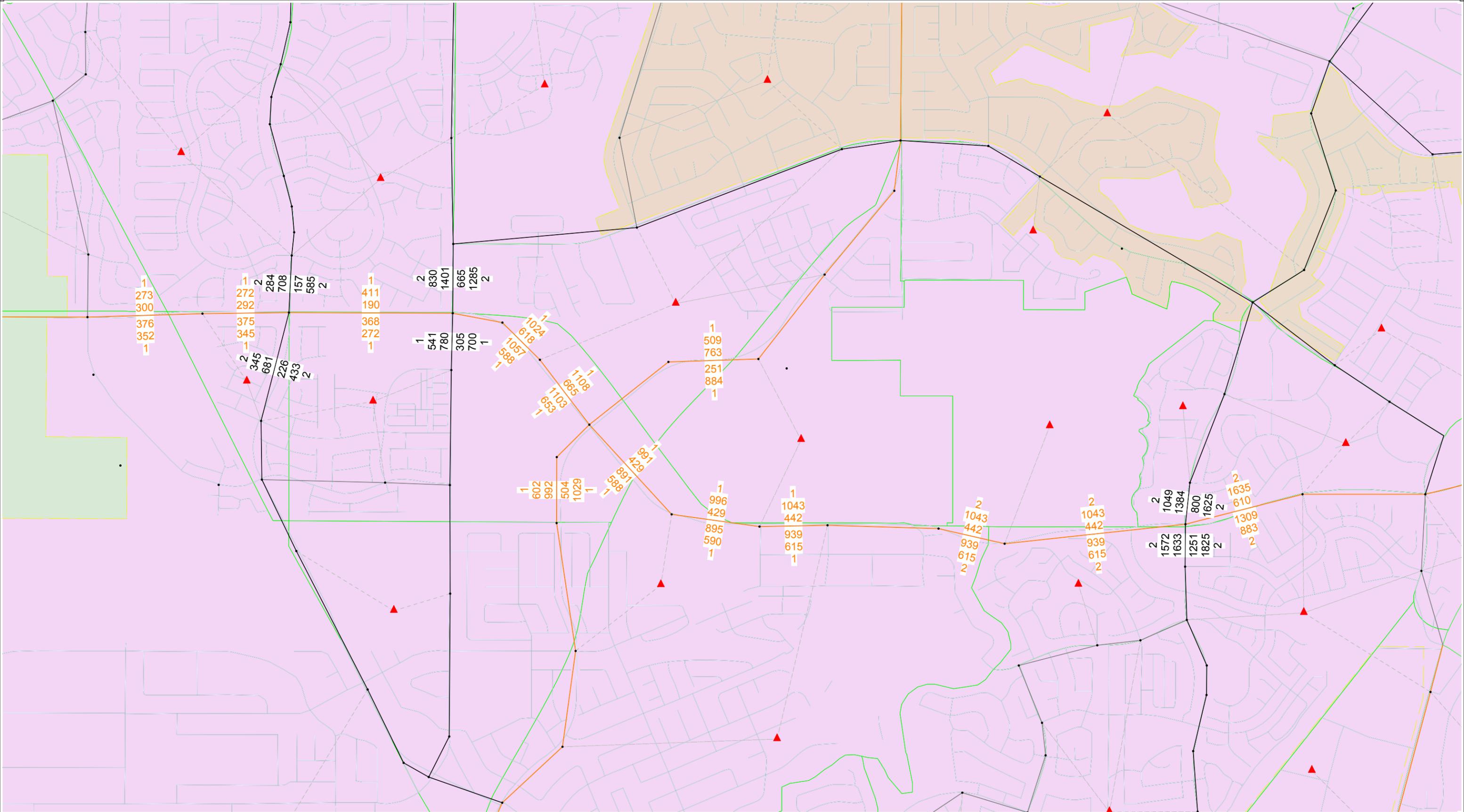
TABLE 1

12/18/12

INTERRUPTED FLOW FACILITIES						UNINTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS						FREEWAYS					
Class I (40 mph or higher posted speed limit)						Core Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	16,800	17,700	**	4	47,400	64,000	77,900	84,600	
4	Divided	*	37,900	39,800	**	6	69,900	95,200	116,600	130,600	
6	Divided	*	58,400	59,900	**	8	92,500	126,400	154,300	176,600	
8	Divided	*	78,800	80,100	**	10	115,100	159,700	194,500	222,700	
						12	162,400	216,700	256,600	268,900	
Class II (35 mph or slower posted speed limit)						Urbanized					
Lanes	Median	B	C	D	E	Lanes	B	C	D	E	
2	Undivided	*	7,300	14,800	15,600	4	45,800	61,500	74,400	79,900	
4	Divided	*	14,500	32,400	33,800	6	68,100	93,000	111,800	123,300	
6	Divided	*	23,300	50,000	50,900	8	91,500	123,500	148,700	166,800	
8	Divided	*	32,000	67,300	68,100	10	114,800	156,000	187,100	210,300	
Non-State Signalized Roadway Adjustments (Alter corresponding state volumes by the indicated percent.)						Freeway Adjustments					
Non-State Signalized Roadways - 10%						Auxiliary Lanes Present in Both Directions + 20,000					
						Ramp Metering + 5%					
Median & Turn Lane Adjustments						UNINTERRUPTED FLOW HIGHWAYS					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors		Lanes	Median	B	C	D	E
2	Divided	Yes	No	+5%		2	Undivided	8,600	17,000	24,200	33,300
2	Undivided	No	No	-20%		4	Divided	36,700	51,800	65,600	72,600
