

Santolina Level B Transportation Plan

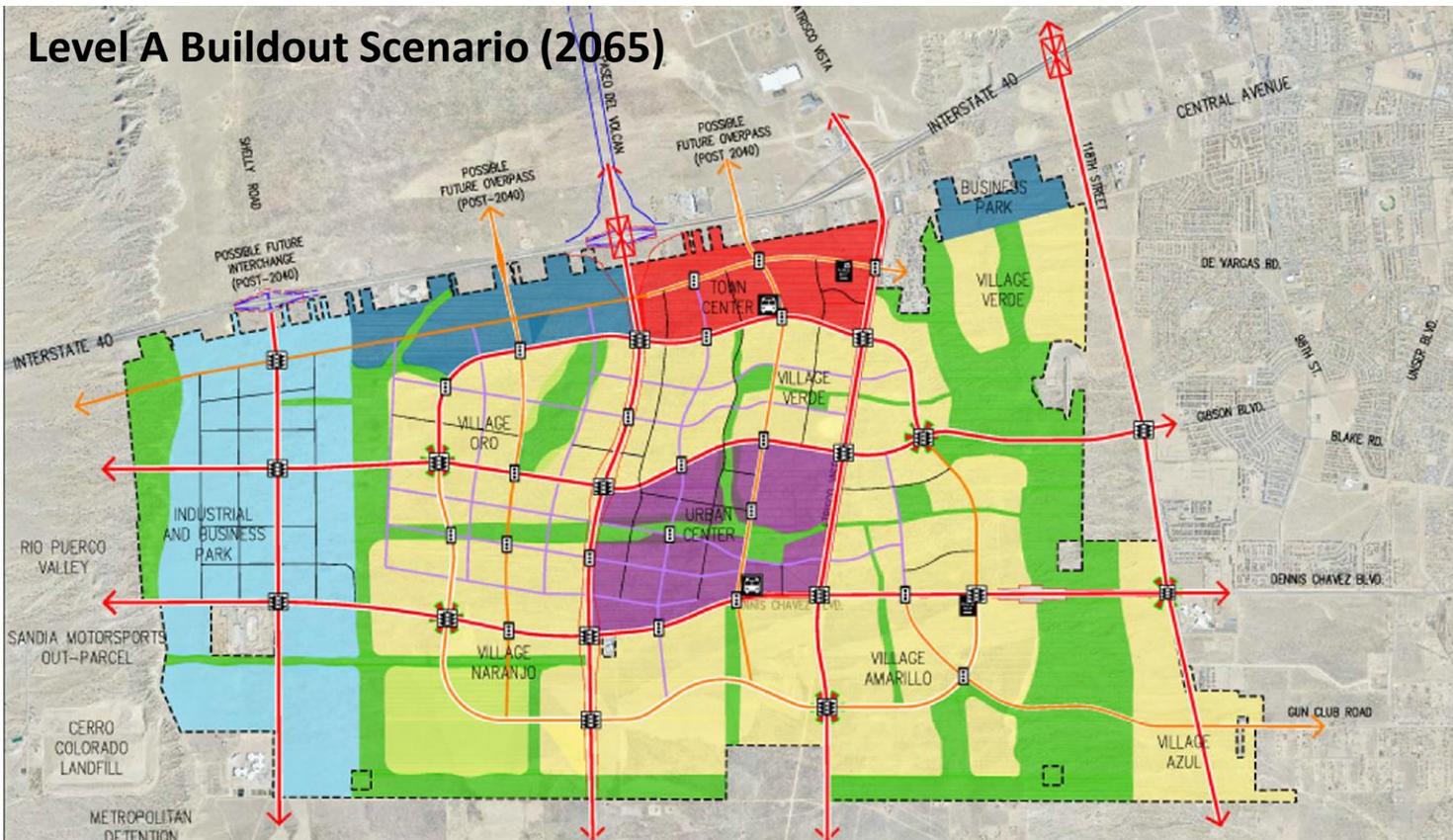
Bernalillo County
IPGR/ Public Works
County Planning Commission
April 27, 2016



PCC Level B Transportation Criteria

- ✓ **Transportation Network shapes and defines the development pattern for the master planned community.**
 1. A disclosure statement regarding strict conformance with the Level A Transportation System Plan ...
 2. A Level B transportation system analysis, including specific traffic studies ...existing and projected demand (phased as appropriate).
Consequential noise and air quality impacts (analysis) must be conducted prior to formal submittal of the Level B plan.
 3. The traffic circulation system must be identified.
 4. Typical roadway cross-sections for major roadways.
 5. The type and approximate location of pedestrian, bicycle, and transit elements of the transportation system must be specified.
 6. A plan which identifies performance objectives for increasing transit ridership ...as well as strategies for achieving a mode split that maintains level of service D or better on all roads in the affected area.
 7. Any remaining transportation problem or issues identified in the Level A Transportation Systems Plan and appropriate to the detail of Level B review must be resolved.

Level A Buildout Scenario (2065)



- LEGEND**
- Village
 - Industrial and Business Park
 - Open Space
 - Urban Center
 - Business Park
 - Town Center
 - Level A Boundary
 - X Future Interchange
 - + Village Center
 - T Major Signalized Intersection
 - T Potential Future Signalized Intersection
 - P Park and Ride
 - T Transit Center
 - Primary - 3-4 Lanes Each Direction*
 - Minor - 3-3 Lanes Each Direction*
 - Collector - 1-4 Lanes Each Direction*
 - Local - 1-4 Lanes Each Direction*

Table 4: Screenline Volumes (Build-Out)

Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			NB	SB	NB	SB
Along I-40	118th	25.2	843	990	913	1,009
...Between I-40 and Central	Atrisco Vista	49.3	1,379	2,685	2,799	1,950
	Unnamed Overpass 1	9.9	123	800	802	454
	Paseo de Volcan	53.1	1,489	3,007	3,148	1,755
	Unnamed Overpass 2	1.0	22	58	56	35
	Total	138.5	3,856	7,540	7,718	5,203
Directional Split			33.8%	66.2%	59.7%	40.3%
V/C Ratio			0.35	0.69	0.70	0.47
Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			EB	WB	EB	WB
Along Escarpment	Central	55.5	1,765	2,356	2,433	2,108
...Just West of 118th	Gibson	43.0	976	2,866	2,942	1,810
	Dennis Chavez	45.0	1,259	2,544	2,749	2,143
	Gun Club	43.9	831	2,129	2,302	1,684
	Pajarito	2.1	16	324	397	25
	Total	189.5	4,847	10,219	10,823	7,770
Directional Split			32.2%	67.8%	58.2%	41.8%
V/C Ratio			0.42	0.88	0.93	0.67

Table 13: Comparing Santolina Projections with the MTP

Year	Zone	DASZ	Household Population		Employment	
			MTP	Santolina	MTP	Santolina
2065 *	358	5701	3,972	7,057	130	5,150
	376	5741	2,716	10,768	56	3,171
	384	5761	3,150	16,891	71	1,651
	385	5762	2,055	2,395	293	181
	404	5911	2,139	57,694	1,068	66,313
	Total		14,032	94,805	1,618	76,466
	Ratio			6.8		47.3

* MTP Values are for 2040

A disclosure statement regarding strict conformance with the Level A Transportation System Plan ...

