TRAFFIC IMPACT ANALYSIS

SEC Crismon Road and Williams Field Road

Mesa, Arizona

Prepared for:

Pacific Proving, LLC

Kimley»Horn

mesa·az

PLANNING DIVISION
APPROVED BY CITY COUNCIL
WITH STIPULATIONS

TRAFFIC IMPACT ANALYSIS

SEC Crismon Road and Williams Field Road

Mesa, Arizona

Prepared for:

Pacific Proving, LLC
2201 East Camelback Road Suite 650
Phoenix, Arizona 85016

Prepared By:

Kimley-Horn and Associates, Inc.
7740 North 16th Street, Suite 300
Phoenix, Arizona 85020

091600005
May 2019
Copyright © 2019, Kimley-Horn and Associates, Inc.

Kimley»Horn

Contents

Figures

Tables

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This report documents a traffic impact analysis performed for a proposed master planned community located at the southeast corner of the future intersection of Crismon Road and Williams Field Road in Mesa, Arizona. The site will include a residential community and retail land use and is anticipated to be built out over a 10-year period by the 2040 analysis year.

1.2 REPORT PURPOSE AND OBJECTIVES

Kimley-Horn and Associates, Inc., has been retained by Pacific Proving, LLC to perform the traffic impact analysis for the proposed development.

The purpose of this study is to address traffic and transportation impacts of the proposed development on surrounding streets and intersections. This traffic impact study was prepared based on criteria set forth by the City of Mesa. The specific objectives of this study are:

- To evaluate lane requirements on all existing roadway links and at all existing intersections within the study area;
- To determine future level of service (LOS) for all existing intersections within the study area and recommend any capacity-related improvements;
- To determine necessary lane configurations at all new intersections within the proposed development in order to provide acceptable future levels of service;
- To determine appropriate cross-sections at buildout proposed roadways;
- To evaluate the need for auxiliary lanes at all study area intersections; and
- To evaluate the need for future traffic signals.

1.3 PRINCIPAL FINDINGS AND RECOMMENDATIONS

The proposed development is expected to generate 16,992 daily trips, with 1,029 trips occurring in the AM peak hour and 1,760 trips occurring in the PM peak hour. To ensure that the estimate of the traffic impacts is the maximum that can be expected, it is assumed that the site will be 100 percent occupied upon buildout by the 2040 analysis year.

- The intersections of Williams Field Road with Community Street 1 and Community Street 2 are expected to operate an acceptable level of service at buildout with the exception of the northbound left turn movement at the intersection of Community Street 2 and Williams Field Road during the peak hours. It is anticipated that drivers will utilize other available routes by turning right or exiting at the signalized intersection of Community Street 1 and Williams Field Road during the peak hours.

- The future intersection of Crismon Road and Williams Field Road is located at an appropriate location for signal control. Installation of a traffic signal at the intersection of Crismon Road and Williams Field Road is anticipated when traffic warrants are met.

- It is recommended that vehicular volumes be monitored and evaluated at the intersection of Community Street 1 and Williams Field Road as development occurs to determine the appropriate time for the addition of signal control at the intersection.

- It is recommended that the intersection of Community Street 1 and Williams Field Road provide northbound dual left turn lanes and a westbound left turn lane. It is recommended that the northbound dual left turn lanes provide 250 feet of storage and a 100 foot reverse curve per City of Mesa Engineering and Design Standards Section 212.4. It is recommended that the westbound left turn lane provide 150 feet of storage and a 100 foot reverse curve.

- It is recommended that the intersection of Community Street 2 and Williams Field Road provide a northbound left turn lane and a westbound left turn lane with 150 feet of storage and a 100 foot taper per the City of Mesa Engineering and Design Standards Section 212.4.

- It is recommended that an eastbound right turn lane be provided at the intersection of Community Street 1 and Williams Field Road with 250 feet of storage and a 100 foot taper, per the City of Mesa Engineering and Design Standards Section 208.4.2. A northbound right turn lane is recommended to be provided at the intersection of Community Street 1 and Williams Field Road with 150 feet of storage and a 100 foot taper.

- It is recommended that an eastbound and northbound right turn lane be provided at the intersection of Community Street 2 and Williams Field Road with 175 feet and 150 feet of storage, respectively, and a 100 foot taper, per the City of Mesa Engineering and Design Standards Section 208.4.2.

- A community collector road C cross section is recommended for Community Street 1 alignment with one lane in each direction, a landscaped raised median, and left turn provisions. A community collector road D cross section is recommended for Community Street 2 alignments with one lane in each direction. Typical street cross sections for the internal site roadways are attached in the **Appendix**.

2.0 PROPOSED DEVELOPMENT

2.1 SITE LOCATION

The proposed development, a master plan community, is located at the southeast corner of the future intersection of Crismon Road and Williams Field Road in Mesa, Arizona. The site boundary is Crismon Road to the west, Williams Field Road to the north, 222nd Street to the east and the future SR 24 to the south. The project location is shown in **Figure 1**.

2.2 LAND USE AND SITE PLAN

The overall development consists of residential and retail land use. The total site area is on approximately 170.5 acres. **Table 1** illustrates the land use of the proposed development.

Table 1. Land Use

Parcel	ITE Land Use	Size
Residential	Single-Family Detached Housing (210)	1,200 DU
Retail	Shopping Center (820)	150,000 SF

The retail portion of the site is located on the southeast corner of the intersection of Crismon Road and Williams Field Road. The remaining development is expected to consist of residential land use. The master planned community is anticipated to be developed in phases; however, for the purpose of this study, the project will be analyzed based on full build-out conditions. The layout of the site is illustrated in **Figure 2**.