Multi	Undivided	Yes	No	-5%		6	Divided	55,000	77,700	98,300	108,800
Multi	Undivided	No	No	-25%		Uninterrupted Flow Highway Adjustments					
-	-	-	Yes	+ 5%		Lanes	Median	Exclusive left lanes	Adjustment factors		
One-Way Facility Adjustment Multiply the corresponding two-directional volumes in this table by 0.6						2	Divided	Yes	+5%		
						Multi	Undivided	Yes	-5%		
						Multi	Undivided	No	-25%		
BICYCLE MODE² (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)						¹ Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.					
Paved Shoulder/Bicycle Lane Coverage						² Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.					
	B	C	D	E		³ Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.					
0-49%	*	2,900	7,600	19,700		* Cannot be achieved using table input value defaults.					
50-84%	2,100	6,700	19,700	>19,700		** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.					
85-100%	9,300	19,700	>19,700	**		Source: Florida Department of Transportation Systems Planning Office www.dot.state.fl.us/planning/systems/sm/los/default.shtm					
PEDESTRIAN MODE² (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)											
Sidewalk Coverage	B	C	D	E							
0-49%	*	*	2,800	9,500							
50-84%	*	1,600	8,700	15,800							
85-100%	3,800	10,700	17,400	>19,700							
BUS MODE (Scheduled Fixed Route)³ (Buses in peak hour in peak direction)											
Sidewalk Coverage	B	C	D	E							
0-84%	> 5	≥ 4	≥ 3	≥ 2							
85-100%	> 4	≥ 3	≥ 2	≥ 1							