- ✓ **BHI was responsive to our Level A comments and made changes to the network we believe will improve traffic flow.**

Conditions of Approval:

4. The applicant will submit a proposed Level B Transportation Plan consistent with the Level A Transportation Plan, as revised, of the Santolina Level A Master Plan. **Done.**

a. The Santolina Access Management Plan (SAMP) will be added to the Transportation Plan. **Done.**

b. Revise the Level A Transportation Network model as required by BCPWD to include:

- 118th St/ I-140 interchange,
- grid pattern with new proposed arterial roadways,
- new urban center layout with perimeter arterials,
- I-40 parallel road,
- connectivity to south and north,
- PDN freeway ROW.

Substantial variations require reanalysis. **2040 MTP forecast reanalysis of revised network done.**

c. All items in Addendum to Transportation Master Plan 11—14 shall be placed in the Level A document. Includes diagrams for interim access spacing and illustrative commercial site access. **Done**

5. Future coordination (and approvals) with NMDOT/ FHWA per MTP, TIP, STIP including phasing. **Done.**

A Level B transportation system analysis, including specific traffic studies ...existing and projected demand (phased as appropriate).

- ✓ **Level B follows the revised network in Level A and models 2025 and 2040 phasing forecasts.**
- ✓ **Level B is evaluated on appropriateness as to the location of early phases of development.**
- (No. 1) Prepare a guideline that defines the parameters (for) ...appropriate modifications to these plans and the subsequent review by the County. **(withdrawn)**

Consequential noise and air quality impacts (analysis) must be conducted prior to formal submittal of the Level B plan.

- Bernalillo County will no longer be in non-attainment with EPA in June 2016. The Air Quality Board previously modeled master plans with an air quality determination study.
- BHI has hired a sub-consultant to prepare an air quality study. The air quality report will be made available by the June Environmental presentation to the CPC.

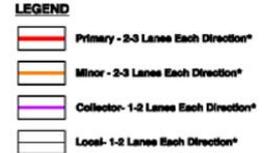
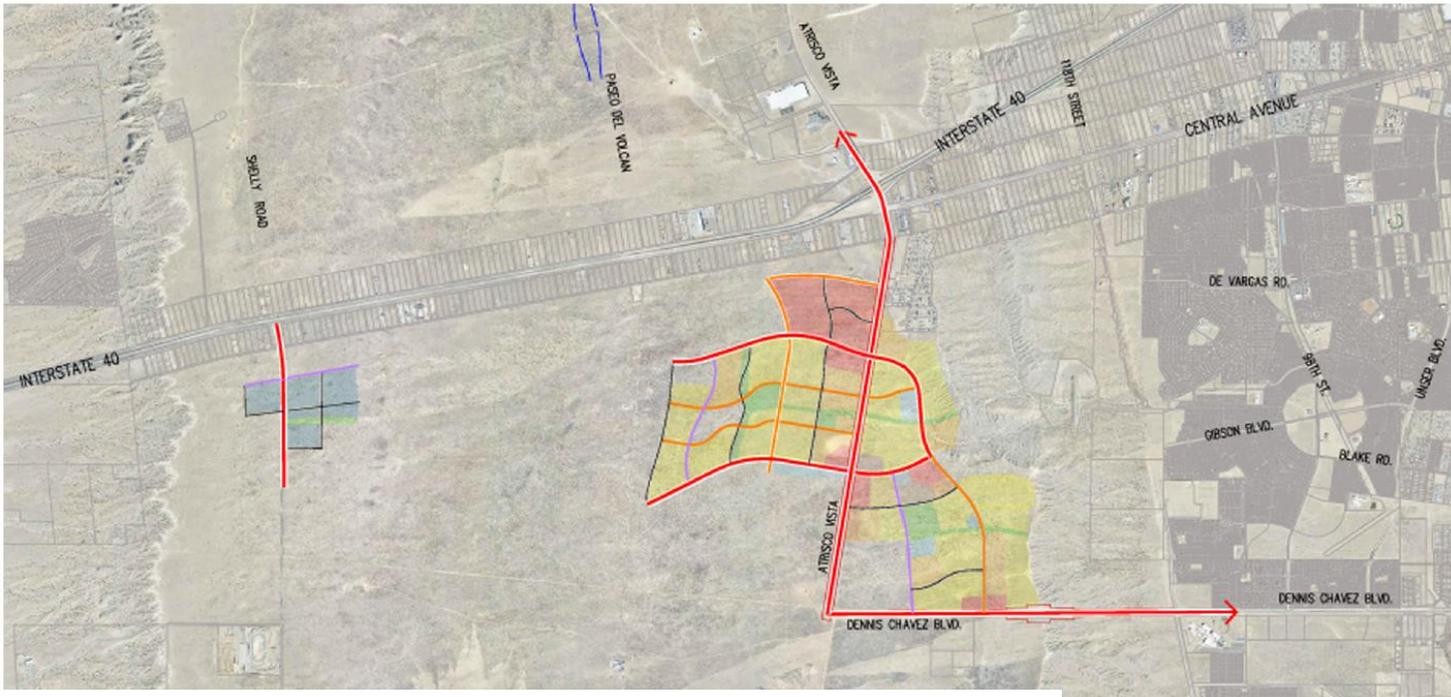


Table 5: Screenline Volumes (2025)

Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			NB	SB	NB	SB
Along I-40	<i>118th</i>	6.3	321	284	369	532
...Between I-40	<i>Atrisco Vista</i>	36.2	1,335	1,317	1,824	1,333
	Total	42.5	1,656	1,601	2,193	1,865
	<i>Directional Split</i>		50.8%	49.2%	54.0%	46.0%
	<i>V/C Ratio</i>		0.53	0.52	0.71	0.60

Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			EB	WB	EB	WB
Along Escarpment	<i>Central</i>	20.2	653	990	1,063	1,388
...Just West of 118th	<i>Dennis Chavez</i>	19.9	607	985	1,070	944
	Total	40.1	1,260	1,975	2,133	2,332
	<i>Directional Split</i>		38.9%	61.1%	47.8%	52.2%
	<i>V/C Ratio</i>		0.32	0.49	0.53	0.58

Table 10: Development Summary

Sector	Statistic	2025	Level B	
			2040	2040
Residential	Population	15,321	23,325	48,119
	Households	5,893	8,971	18,506
	SF Units	5,547	7,949	16,427
	MF Units	654	1,494	3,054
	Total Units	6,201	9,443	19,481
	% Buildout	16%	25%	51%
Non-Residential	Basic	1,632	10,087	10,087
	Retail	1,248	3,458	3,865
	Service	5,797	17,911	18,858
	Total Jobs	8,677	31,456	32,810
	% Buildout	11%	41%	43%
	Jobs/HH	1.47	3.51	1.77

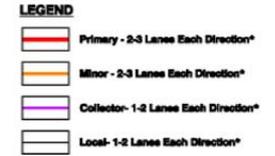
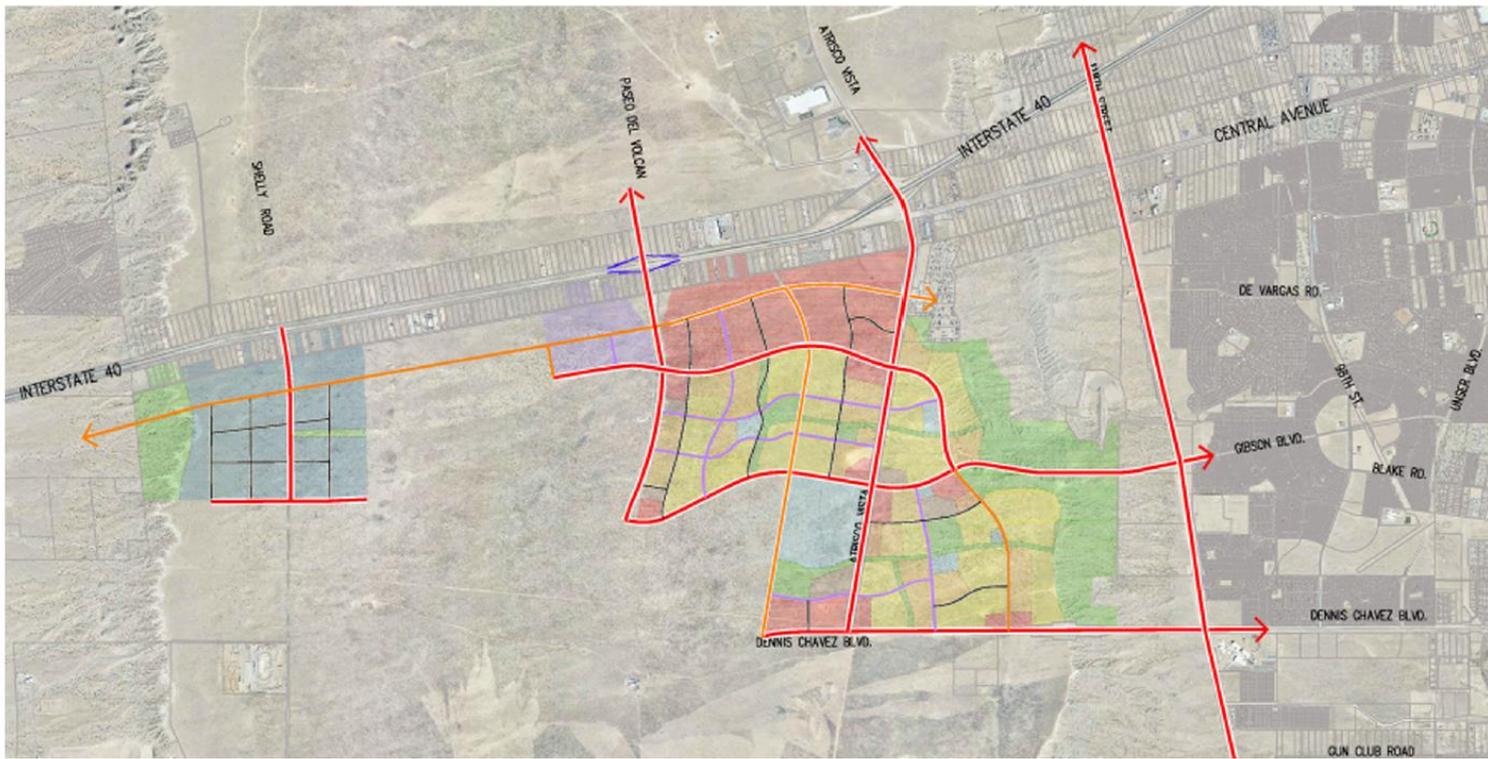


Table 8: Screenline Volumes (2040)

Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			NB	SB	NB	SB
Along I-40	118th	24.0	857	951	877	966
...Between I-40 and Central	Atrisco Vista	47.1	1,348	2,133	2,335	1,802
	Paseo de Volcan	30.1	751	2,058	2,061	964
	Total	101.2	2,956	5,142	5,273	3,732
	Directional Split		36.5%	63.5%	58.6%	41.4%
	V/C Ratio		0.57	0.99	1.01	0.72

Screenline	Roadway	ADT (000)	AM Peak Hour		PM Peak Hour	
			EB	WB	EB	WB
Along Escarpment	Central	39.3	1,439	1,821	1,918	1,916
...Just West of 118th	Gibson	28.5	680	1,666	1,849	1,327
	Dennis Chavez	49.8	1,442	2,346	2,483	2,330
	Total	117.6	3,561	5,833	6,250	5,573
	Directional Split		37.9%	62.1%	52.9%	47.1%
	V/C Ratio		0.45	0.73	0.78	0.70

Table 10: Development Summary

Sector	Statistic	2025	Level B	
			2040	2040
Residential	Population	15,321	23,325	48,119
	Households	5,893	8,971	18,506
	SF Units	5,547	7,949	16,427
	MF Units	654	1,494	3,054
	Total Units	6,201	9,443	19,481
	% Buildout	16%	25%	51%
Non-Residential	Basic	1,632	10,087	10,087
	Retail	1,248	3,458	3,865
	Service	5,797	17,911	18,858
	Total Jobs	8,677	31,456	32,810
	% Buildout	11%	41%	43%
Jobs/HH	1.47	3.51	1.77	

The traffic circulation system must be identified.