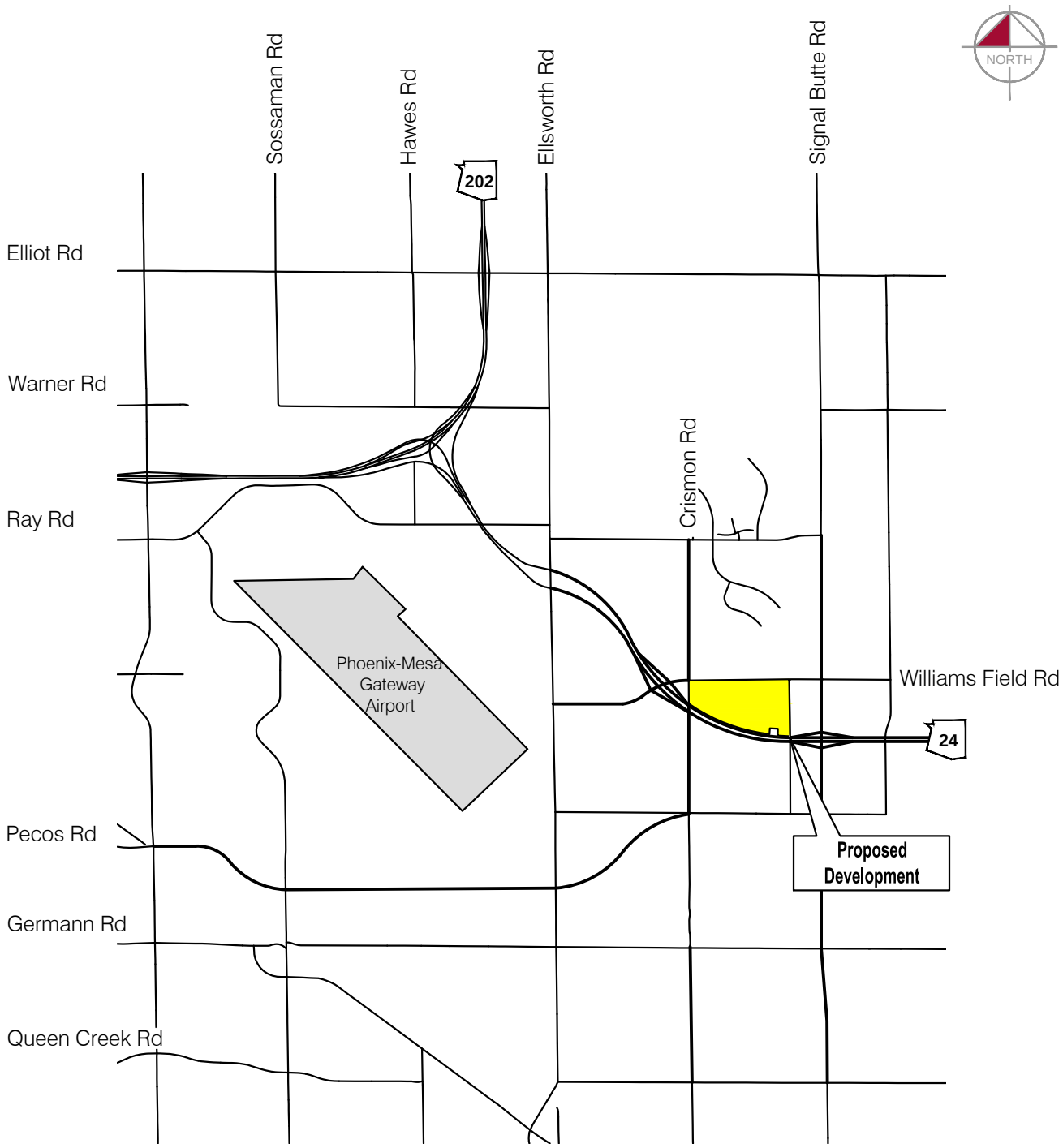
2.3 SITE ACCESSIBILITY

The site is accessed locally via Crismon Road and Williams Field Road. Regional access is expected to be provided by the existing San Tan Freeway Loop 202, northwest of the development (~3 miles), and the proposed State Route 24, south of the development, as well as other arterial streets in the vicinity such as Pecos Road and Signal Butte Road. Direct connection to the State Route 24 will exist at Williams Field Road and Signal Butte Road traffic interchanges. The proposed State Route 24 will provide a direct connection to the Loop 202.

2.4 SITE CIRCULATION

This report focuses on the arterial and collector roadway network that is adjacent and internal to the proposed development. Community Street 1 is a proposed community collector street approximately 1,550 feet east of the proposed intersection of Crismon Road and Williams Field Road. Community Street 2 is a proposed community collector street approximately 1,750 feet east of Community Street 1 and approximately 3,300 feet east of the proposed intersection of Crismon Road and Williams Field Road. Specific traffic impact analyses relevant to the local roadways and individual parcel access will be analyzed in subsequent reports as more refined site plans become available. Site access locations should be coordinated with adjacent developments.

The development will be accessed via Crismon Road and Williams Field Road. Several collector street and local street connections are proposed within the development. Crismon Road and Williams Field Road currently do not exist in the vicinity of the site. The cross-sections and geometry are identified in this traffic impact analysis and the City of Mesa 2040 Transportation Plan. Guidance is also provided in the Levine General Motors (LGM) 170 Community Plan Section 16.2 and the corresponding typical street cross sections attached in the **Appendix**. This traffic analysis provides the roadway recommendations for the internal community street sections and intersections along Williams Field Road. Future connections along Crismon Road should be coordinated with the City of Mesa due to the anticipated grade separated Crismon Road alignment.