Appendix B – MRCOG 2040 Travel Demand Model Output

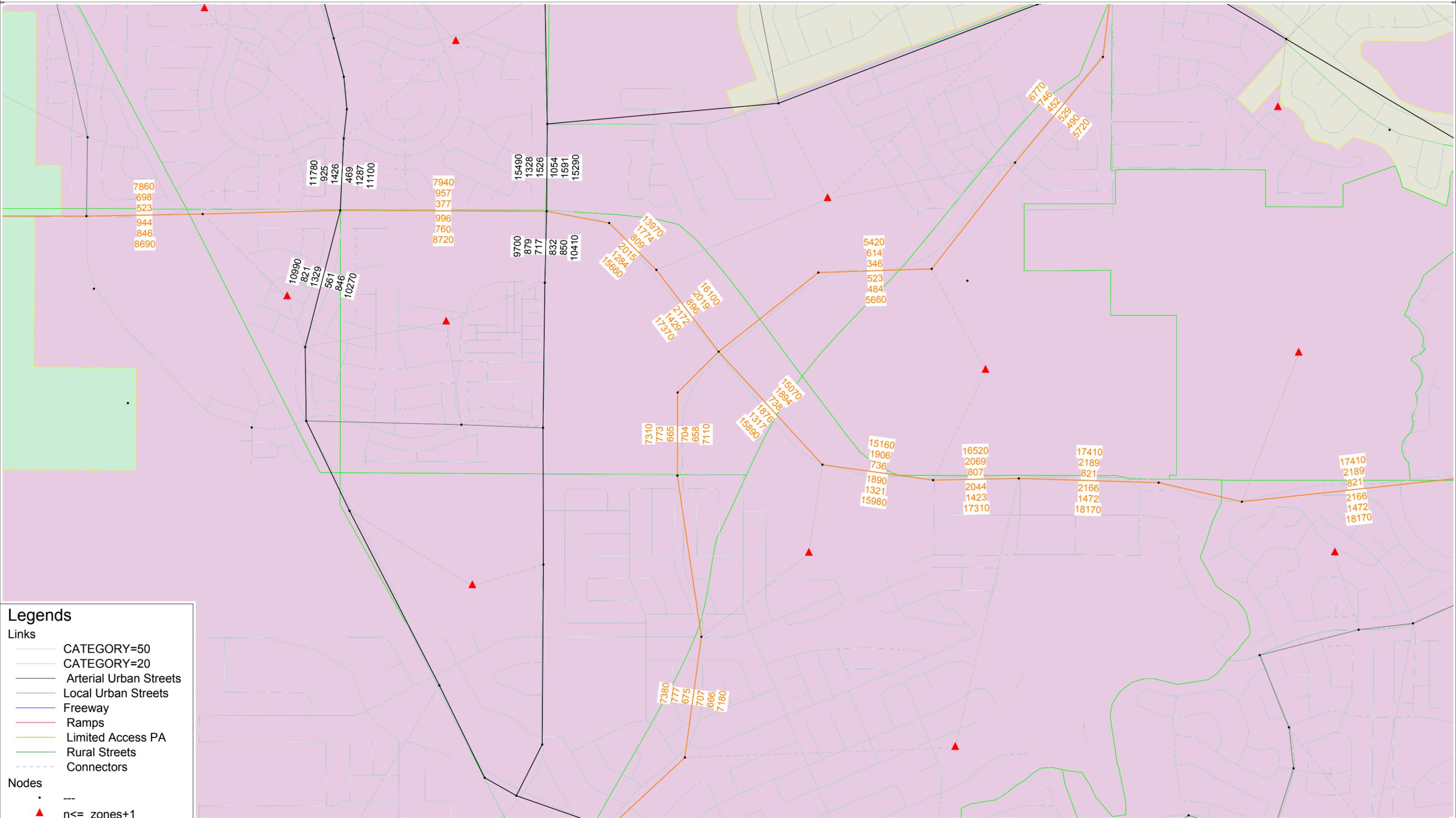
2040 MTP - 2012 Baseline Dataset
AMPH, PMPH, Lanes - Directional
(AM appears closest to link)
Raw Model Output/Non-Adjusted



2040 MTP - Revised Trend - 9/2017

AMPH, PMPH, Daily vols (AM closest to link)