- ✓ **Level B reveals the underlying arterial and collector network as well as bikeways, sidewalks, trails, and transit routes.**
- (No. 3) Functional Classification Maps – Provide consistent language: **Maps to be modified.**
- (No. 4) LRTS Guide/ Complete Streets – Add green infrastructure techniques and ITS techniques and adaptive signals. **Language will be added to the MP.**
- City of Albuquerque DMD comments. **Addressed.**
 - Gibson Blvd will be city maintained ½ mile west of 118th St and built per city standards; may require additional right-of-way through escarpment
 - Mitigation measures for impacts to city-owned facilities. **Mitigation report provided.**
- MRCOG comments. **Language will be added to MP.**
 - Concerns regarding roadway widening during phasing; private vs public funding
 - Roadway design – “last mile” connections; ROW too wide; urban center; trail widths
 - Gibson Extension opportunities for Route 54 transit connection; use minor arterials
 - Clarify references to 2040 MTP trend scenario
 - Build out more of the gridded network by 2040
- NMDOT comments: **Addressed in Development Agreement.**
 - STIP program to begin acquiring right-of-way for PDV corridor
 - Commit to cost sharing for roadway improvements
 - Congestion at several I-40 interchanges to be mitigated; financial obligations

✓ Based on high jobs/ housing ratio assumptions, the network performs well.

- Reduces delays and travel time
- Generally provides acceptable levels of service (exceptions discussed below)
- Reduces VMT in 2025
- VMT increases in 2040 (address w/ Transportation Demand Management (TDM))

Table 10: Development Summary

Sector	Statistic	2025	Level B		(Build-Out)
			2040	2040	2065
Residential	Population	15,321	23,325	48,119	94,804
	Households	5,893	8,971	18,506	36,460
	SF Units	5,547	7,949	16,427	30,987
	MF Units	654	1,494	3,054	7,394
	Total Units	6,201	9,443	19,481	38,381
	% Buildout	16%	25%	51%	100%
Non-Residential	Basic	1,632	10,087	10,087	25,663
	Retail	1,248	3,458	3,865	8,709
	Service	5,797	17,911	18,858	42,092
	Total Jobs	8,677	31,456	32,810	76,464
	% Buildout	11%	41%	43%	100%
	Jobs/HH	1.47	3.51	1.77	2.10

Table 7: Systemwide Performance Indicators for the PM Peak Hour (2025)

Year	Statistic	MTP	Santolina	Difference	
				Absolute	Percent
2025	VMT	2,330,307	2,292,628	-37,679	-1.6%
	VHT	80,663	69,004	-11,659	-14.5%
	VHD	33,002	22,686	-10,316	-31.3%
	Average Speed	28.9	33.2	+4.3	+15.0%
	% VHT in Delay	40.9%	32.9%	-8.0%	-19.6%
	VMT Over Capacity	298,600	230,072	-68,528	-22.9%
	% VMT Over Capacity	12.8%	10.0%	-2.8%	-21.7%
	Congested Lane Miles	223	170	-53	-23.8%
	Daily VMT per Capita	23.80	23.38	-0.42	-1.8%

MTP data from a 2025 run performed for this study

Table 13: Comparing Santolina Projections with the MTP

Year	Zone	DASZ	Household Population		Employment	
			MTP	Santolina	MTP	Santolina
2025	358	5701	2,161	2,574	70	486
	376	5741	711	5,826	15	2,667
	384	5761	126	0	10	0
	385	5762	1,396	0	292	0
	404	5911	387	6,920	830	5,525
	Total			4,781	15,320	1,217
	Ratio			3.2		7.1
2040	358	5701	3,972	7,057	130	486
	376	5741	2,716	10,768	56	3,171
	384	5761	3,150	13,284	71	651
	385	5762	2,055	2,395	293	135
	404	5911	2,189	14,612	1,068	28,867
	Total			14,032	48,116	1,618
	Ratio			3.4		20.3

Table 9: Systemwide Performance Indicators (2040)

Year	Statistic	MTP	Santolina	Difference	
				Absolute	Percent
2040	VMT	2,894,913	2,970,559	+75,646	+2.6%
	VHT	132,932	129,354	-3,578	-2.7%
	VHD	71,293	68,588	-2,705	-3.8%
	Average Speed	21.8	23.0	+1.2	+5.5%
	% VHT in Delay	53.6%	53.0%	-0.6%	-1.1%
	VMT Over Capacity	644,967	585,917	-59,050	-9.2%
	% VMT Over Capacity	22.3%	19.7%	-2.6%	-11.5%
	Congested Lane Miles	429	418	-11	-2.4%
	Daily VMT per Capita	22.70	23.25	+0.6	+2.4%

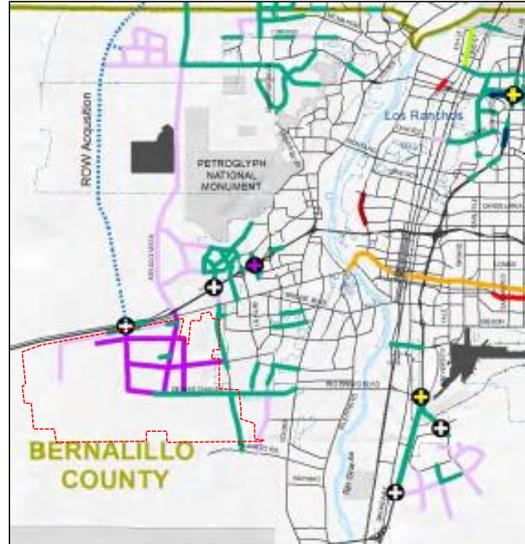
MTP Statistics from MTP Report Table 3-6, Page 3-33)

✓ **2040 MTP (adopted 2015)** -

Bernalillo County's long range transportation plan - identifies **public/ private funded** roadways.