Kimley»Horn

Figure 1
Vicinity Map

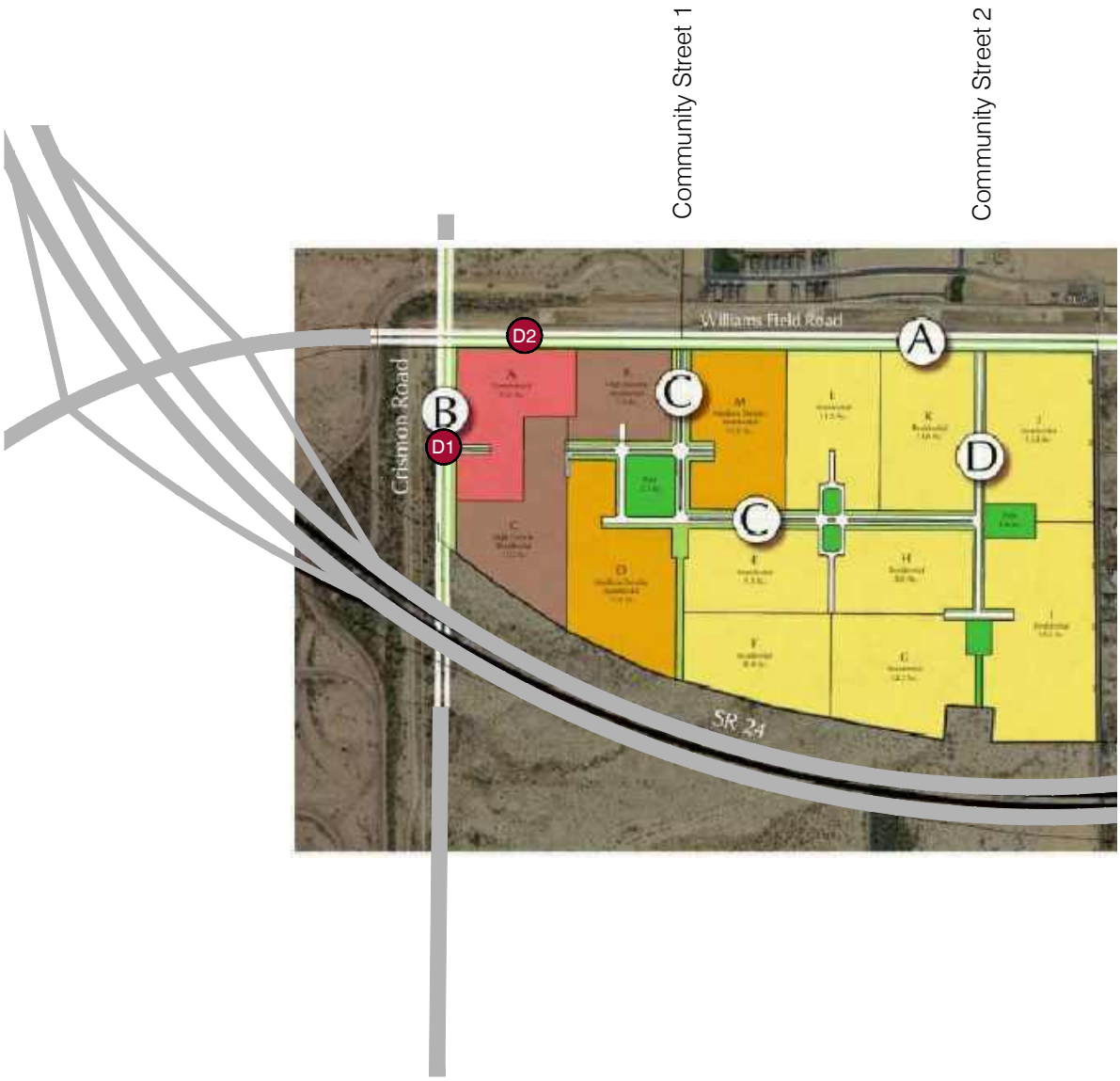


Figure 2
Site Plan

3.0 STUDY AREA

3.1 STUDY AREA

The study area includes the following intersections:

- Crismon Road and Williams Field Road (future signalization)
- Community Street 1 and Williams Field Road (future signalization)
- Community Street 2 and Williams Field Road

It is anticipated that traffic volumes at the intersections of Williams Field Road with Crismon Road and Community Street 1 will eventually warrant a traffic signal. It is recommended that vehicular volumes be monitored and evaluated at these intersections to determine the appropriate time for the addition of signal control at the intersections.

3.2 ADJACENT LAND USE

The existing land-use within the vicinity of the proposed development primarily includes agricultural, vacant land, single family residential developments, and industrial land uses. The Phoenix-Mesa Gateway Airport exists approximately two miles west of the site. Eastmark, a new residential community, is located northeast of the development. Additional residential communities exist along Signal Butte Road north of the proposed site. Industrial land uses are located near the intersection of Mountain Road and Pecos Road, southeast of the development. The Southern Pacific Transportation Company railroad tracks are located approximately 4 miles south of the development. The railroad tracks run to the southeast and to the northwest.

4.0 EXISTING CONDITIONS

4.1 PHYSICAL CHARACTERISTICS

The roadway network within the study area is currently unbuilt. Future recommended roadway improvements are summarized below as documented in the City of Mesa 2040 Transportation Plan.

Crismon Road is proposed west of the development as a 4-lane arterial with a raised median per the City of Mesa 2040 Transportation Plan. The City of Mesa 2040 Transportation Plan shows Crismon Road extending north to Ray Road. The Arizona Department of Transportation (ADOT) Final Design Concept Report (DCR) – SR 24 Interim Phase II recommends a grade separated alignment at the SR 24.

Williams Field Road currently exists as a 2-lane street with an east-west alignment between 222nd Street and Moeur Road, east of the proposed site. The City of Mesa 2040 Transportation Plan shows Williams Field Road as a 6-lane arterial with a raised median from Ellsworth Road to the intersection with Crismon Road where it transitions to a 4-lane arterial east of Crismon Road. The ADOT DCR – SR 24 Interim Phase II recommends a Williams Field Road traffic interchange at the SR 24.

The east-west ***State Route 24*** (SR-24) freeway is proposed south of the development. Interim Phase II of the SR 24 is expected to complete the segment from Ellsworth Road to Ironwood Road. Traffic interchanges are proposed at Williams Field Road and Signal Butte Road in the vicinity of the site. A grade separation is planned at the Crismon Road alignment.

An approved master traffic impact analysis report for *Pacific Proving Grounds North (PPGN)* completed by EPS Group, for the parcels west and northwest of the site, provides recommendations for the public street classifications in the vicinity of the site. Per the PPGN report, it is recommended that Williams Field Road be constructed as a six-lane arterial with a raised median from the Crismon Road intersection west to Ellsworth Road. Crismon Road is recommended as a four-lane arterial with a raised median except at Williams Field Road where it is recommended to be six lanes directly north and south of the intersection.

5.0 PROJECTED TRAFFIC

5.1 SITE TRAFFIC FORECASTS

5.1.1 TRIP GENERATION

The Institute of Transportation Engineers' (ITE) *Trip Generation, 10th Edition,* was used to obtain daily and peak-hour trip generation rates and inbound-outbound percentages, which were then used to estimate the number of daily and peak hour trips that can be attributed to the proposed development. The trip generation characteristics of the site are summarized in **Table 2**.

Table 2. Project Trip Generation

Land Use	ITE Code	Qty	Units	Daily Total	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	1,200	DUs	11,328	222	666	888	748	440	1,188
Shopping Center	820	150,000	SF	5,664	87	54	141	275	297	572
Total Trips				**16,992**	**309**	**720**	**1,029**	**1,023**	**737**	**1,760**

The proposed development is expected to generate 16,992 daily trips, with 1,029 trips occurring in the AM peak hour and 1,760 trips occurring in the PM peak hour.

5.1.2 TRIP DISTRIBUTION

The trip distribution is based on the future roadway network, projected traffic volumes from the Mesa 2040 Transportation Plan, and the likely travel patterns in the vicinity of site. **Figure 3** illustrates the trip distribution for the site.

5.1.3 SITE TRAFFIC ASSIGNMENT

Trips generated by the proposed development were assigned to the roadway network on the basis of the trip distribution and the likely travel patterns to and from the site. **Figure 4** shows the results of the site traffic assignment.