** Raw/Unadjusted **



Legends

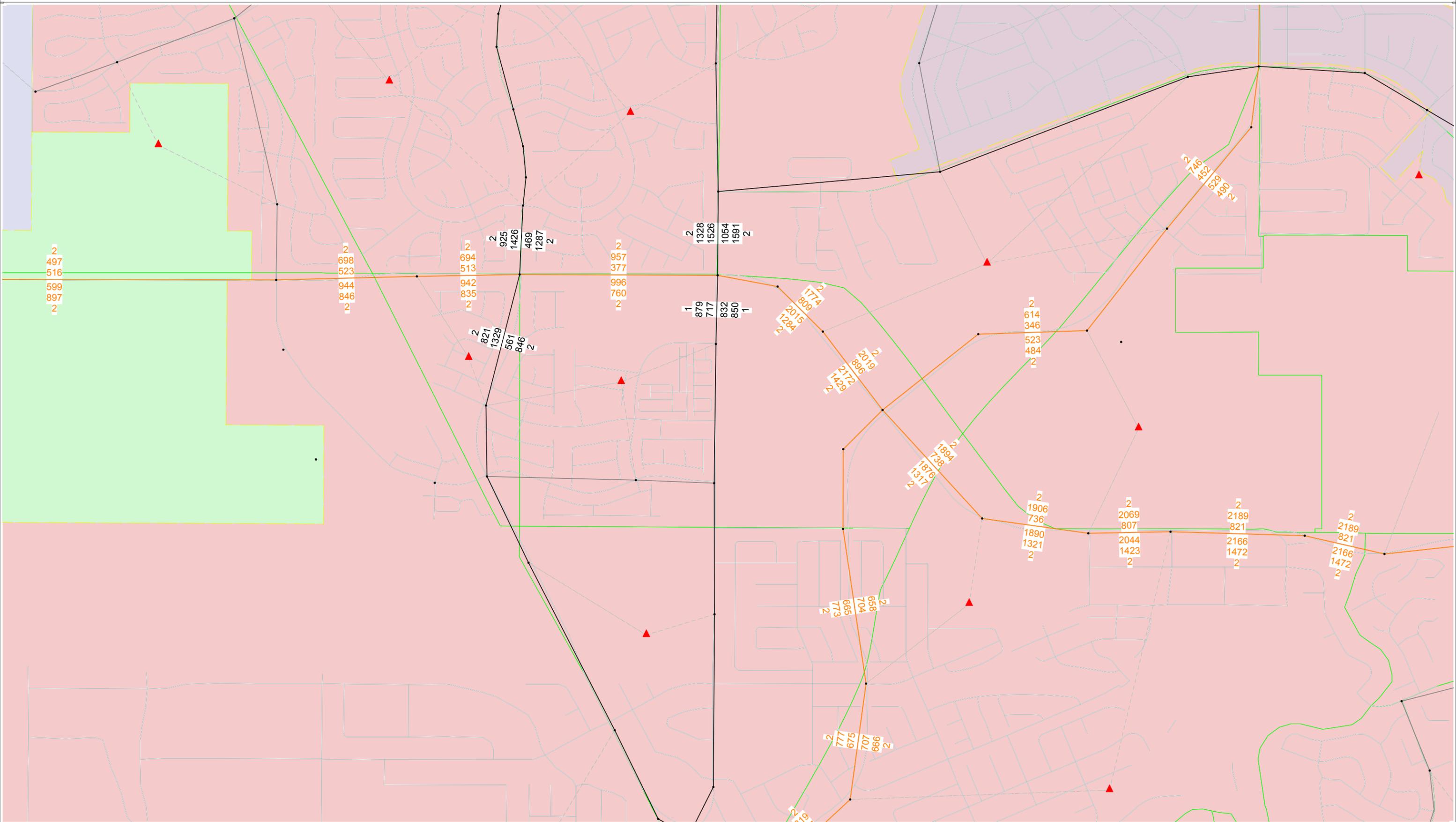
Links

- CATEGORY=50
- CATEGORY=20
- Arterial Urban Streets
- Local Urban Streets
- Freeway
- Ramps
- Limited Access PA
- Rural Streets
- - - Connectors

Nodes

- ---
- ▲ n <= zones+1

Anticipated Travel Demand; 2040 MTP Revised Trend Dataset
AMPH, PMPH, MTP Lanes - Directional
(AM closest to link)
Raw Model Output/Non-Adjusted



Appendix C – Pertinent Regional/Local Planning Documents

Pertinent Regional/Local Planning Documents

The design of major roadways such as Paseo del Norte and Unser Blvd is defined by several regional and municipal planning documents, including MRCOG’s MTP and the Albuquerque-Bernalillo County Comprehensive Plan. The hierarchy of relevant plans is shown in Figure 1. All documents shown (except the Integrated Development Ordinance (IDO), the City of Albuquerque’s zoning and subdivision code), contain standards that would apply to Paseo del Norte and Unser Blvd within the project extents.

Figure 1 – Transportation and Land Use Planning Document Hierarchy (From DPM)



The Metropolitan Transportation Plan is a document created by the Mid-Region Metropolitan Planning Organization (MRMPO) that analyzes the anticipated needs of the Albuquerque region’s transportation system over the next two decades and identifies the projects that should be prioritized for funding within this timeframe. The MTP includes a Long Range Roadway System (LRRS) map that shows the roadway network for the year 2040 and identifies each major road’s “functional classification,” or role within the network. For the year 2040, both Paseo and Unser are identified as Regional Principal Arterials, which is the facility designed to move the largest volume of traffic at the highest speeds within the roadway network.