✓ Both the **trend and preferred scenarios** encourage improving our *existing network* and building *transit projects* over adding new roadways.

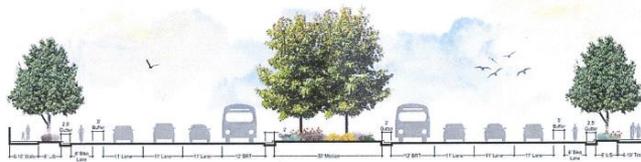
✓ The **preferred scenario** encourages more West Side employment and new development around centers and along major transit corridors.



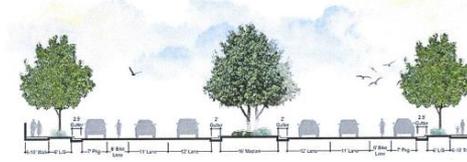
Measure	2012	2040	Increase	MTP Trend	MTP Pref	Santolina B1, B2	
Population	675,548	987,080	311,532	14,032		23,325	24,791
Employment	341,452	473,037	131,585	1,618		12,167	20,643
Jobs/Housing East	1.39			1.37	1.31	-	
Jobs/Housing West	0.56			0.65	0.68	0.73	
VMT				0.0	-5.0%	+2.6	
VHT				0.0	-17.0%	-2.7	
VHD				0.0	-28.0%	-3.8	
River Crossings				0.0	-3%	0.0	
Emissions (CO ₂)				0.0	-8%	TBD	

Typical roadway cross-sections for major roadways.

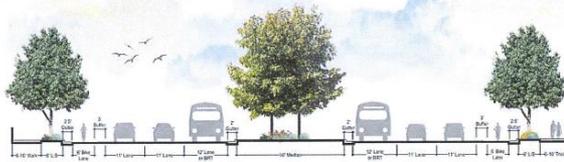
- 48 ft. local street section for private streets only and must request a variance. On-street parking must comply with fire code (503.10.3). Add a 60 ft major local street section. **Add language to MP.**
- (No. 2) Include adequate information to ensure ROW for all major onsite corridors, especially PDV, be provided to allow for transition from interim to ultimate buildout conditions. **Done**
- Page 16, second paragraph: Consider providing potential candidate locations for future roundabouts (including ROW). **Unlikely to be roundabouts on arterials.**



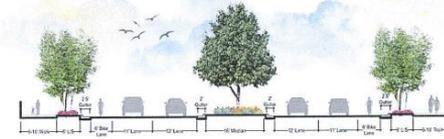
PRINCIPAL ARTERIAL
w/TRANSIT
(186' R.O.W.)



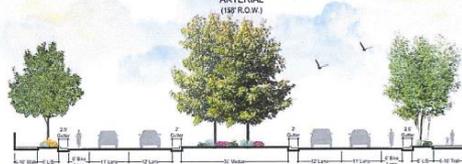
4-LANE COLLECTOR
w/PARKING
(123' R.O.W.)



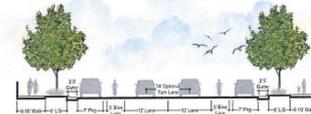
6-LANE PRINCIPAL
ARTERIAL
(186' R.O.W.)



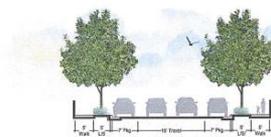
4-LANE COLLECTOR
w/o PARKING
(115' R.O.W.)



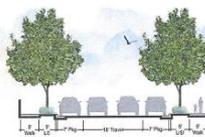
4-LANE MINOR ARTERIAL
(138' R.O.W.)



2-LANE COLLECTOR
w/PARKING
(77-89' R.O.W.)



60 ft Major Local



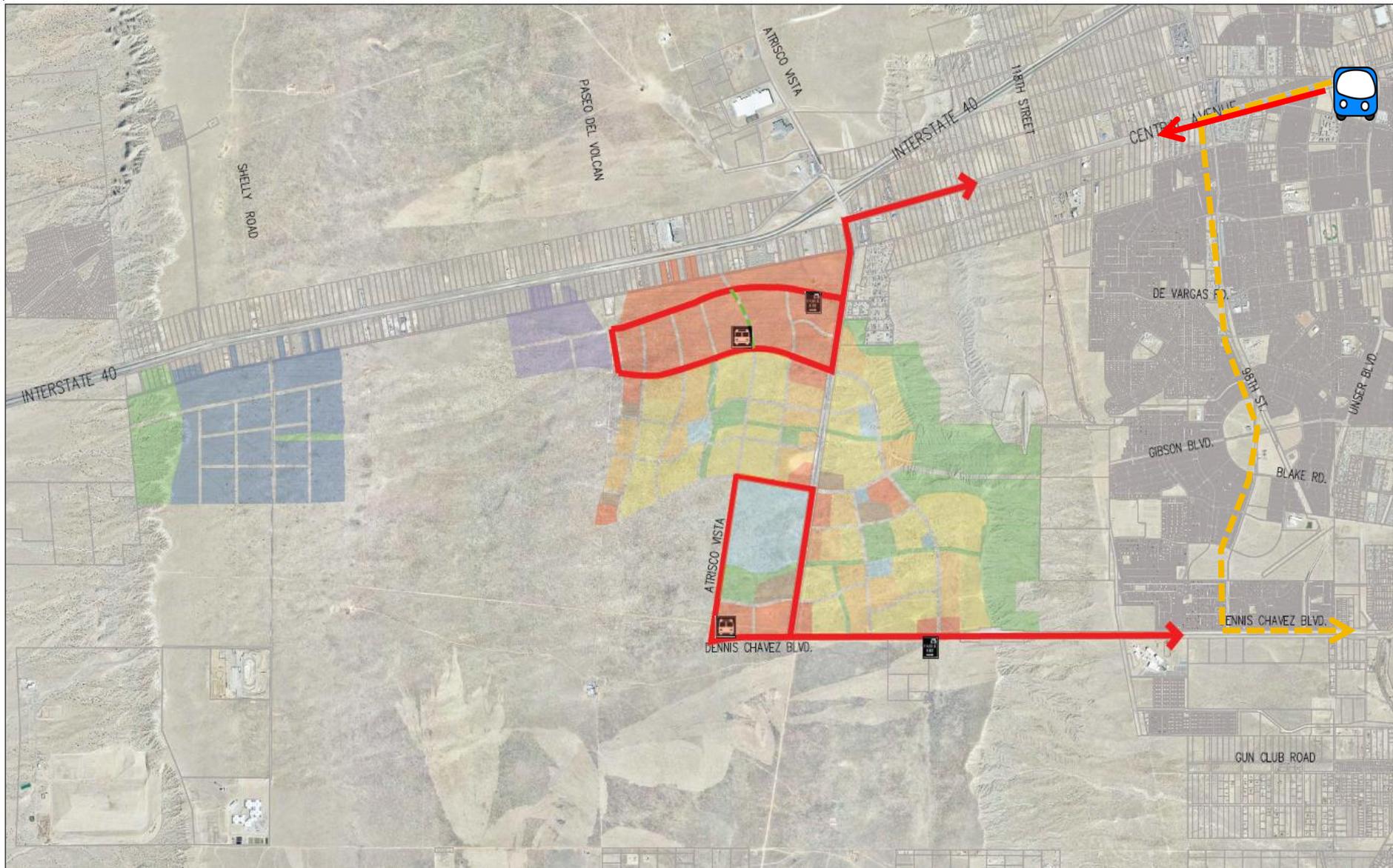
LOCAL STREET 2
(80' R.O.W.)