5.2 FUTURE TRAFFIC FORECASTING

The 2018 Southeast Mesa Land Use and Transportation Plan future traffic volumes were used for the background traffic volumes for the external road segments adjacent to the development area. The background traffic is shown in **Figure 5**.

5.3 TOTAL TRAFFIC

The results of the daily traffic assignment were used for the internal street total traffic volumes, and the 2040 volumes from the 2018 Southeast Mesa Land Use and Transportation Plan future traffic volumes were used for the external street total traffic volumes. The total traffic is shown in **Figure 6**.

Kimley»Horn

Figure 3
Trip Distribution

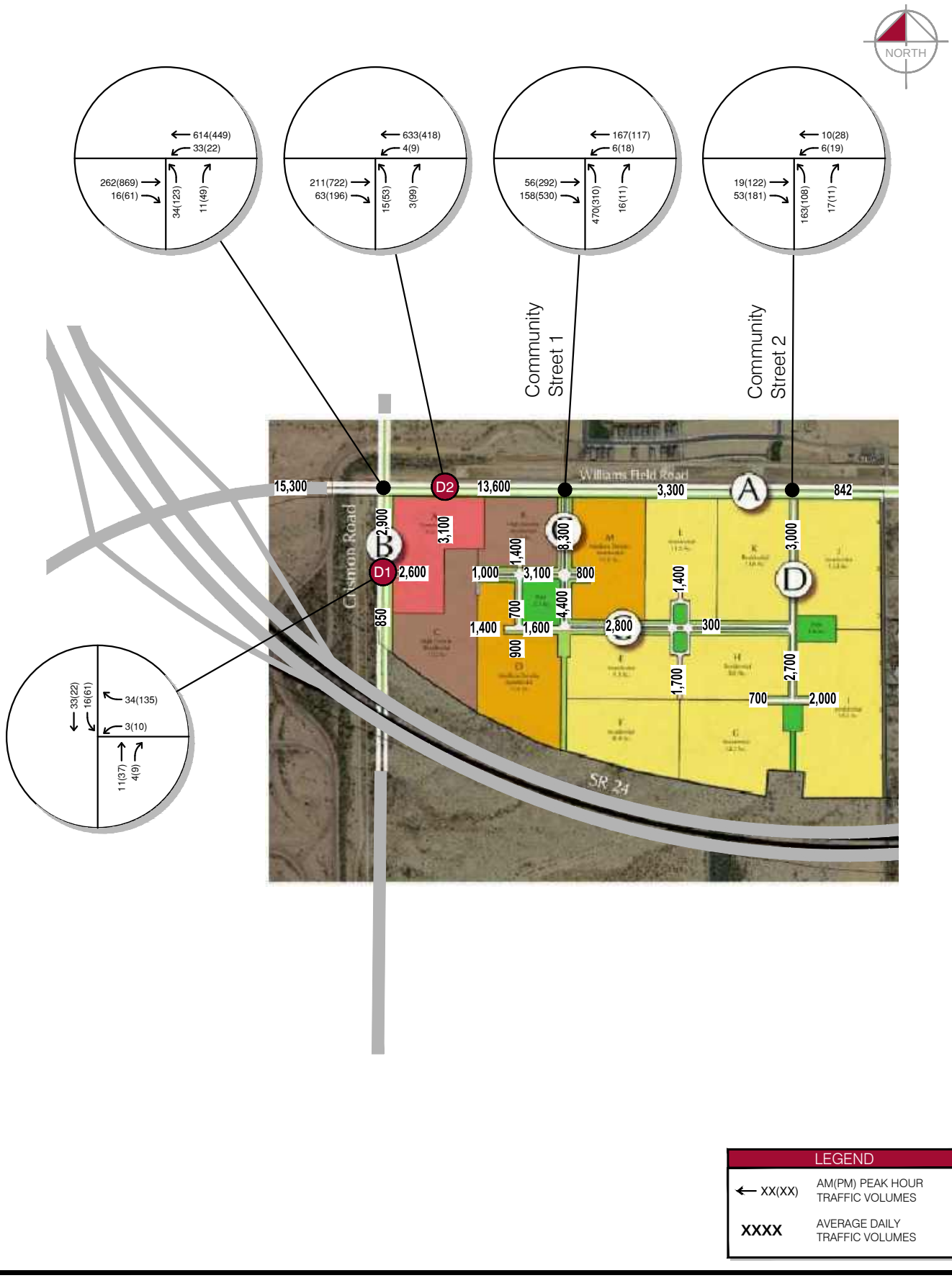
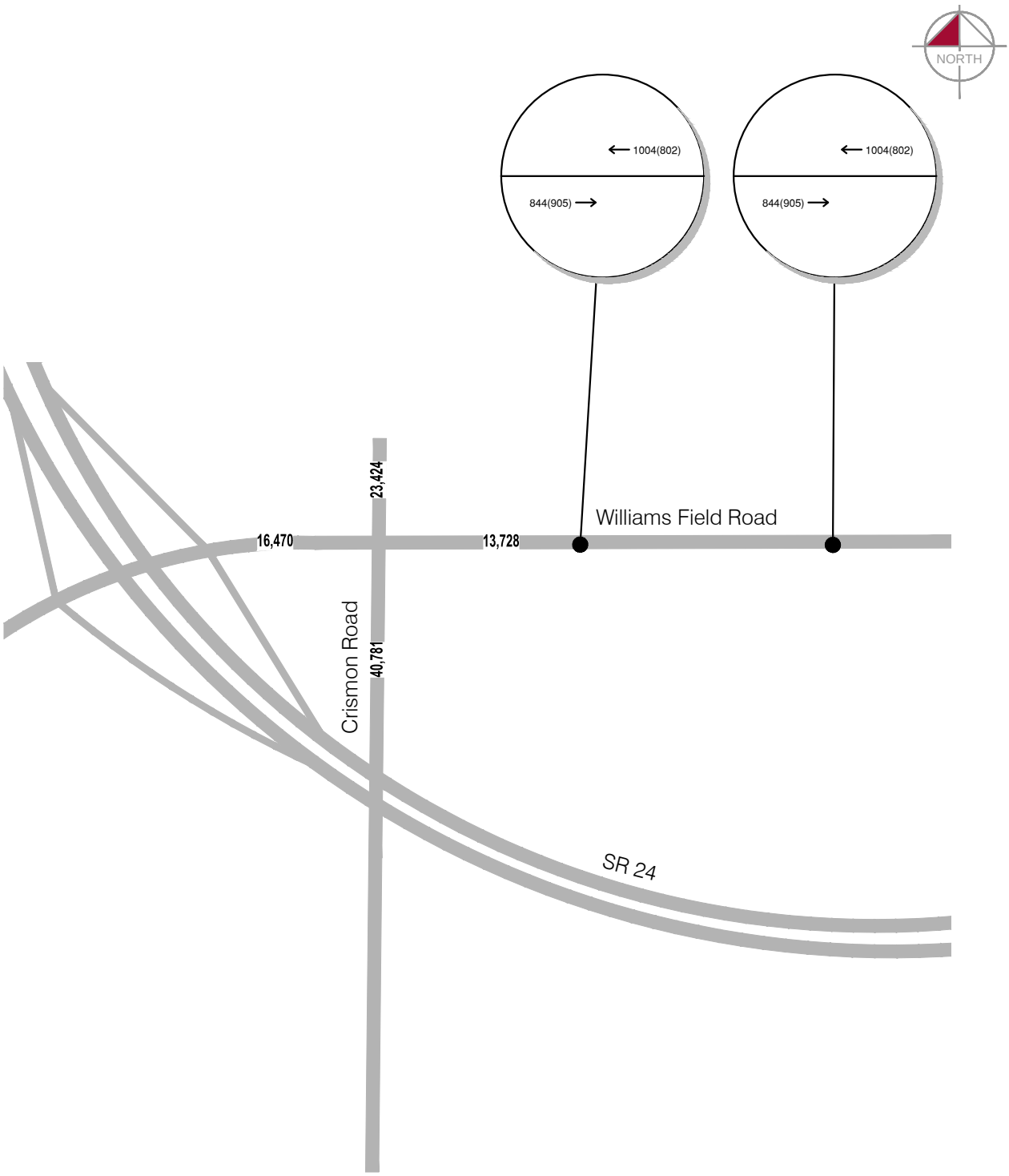
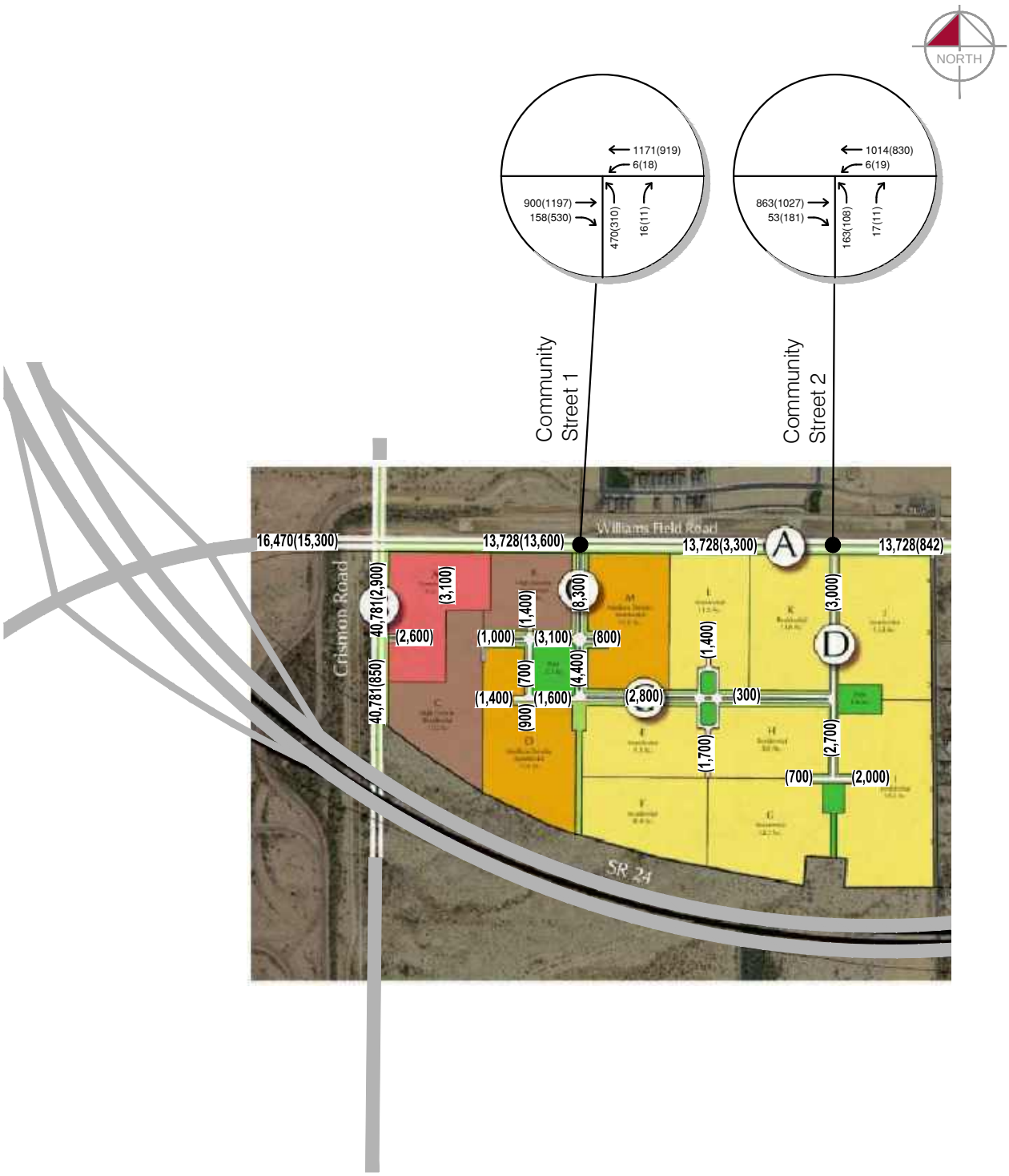