A key supporting document for the MTP is the Long Range Transportation Systems (LRTS) Guide. The guide elaborates standards relating to the different recommendations in the various parts of the MTP, such as the LRRS, and proposed bicycle/pedestrian and transit networks. With regards to roadways, the LRTS provides guidelines for the different aspects of each roadway functional classification, including right-of-way width, number of lanes, bicycle/pedestrian standards, and designed operating speed. These standards are detailed for each roadway functional classification and for different land use contexts, ranging from highly developed to rural. The standards for a Regional Principal Arterial are detailed in Table 1, copied from the LRTS Guide.

Standards for a Community Principal Arterial might also apply. The LRTS Guide states that “regional principal arterials should only be planned along the periphery of activity centers. In the cases where a regional principal arterial bisects an activity center, the roadway should slow down and be designed and operated like a community principal arterial” (p. 54). The standards for a Community Principal Arterial are detailed in Table 2.

Table 1 – Regional Principal Arterial Standards (MRCOG LRTS Guide)

TABLE 5.4: REGIONAL PRINCIPAL ARTERIAL					ROW RANGE: 106'-156'	
Character Area	ACTIVITY CENTER	URBAN	SUBURBAN	RURAL	MAIN STREET	
Examples	Unser at Rio Rancho City Center	Coors & Montaño	Unser & Montaño	Sen. Dennis Chavez	N/A	
STREETSIDE MINIMUMS (ONE SIDE)						
Landscape buffer	6'	6'	6'	8'-14' paved shoulder (both sides) and/or an 8-10' multi-use trail with a 5' buffer	See Community Principal Arterial Main Street	
Clear Sidewalk width	10'	6'	6'			
Building Shy Zone (ingress/egress)*	2'	2'	2'			
Streetside Width (for one side only)	18'	14'	14'			
BIKEWAYS (ONE SIDE)						
Multi-Use Path	See Long Range Bikeway System				8'-14' paved shoulder (both sides) and/or an 8'-10' multi-use trail with a 5' buffer from the roadway	See Community Principal Arterial Main Street
Multi-Use Path Outside Buffer	5'	5'	5'			
Multi-Use Path Inside Buffer	3'	3'	3'			
Paved Multi-Use Path Width	10'-14'	10'-14'	10'-14'			
Barrier Protected Bicycle Lane (Cycle Track)	See NACTO Urban Bikeway Design Guide for Cycle Tracks. Barrier protected cycle tracks may be considered in lieu of a multi-purpose trail as long as the roadway has sidewalks that meet the streetside minimums above.					
Bicycle Lane (widths do not include gutter pan)	Posted Speed 30 mph or lower: 5' bicycle lane Posted Speed 35 mph: 6' bicycle lane Posted Speed >40 mph: 7' bicycle lane with 3' striped buffer					
TRANSIT						
Dedicated Bus Lane	See Long Range Transit System: Include 24' for bus rapid transit routes.				N/A	
ROADWAY						
Maximum Number of Through Lanes	2-6	4-6	4-6	4-6	See Community Principal Arterial Main Street	
Desired Operating Speed	30-35 MPH	30-35 MPH	40-55 MPH	35-55 MPH		
Lane Width	10'-11'	10'-12'	10'-12'	11'-12'		
Outside Lane Width (heavy vehicles)	12'	12'	12'	12'		
Parallel Parking	-	-	-	-		
Median/Center Turn Lane	6'-18'	6'-18'	6'-18'	6'-18'		

*Include 2' if buildings, walls, or other vertical structures are planned adjacent to public ROW. Please see Building Shy Zone in Section 6.1.