LOCAL STREET 3
(86' R.O.W.)

The type and approximate location of pedestrian, bicycle, and transit elements of the transportation system must be specified.

- ✓ **Transportation Demand Management (TDM)** (Page 47). **Will be emphasized.**
 - Provides pedestrian and bicycle facilities
 - Dedicated transit lanes on future roadways
 - Connectivity of employment and commercial centers to residential neighborhoods
 - Employment and commercial centers located along transit routes
 - Coordination between public agencies and private employers for incentives:
 - Employers can educate employees on carpooling and transit use
 - Employers can provide flexible work schedules
 - Employers can provide transit passes, rewards for carpooling, preferred parking
 - **(No. 8) Transit MP:** Page 62. Mention existing Dennis Chavez routes. **MP will be revised.**
 - Route 222 transit service on Dennis Chavez that serves South Valley Railrunner Station
 - Route 98 transit service on 98th St and Dennis Chavez that serves Rio Bravo/Coors.
 - **(No. 9) Pedestrian and Bikeways MP** Page 58. **MP will be revised with latest research.**
 - Proposed trail network runs through the proposed street network.
 - Trails crossing roadways (grade separation, signalized crossings, mid-block crossings).
 - Add more connectivity to trail network.
 - Describe how trails will integrate with on-street bicycle and pedestrian network.
 - Bikeway design features (buffered bike lanes, cycle tracks, bike intersections, etc).



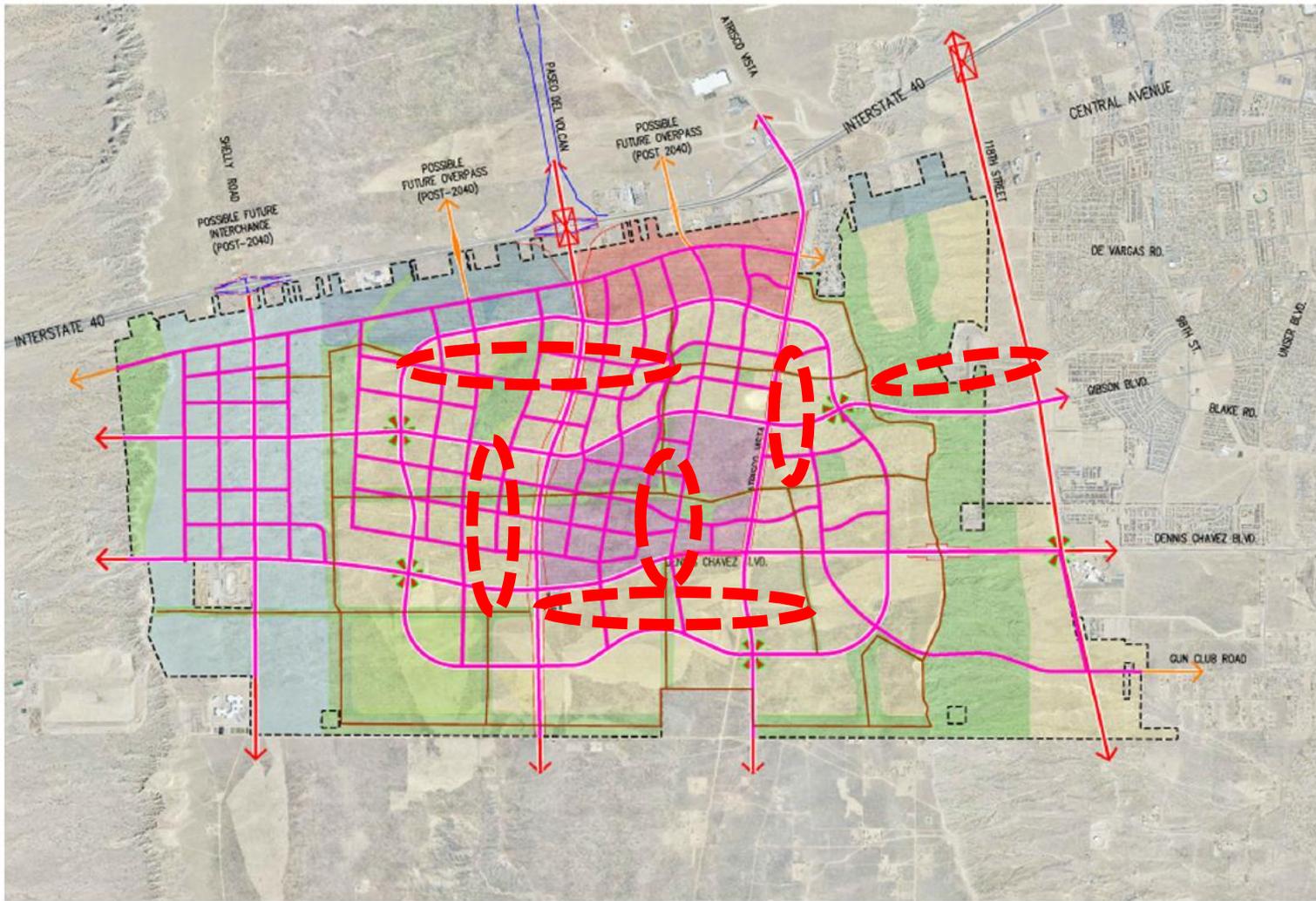


EXHIBIT 12: PEDESTRIAN AND BICYCLE CIRCULATION PLAN

Trail network gaps.