Figure 4
Site Traffic Assignment



Kimley»Horn

Figure 5
2040 Background Traffic



Kimley»Horn

Figure 6
2040 Total Traffic

6.0 TRAFFIC AND IMPROVEMENT ANALYSIS

6.1 STREET CROSS SECTION ANALYSIS

6.1.1 2040 EXTERNAL CAPACITY

The capacity was evaluated for roadway segments outside the internal network. The forecasted 2040 ADTs were compared to the daily traffic volumes provided in Table 2.1 of the Maricopa Department of Transportation (MCDOT) Roadway Design Manual, included in this report as **Table 3**. The future number of lanes and roadway classification were referenced from the City of Mesa 2040 Transportation Plan.

Table 3. Urban and Rural Roadway Planning Level of Traffic Volumes (MCDOT)

Urban Roadway Planning Level Traffic					
Road Classification	**ADT / Lane**	**No. Thru Lanes**	**2-Way ADT Range**	**Peak Hr./ ADT% (K)**	**Max. Rdwy. Length***
Local	350	2	50 – 1,500	15	1,000 ft.
Minor Collector	2,500	2	500 – 5,000	12	1/2 mi.
Major Collector	3,500	2	600 – 8,500	10	2 mi.
Minor Arterial	5,500	4	5,000 – 35,000	8	---
Principal Arterial	7,500	6	30,000 – 60,000	8	---
Parkway (urban)	12,000	8	90,000 – 100,000	8	---
Rural Roadway Planning Level Traffic					
Road Classification	**ADT / Lane**	**No. Thru Lanes**	**2-Way ADT Range**	**Peak Hr./ ADT% (K)**	**Max. Rdwy. Length***
Local	500	2	50 – 1,500	15	1 mi.
Minor Collector	3,000	2	800 – 5,000	12	2 mi.
Major Collector	4,000	2	1,000 – 8,500	10	---
Minor Arterial	9,000	4	5,000 – 35,000	10	---
Principal Arterial	10,000	4	10,000 – 40,000	10	---
Parkway (rural)	13,000	4	50,000 – 60,000,	10	---

* Length may be variable as a function of degree of home frontage on the road.

The 2040 ADTs and roadway classifications for the external roadways within the study area are summarized in **Table 4**.

Table 4. 2040 Roadway Segment Cross Section Summary

Facility	Segment	2040 ADT	2040 Lanes	Roadway Classification
Crismon Road	Williams Field Road to Pecos Road	40,781	4*	Minor Arterial
Williams Field Road	Crismon Road to Signal Butte Road	13,728	4**	Minor Arterial

*Crismon Road is anticipated to be six lanes immediately north and south of Williams Field Road.
**Williams Field Road is anticipated to be six lanes from the Crismon Road intersection to the west.

The external public road of Williams Field Road is expected to operate within MCDOT's acceptable roadway capacity range as four-lane arterials within the vicinity of the site in 2040 total traffic conditions.

Crismon Road is anticipated to be a four-lane minor arterial widening to six lanes at the intersection of Williams Field Road. The *Pacific Proving Grounds North (PPGN) Master Traffic Impact Analysis* completed by EPS Group in September 2014, is consistent with the classifications in **Table 4**. Williams Field Road is expected to transition from six lanes at the intersection of Crismon Road to four lanes before Community Street 1 and remain a four lanes street section to the east property line.

6.2 LEVEL OF SERVICE ANALYSIS

The LOS for the study area intersections for Williams Field Road with Community Street 1 and Community Street 2 were evaluated using the *Highway Capacity Manual 6th Edition* methodology for unsignalized and signalized intersections using *Synchro 10* analysis software. The *PPGN TIA* total traffic volume figures were utilized to determine the background through volumes on Williams Field Road. The *PPGN TIA* turning movement count figures, LOS analysis worksheets and signal timing assumptions are included in the **Appendix**.

6.2.1 TOTAL TRAFFIC LEVEL OF SERVICE ANALYISIS

The unsignalized intersection in the study area was evaluated on the basis of the total traffic shown in **Figure 6**, and the recommended geometry shown in **Figure 7**. The results of the analysis for the unsignalized intersection is shown in **Table 5**.

Table 5. Total Traffic Level of Service: Unsignalized Intersections

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
Community Street 2 and Williams Field Road												
AM Peak	F	-	B	-			-	-	-	B	-	-
PM Peak	F	-	C	-			-	-	-	C	-	-

The unsignalized intersection is expected to operate at a satisfactory LOS, with the exception of the northbound left turn movement during the peak periods. It is common for left turns across arterials from the minor street to experience delay during both peak hours due to a reduction in acceptable gaps in through traffic along the major roadway. It is anticipated that drivers will utilize other available routes by turning right or exiting at the signalized intersection of Community Street 1 and Williams Field Road.

The signalized intersection in the study area was evaluated on the basis of the total traffic shown in **Figure 6**, and the recommended geometry shown in **Figure 7**. The results of this analysis are shown in **Table 6**.

Table 6. Total Traffic Level of Service: Signalized Intersection

Intersection	NB			SB			EB			WB			Intersection LOS
	L	T	R	L	T	R	L	T	R	L	T	R	
Community Street 1 and Williams Field Road													
AM Peak	B	-	B	-			-	B	B	B	B	-	B
PM Peak	C	-	C	-			-	A	B	B	A	-	B

The signalized intersection is expected to operate at an acceptable LOS.

6.3 LEFT-TURN STORAGE ANALYSIS

The collector street intersections along Williams Field Road providing access to the residential portion of the site were analyzed to determine the left-turn storage required using American Association of State Highway and Transportation Officials (AASHTO) criteria of signal cycle length for signalized intersections and vehicle arrivals within a two-minute period for unsignalized intersections to accommodate the expected traffic volumes in the year 2040. Analysis of future connections to the retail portion of the site will be evaluated when more refined plans become available. The calculations associated with these conclusions are included in the **Appendix**. The recommended storage lengths are based on total traffic volumes shown in **Figure 6**.

Table 7. Left Turn Storage

Intersection and Approach	*Existing*	Recommended
Community Street 1 and Williams Field Road (future signalization)		
- Northbound Approach	- feet	250 feet (Duals)
- Westbound Approach	- feet	150 feet
Community Street 2 and Williams Field Road		
- Northbound Approach	- feet	150 feet
- Westbound Approach	- feet	150 feet

Duals = two left turn lanes

The City of Mesa Engineering and Design Standards Section 212.4 recommends that left-turn storage lanes constructed in medians should be constructed with a minimum of 150 feet of storage and a 100-foot taper. The left-turn lanes should provide the storage recommended in **Table 7** and a 100-foot taper per City of Mesa requirements.

6.3 RIGHT-TURN LANES

Right-turn lanes are often recommended on roadways where right-turning vehicles create delays or safety concerns for other traffic movements. The need for a right-turn lane depends on the speed of traffic on the road, the volume of traffic turning right, and the through traffic volume in the same lane as the right-turning traffic.

6.3.1 INTERSECTIONS

The City of Mesa Engineering and Design Standards Section 208.4.1 recommends a right-turn deceleration lane for multi-family residential developments with 100 or more units per access point. The City of Mesa Engineering and Design Standards Section 208.4.1 recommends that a right turn lane provide at least 150 feet of storage and a 100-foot taper.

Review of the site plan and 2040 total traffic volumes reveals that the City of Mesa's criteria for a right turn deceleration lane is met at the approaches listed in **Table 8**. The recommended storage is also included in **Table 8**.