Table 2 – Community Principal Arterial

TABLE 5.5: COMMUNITY PRINCIPAL ARTERIAL					ROW RANGE: 96'-130'
Character Area	ACTIVITY CENTER	URBAN	SUBURBAN	RURAL	MAIN STREET
Examples	Central Ave	Osuna & Jefferson	Southern Blvd	Isleta Blvd	4 th St at Guadalupe Plaza
STREETSIDE MINIMUMS (ONE SIDE)					
Landscape buffer	7' (tree well)	6'	6'	8'-14' paved shoulder (both sides) and/or an 8'-10' multi-use trail with a 5' buffer	6' (tree well)
Clear Sidewalk width	10'	10'	6'		6'
Building Shy Zone (ingress/egress)*	2'	2'	2'		-
Streetside Width (for one side only)	19'	18'	14'		12'
BIKEWAYS (ONE SIDE)					
Multi-Use Path	<i>See Long Range Bikeway System</i>				
Multi-Use Path Outside Buffer	N/A	5'	5'	8'-14' paved shoulder (both sides) and/or an 8'-10' multi-use trail with a 5' buffer from the roadway	Consider a barrier protected bicycle lane/cycle track. Otherwise use a minimum 5' shoulder or bike lane.
Multi-Use Path Inside Buffer	N/A	3'	3'		
Paved Multi-Use Path Width	N/A	10'-14'	10'-14'		
Barrier Protected Bicycle Lane (Cycle Track)	<i>See NACTO Urban Bikeway Design Guide for Cycle Tracks. Barrier protected cycle tracks may be considered in lieu of a multi-purpose trail as long as the roadway has sidewalks that meet the streetside minimums above.</i>				
Bicycle Lane (widths do not include gutter pan)	Posted Speed 30 mph or lower: 5' bicycle lane (min 13' for combined parallel parking and bike lane.) Posted Speed 35 mph: 6' bicycle lane Posted Speed >40 mph: 7' bicycle lane with 3' striped buffer				
TRANSIT					
Dedicated Bus Lane	<i>See Long Range Transit System: Include 24' for bus rapid transit routes.</i>				
ROADWAY					
Maximum Number of Through Lanes	2-4	2-4	4	2-4	2-4
Desired Operating Speed	25-30 MPH	30-35 MPH	35-40 MPH	30-40 MPH	25-30 MPH
Lane Width	10'-11'	10'-11'	10'-12'	10'-12'	10'-11'
Outside Lane Width (heavy vehicles)	12'	12'	12'	12'	12'
Parallel Parking	7'-8'	7'-8'	-	-	7'-8'
Median/Center Turn Lane	6'-18'	6'-18'	6'-18'	6'-18'	6'-18'

*Include 2' if buildings, walls, or other vertical structures are planned adjacent to public ROW. Please see Building Shy Zone in Section 6.1.

A complementary set of standards is provided by the Albuquerque-Bernalillo County Comprehensive Plan (Comp Plan) and the supporting Development Process Manual (DPM), which provides street design and site development guidance regulations stemming from the policies of the Comp Plan. The comprehensive plan was last updated in 2017, and the DPM is currently being developed based on the recommendations of the comprehensive plan. The key concept that affects the future design of Paseo del Norte and Unser Blvd is the comprehensive plan's "Centers and Corridors" framework. The plan identifies Centers where high-density development is occurring or anticipated and establishes a system of Corridors within the city's roadway network. Each type of Center includes specific site development standards, while each Corridor has roadway standards – these standards are meant to support the character and function of the respective Centers and Corridors.

The roadway standards for Corridors differ based on whether the section of roadway is located within a Center or not. Paseo del Norte and Unser Blvd are classified as Commuter Corridors, while the area surrounding the intersection of the two roads is designated as a future Urban Center, the most intense area of development other than Downtown Albuquerque (just one other Urban Center is identified in the Comp Plan, and that is the Uptown district). The standards relating to these types of Corridors and Centers, as included in the DPM, are listed in Figure 2.

Figure 2 – Street Element Dimensions Along Major Roads (DPM)