A plan which identifies... strategies for achieving a mode split that maintains (at capacity) level of service (LOS) on all roads in the affected area.

- ✓ **Some segments of the off-site network along I-40 and major arterials do not perform well. *Provided a Mitigation Report.***
 - Page 9: Existing frontage road south of I-40 adequate as 2-lane (1 lane per direction) facility? Consider a 4-lane (2-lane per direction)? **NMDOT prefers former.**
 - Page 14: How many lanes for the full buildout I-40/PDV interchange WB exit ramp and EB entrance ramp are considered? **See Mitigation Report. Add lanes, signal.**
 - interchange is planned for future buildout after 2025; it should have a better LOS and v/c condition in 2040 other than severe?

Table 3: Level of Service Definitions

V/C Ratio	Description
< 0.9	Acceptable
< 1.0	Approaching Capacity
< 1.1	Over Capacity
< 1.5	Severely Congested (Level 1)
1.5+	Severely Congested (Level 2)

A plan which identifies ...strategies for achieving a mode split that maintains (at capacity) level of service (LOS) on all roads in the affected area.

- Pages 27 – 28 and 34 – 35: – In the AM/PM peak hour volumes exhibit, in the year 2025, there are traffic volumes at the end of Shelly Road but in the year 2040, this traffic volume “disappears”. **Coding error corrected for 2040.**
- Page 34 and 38: Did the traffic modeling analysis factor in traffic to/from the Metropolitan Detention Center and Sandia Motorsports? **Same as above.**
- Page 66: - Is there sufficient evidence to justify that the Santolina development will affect EB traffic on US-550 and Alameda Blvd? **Due to normalized forecast to maintain regional controls.**

A plan which identifies ...strategies for achieving a mode split that maintains (at capacity) level of service (LOS) on all roads.

- (No. 5, 6, 7) **2025/ 2040 V/C On /Off-site LOS Change (>10%) AM/PM Peak Analysis.**
- Mitigation Report provides costs to improve LOS for 22 intersections/interchanges.**

- 1, 2.** I-40/ PDV Interchange ramps
- 3, 4.** I-40/ Atrisco Vista Blvd Interchange ramps (2025)
- 5, 6.** I-40/ 118th St Ramps
- 7.** 118th St between Central Ave/ I-40
- 8.** Central Ave and 98th St
- 9.** Central Ave and 106 St
- 10.** 118th St and Gibson Blvd
- 11.** 118th St and D. Chavez Blvd (*on-site*)
- 12.** D. Chavez Blvd and Unser Blvd
- 13.** R. Bravo/ D. Chavez & Coors Blvd
- 14.** Rio Bravo Blvd and Isleta Blvd
- 15.** Rio Bravo Blvd & Broadway Blvd
- 16.** Gun Club Rd and Unser Blvd (*on-site*)
- 17.** Gun Club Rd and Isleta Blvd
- 18.** Coors Blvd & Gun Club Rd
- 19.** Isleta Blvd & Gun Club Rd.
- 20.** Atrisco Blvd & Parallel Rd (*on-site*)
- 21.** Atrisco Blvd & Gun Club Rd (*on-site*)
- 22.** D. Chavez Blvd & Loop Rd. (*on-site*)
 - A.** I-40 WB btwn Unser Blvd/ 98th St
 - B.** I-40 EB btwn 118th St/ Unser Blvd

✓ Mitigation Report estimates \$64.65 million in public/ private funding to construct improvements at ~20 off-site locations in SW quadrant by 2040.

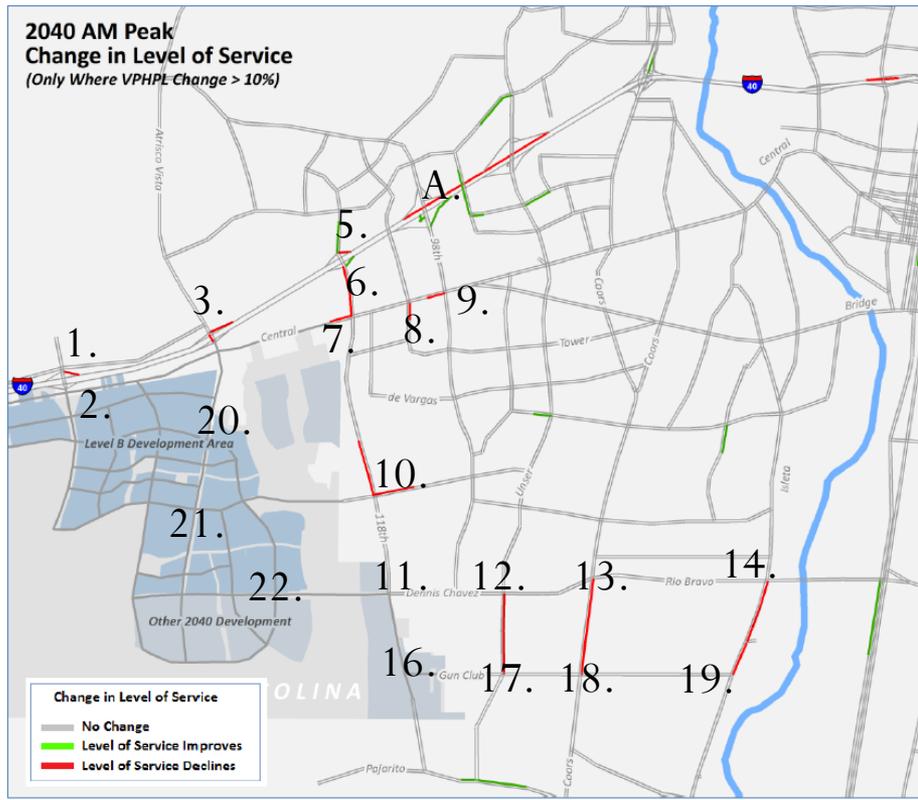


Figure 46: AM Peak Hour: Change in Offsite Level of Service (2040)