Table 8. Right Turn Storage

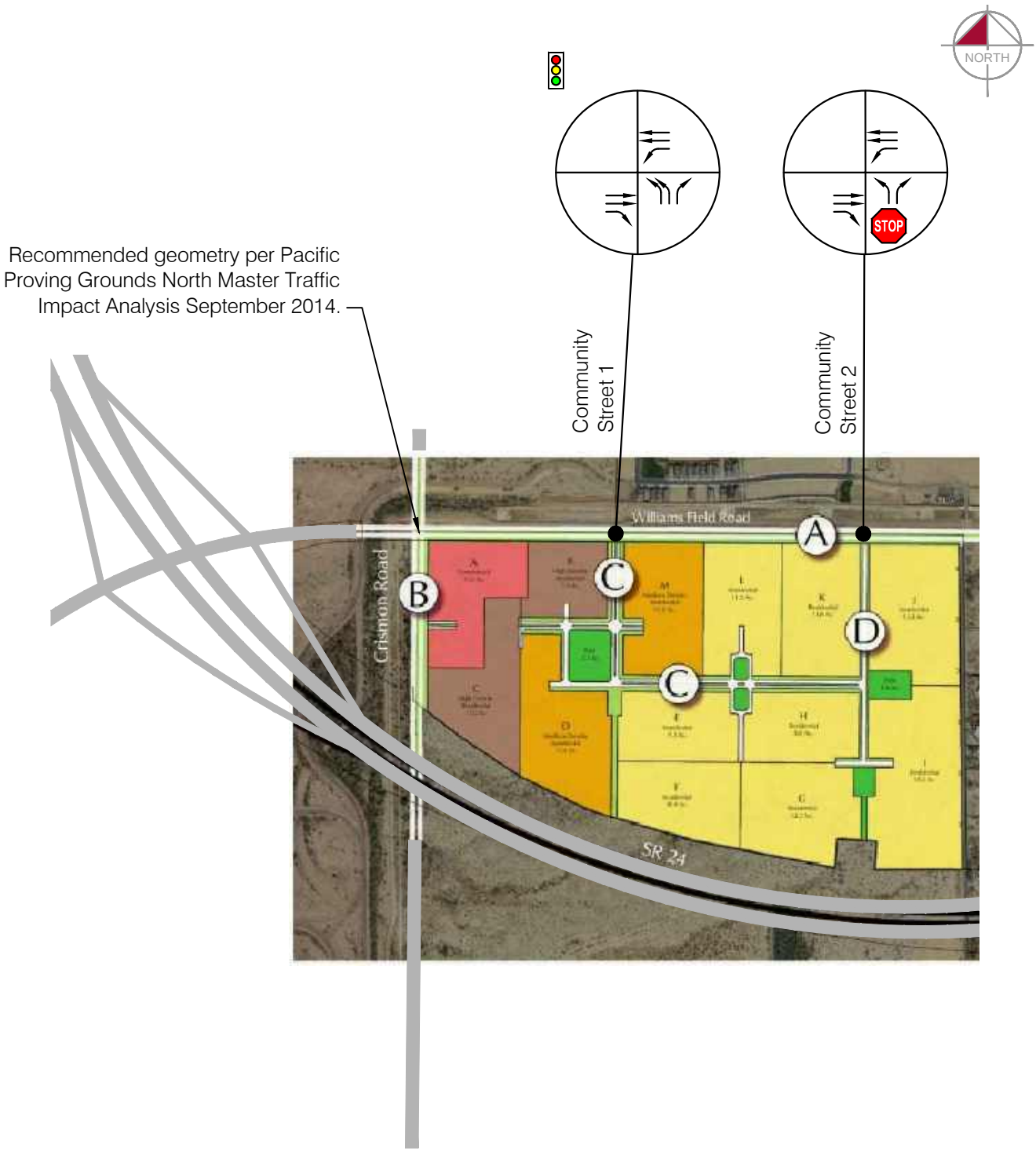
Intersection and Approach	*Existing*	Recommended
Community Street 1 and Williams Field Road (future signalization)		
- Northbound Approach	- feet	150 feet
- Eastbound Approach	- feet	250 feet
Community Street 2 and Williams Field Road		
- Northbound Approach	- feet	150 feet
- Eastbound Approach	- feet	150 feet

The right turn lanes should provide the storage recommended in **Table 8** and 100-foot taper per City of Mesa deceleration lane requirements.

6.4 CROSS SECTIONS

The cross-sections associated with the internal roadway network of the proposed development were reviewed using the site generated ADT's shown in **Figure 6**. The anticipated ADT volumes on the segment south of the intersections of Williams Field Road with Community Street 1 and Community Street 2 are 8,300 vehicles per day (VPD) and 3,000 vehicles per day, respectively. Based on the typical street cross sections for the internal site roadways attached in the **Appendix**, a two-lane collector street cross section with a landscaped raised median and left turn provisions, labeled C – Community Collector Road and Neighborhood Entry, is recommended for the internal community street alignment of Community Street 1. The street section labeled D – Community Collector and Neighborhood Entry, a two-lane cross section, is recommended for the internal community street alignment of Community Street 2.

Auxiliary lane locations and storage requirements for the internal roadway network will be established when detailed site plans are available for the individual parcels.



Kimley»Horn

Figure 7
Recommended Geometry

7.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed development is expected to generate 16,992 daily trips, with 1,029 trips occurring in the AM peak hour and 1,760 trips occurring in the PM peak hour. To ensure that the estimate of the traffic impacts is the maximum that can be expected, it is assumed that the site will be 100 percent occupied upon buildout by the 2040 analysis year.

The intersections of Williams Field Road with Community Street 1 and Community Street 2 are expected to operate an acceptable level of service at buildout with the exception of the northbound left turn movement at the intersection of Community Street 2 during the peak hours. It is anticipated that drivers will utilize other available routes by turning right or exiting at the signalized intersection of Community Street 1 and Williams Field Road during the peak hours.

The future intersection of Crismon Road and Williams Field Road is located at an appropriate location for signal control. Installation of a traffic signal at the intersection of Crismon Road and Williams Field Road is anticipated when traffic warrants are met.

It is recommended that vehicular volumes be monitored and evaluated at the intersection of Community Street 1 and Williams Field Road as development occurs to determine the appropriate time for the addition of signal control at the intersection.

It is recommended that the intersection of Community Street 1 and Williams Field Road provide northbound dual left turn lanes and a westbound left turn lane. It is recommended that the northbound dual left turn lanes provide 250 feet of storage and a 100 foot reverse curve per City of Mesa Engineering and Design Standards Section 212.4. It is recommended that the westbound left turn lane provide 150 feet of storage and a 100 foot reverse curve.