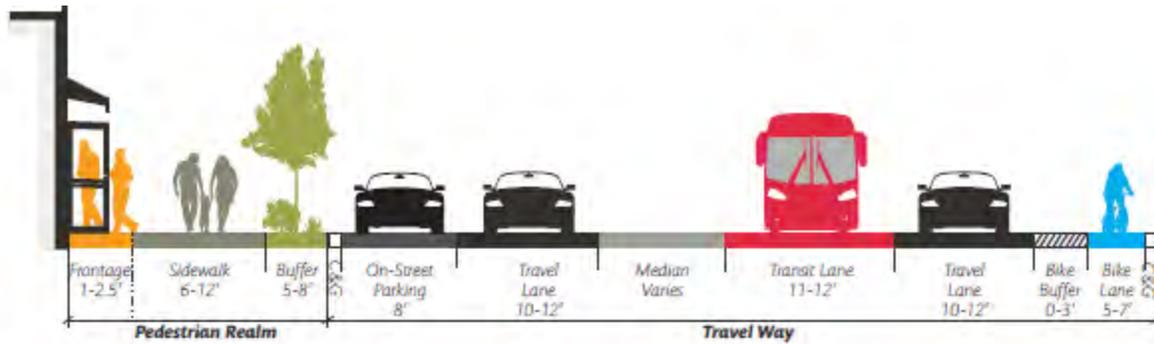


TABLE 7.3.23 Street Element Dimensions

Corridor Type	Location	Design Speed (MPH)	Pedestrian Realm			Travel Way		
			Frontage Zone	Sidewalk Width	Landscape / Buffer Zone	Bike Lane Width*	Bike Buffer	Travel Lane Width**
Premium Transit	Inside Center	30-35	1-2.5'	10-12'	6-8'	6-6.5'	0-3'	10-12'
	Outside Center	35-40	1-2.5'	8-10'	6-8'	6-7'	1.5-3'	10-12'
Major Transit	Inside Center	30-35	1-2.5'	10-12'	6-8'	5-6.5'	0-3'	10-12'
	Outside Center	35-40	N/A	6-10'	6-8'	6-7'	1.5-3'	10-12'
Multi-Modal	Inside Center	30-35	1-2.5'	10-12'	6-8'	5-6.5'	0-3'	10-11'
	Outside Center	35-40	N/A	6-10'	6-8'	6-7'	1.5-3'	10-11'
Commuter	Inside Center	30-35	1-2.5'	10'	6-8'	5-6.5'	1.5-3'	10-12'
	Outside Center	40-50	N/A	6'	6-8'	6-7'	3-5'	10-12'
Main Street	Main Street	25-30	1-2.5'	10-12'	6-8'	5-6.5'	0-3'	10-11'
Other Arterial	Inside Center	30-35	1-2.5'	10'	6-8'	5-6.5'	0-3'	10-11'
	Outside Center	35-40	N/A	6'	5-6'	6-7'	1.5-3'	10-11'
Minor Arterial	Inside Center	30-35	1-2.5'	10'	6-8'	5-6.5'	0-3'	10-11'
	Outside Center	35-40	N/A	6'	5-6'	6-6.5'	1.5-3'	10-11'
Major Collector	Inside Center	25-30	1-2.5'	10'	5-6'	5'	0-3'	10-11'
	Outside Center	30-35	N/A	6'	5-6'	5-6'	0-3'	10-11'
Minor Collector	Inside Center	25-30	1-2.5'	10'	5-6'	5'	0-3'	10-11'
	Outside Center	30-35	N/A	6'	5-6'	5-6'	0-3'	10-11'
Major Local	Inside / Outside Center	18-30	1-2.5' / N/A	5'	5-6'	Shared Lane**		See Local Road Section
Other Locals	Inside / Outside Center	15-25	1-2.5' / N/A	5'	4-6'	N/A	N/A	

*not including the gutter pan.
 ** Dedicated bicycle infrastructure may be appropriate along some Major Local Streets. In these circumstances, use the design characteristics of a minor collector (inside center). See Part 7-5(J) Local Streets for more information.

Transit and Bicycle-Pedestrian

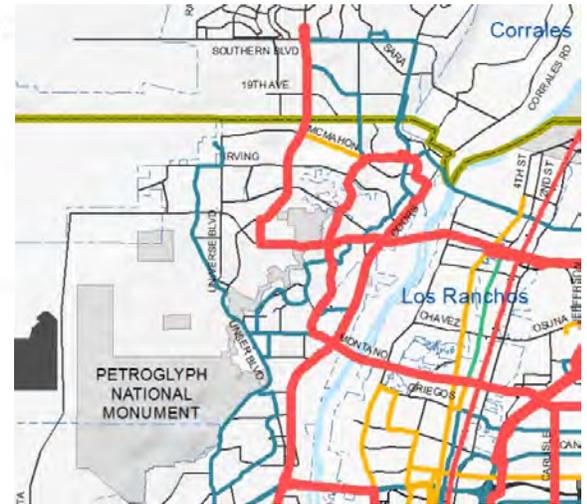
Transit

Part of the project alignment is marked as a “Priority Network Route”. This includes Paseo del Norte from the east, turning north within the project study area at an unbuilt north-south roadway just east of Unser Blvd. The route then joins Unser Blvd and continues north into Rio Rancho.