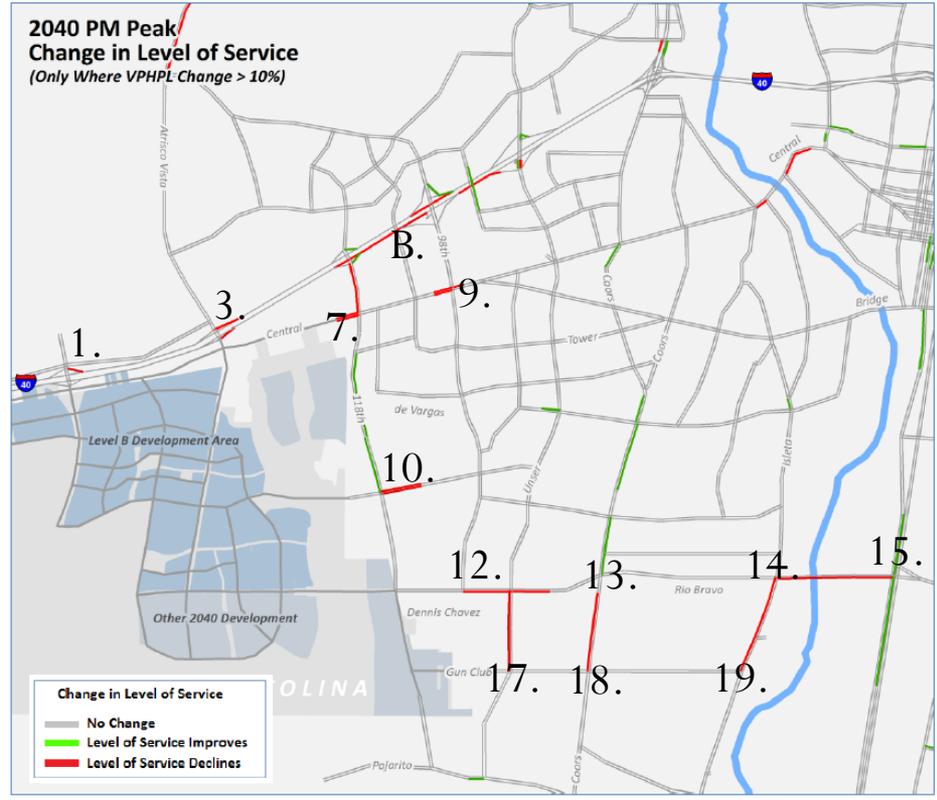


Figure 51: PM Peak Hour: Change in Offsite Level of Service (2040)

Mitigation improvements include:

- Construct new I-40 interchanges at PDV and 118th St
- Widen ramps at Atrisco Vista and I-40

- Install traffic signals
- Widen/ add travel lanes to arterials
- Add right and/or left turn lanes

Any remaining transportation problem or issues.

- (No. 11) Page 19 identifies total 2040 MTP public and private no-net costs for roadways.
- ✓ **Mitigation Report provides total roadway improvement costs required.**
- ✓ **Proportional responsibility determined in Level B development agreement.**
- **2025 On-Site Improvements - \$98.66 million**
 - Atrisco Vista widening - \$14.34 million
 - Dennis Chavez widening - \$10.47
 - Internal roadways - \$73.85 million
- **2040 On-Site Improvements - \$86.2 million**
 - Atrisco Vista widening - \$28.4 million
 - Dennis Chavez widening - \$5.5 million
 - Gibson ext. up escarpment - \$9.22 million
 - Gibson ext. Loop Rd to A.V. - \$2.65 million
 - Internal roadways – \$26.6 million
 - PDV south of I-40 - \$8.1 million

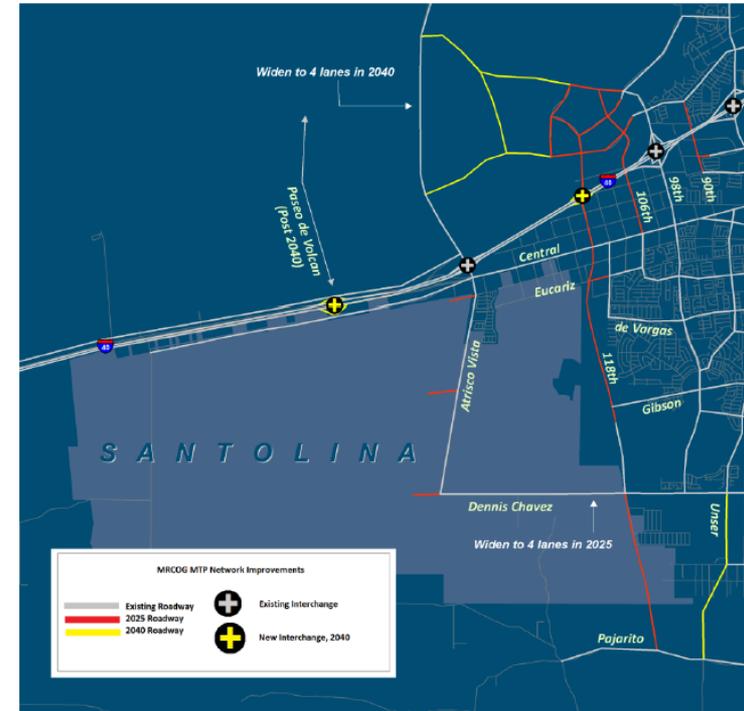


Figure 2: Roadway improvements in the vicinity of Santolina in the MTP networks for 2025 and 2040 are illustrated here.

Roadway funding:

- Private financing on-site
- TIDDs for on-site
- Impact fees for off-site
- Federal, local bonds for off-site

Conditions of Approval

The following Conditions of Approval are required within 30 days of BCC approval of Level B Santolina Master Plan:

- The Level B Transportation Master Plan/Technical Appendix text and maps will be revised to address agency comments
- Level B Development Agreement will address no-net cost criteria for all on-site and off-site transportation improvements related to the Santolina Master Plan with the appropriate funding mechanism.

The following items are required prior to CPC approval of Level B Santolina Master Plan:

- Addendum to the Level B Transportation Master Plan/Technical Appendix with revised text and maps addressing agency comments
- An Air Quality Study will be performed by June 2015 using EPA's Motor Vehicles Emission Simulator (MOVES 2014) model identifying regional pollutants per National Ambient Air Quality Standards and, if needed, localized analysis of 2 on-site, 2 off-site high volume intersections using CAL3QHC dispersion model.