The priority transit network includes routes that may receive federal funds set aside from R-15-01 MTB. This resolution requires that at least 25% of the region’s CMAQ and STP-U funds be committed to increasing transit’s mode share on the priority network to 20% by 2040

Priority Investment Transit Network

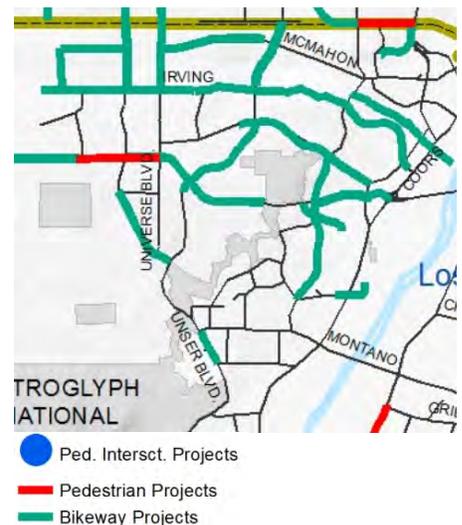
- Priority Network Routes
- Rail Runner
- ABQ Ride All-Day Routes
- ABQ Ride Commuter Routes
- Rio Metro Routes



Bicycle-Pedestrian

MTP Long Range Transportation System Pedestrian and Bike Projects

The 2040 MTP identifies linear pedestrian and bicycle infrastructure projects, as well as pedestrian intersection projects. Priority is given to grade-separated projects that “close gaps over physical barriers.” Both Paseo del Norte and Unser Blvd within the project extents are identified as bikeway projects: on Paseo, west of Petroglyph National Monument until it terminates, and on Unser Blvd, from just south of Paseo del Norte to Paradise Blvd.



ABQ Bikeways & Trails Facilities Plan

Paseo del Norte is listed as a future paved trail and future bike lane along the entire project extent, from Petroglyph National Monument in the east to as far as Atrisco Vista Blvd. Currently, a paved trail and buffered bike lane extend from the east up of Golf Course to the west edge of the monument. A future hiking trail is called out along Paseo through the monument, from Golf Course Rd to the edge of the monument. Similarly, Unser Blvd is designated as having both a future paved trail and bike lane facility. Unser has an existing bike lane north of Paradise Blvd. An overpass/underpass is proposed for the intersection of Paseo del Norte and Unser.

Decision Making Process

The roadway design evaluation process, as detailed in the DPM, is included below in Table 3. This process includes the documents referred to above.

Table 3 – Roadway Evaluation Process

Step	Actions Required by Roadway Designer
1. Consult the Long Range Roadway System	Determine functional classification and right-of-way ranges. If the roadway is classified as a principal arterial, determine whether the corridor is a regional principal arterial or a community principal arterial on the Long Range Roadway System (right-of-way needs vary depending on the regional role of the principal arterial). Identify existing right-of-way.
2. Consult the Comprehensive Plan Center and Corridors Network map	Determine relevant <u>land use designation</u> , including whether the corridor passes through transit station areas or identified Comp Plan Centers that have special guidance. Identify the <u>Corridor type</u> . The Corridor designation provides guidance on priorities by travel mode and other design characteristics. Check for references to the roadway on the Long Range Bicycle System, Bikeways and Facilities Trails Plan, MTP Priority Transit Network, and MTP Primary Freight Network.
3. Review the Priority Street Elements Matrix	Determine which modes of transportation and street design elements should be prioritized, depending on the Corridor type and Center designations.
4. Review Existing Conditions	Analysis should determine if changes to the configuration of the roadway are desired. Considerations include: roadway configuration, travel conditions, traffic volume, alternative mode infrastructure and transit service, landscaping and sidewalk width, and medians and turn lanes.
5. Design / Redesign	Complete roadway design to support intended roadway users and surrounding land use context. This may vary along the roadway corridor.

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