It is recommended that the intersection of Community Street 2 and Williams Field Road provide a northbound left turn lane and a westbound left turn lane with 150 feet of storage and a 100 foot taper per the City of Mesa Engineering and Design Standards Section 212.4.

It is recommended that an eastbound right turn lane be provided at the intersection of Community Street 1 and Williams Field Road with 250 feet of storage and a 100 foot taper, per the City of Mesa Engineering and Design Standards Section 208.4.2. A northbound right turn lane is recommended to be provided at the intersection of Community Street 1 and Williams Field Road with 150 feet of storage and a 100 foot taper.

It is recommended that an eastbound and northbound right turn lane be provided at the intersection of Community Street 2 and Williams Field Road with 175 feet and 150 feet of storage, respectively, and a 100 foot taper, per the City of Mesa Engineering and Design Standards Section 208.4.2.

A community collector road C cross section is recommended for Community Street 1 alignment with one lane in each direction, a landscaped raised median, and left turn provisions. A community collector road D cross section is recommended for Community Street 2 alignments with one lane in each direction. Typical cross sections for the internal site roadways are attached in the **Appendix**.

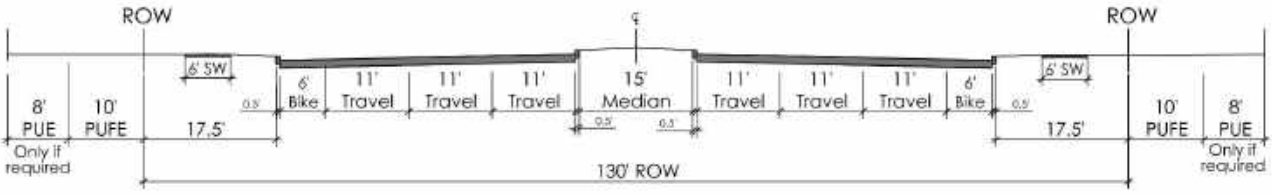
APPENDIX

- Typical Street Cross Sections
- City of Mesa Traffic Volume 2040
- City of Mesa Future Roadway Plan 2040
- PPGN TIA Total Traffic Volume Figures
- Total AM Traffic Capacity Analysis
- Total PM Traffic Capacity Analysis
- City of Mesa Engineering and Design Standards Figure 2.5 – Traffic Signal and Median Spacing
- Left-Turn Storage Calculations
- Right-Turn Storage Calculations
- City of Mesa Engineering and Design Standards Section 212
- City of Mesa Engineering and Design Standards Section 208
- Mesa Standard Details and Specifications Detail No. M-19.01

Typical Street Cross Sections

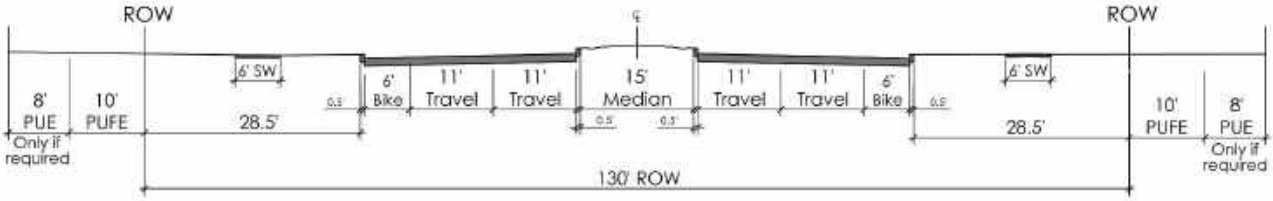
A

Arterial Roadway
(6 Lane)
Williams Field Road



B

Arterial Roadway
(4 Lane)
Crismon Road

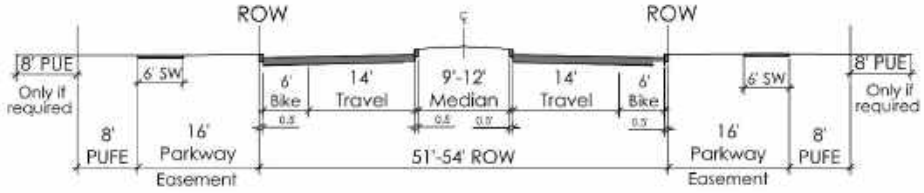


C

Community Collector Road &
Neighborhood Entry (2 Lane)

*Medians may be located within a private tract with a PUFE or Parkway Easement in certain locations upon review and approval by the Engineering Department.

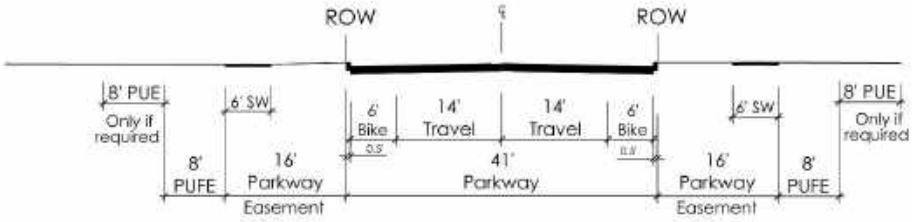
** Parkway width may vary when sidewalk is detached.



D

Community Collector Road &
Neighborhood Entry (2 Lane)

** Parkway width may vary when sidewalk is detached.

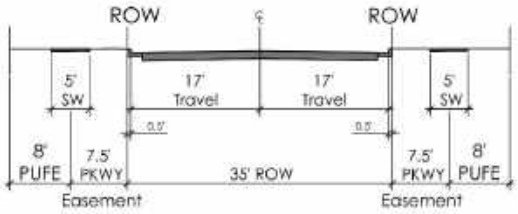


E

Local Street

*On Street Parking Allowed

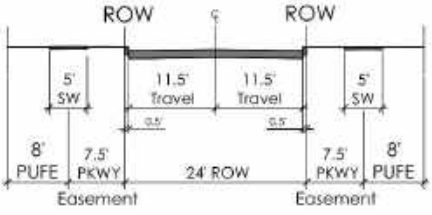
** Parkway width may vary when sidewalk is detached.



F

Local Street

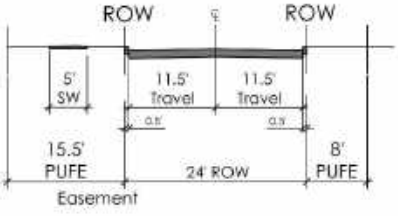
** Parkway width may vary when sidewalk is detached.



G

Local Street

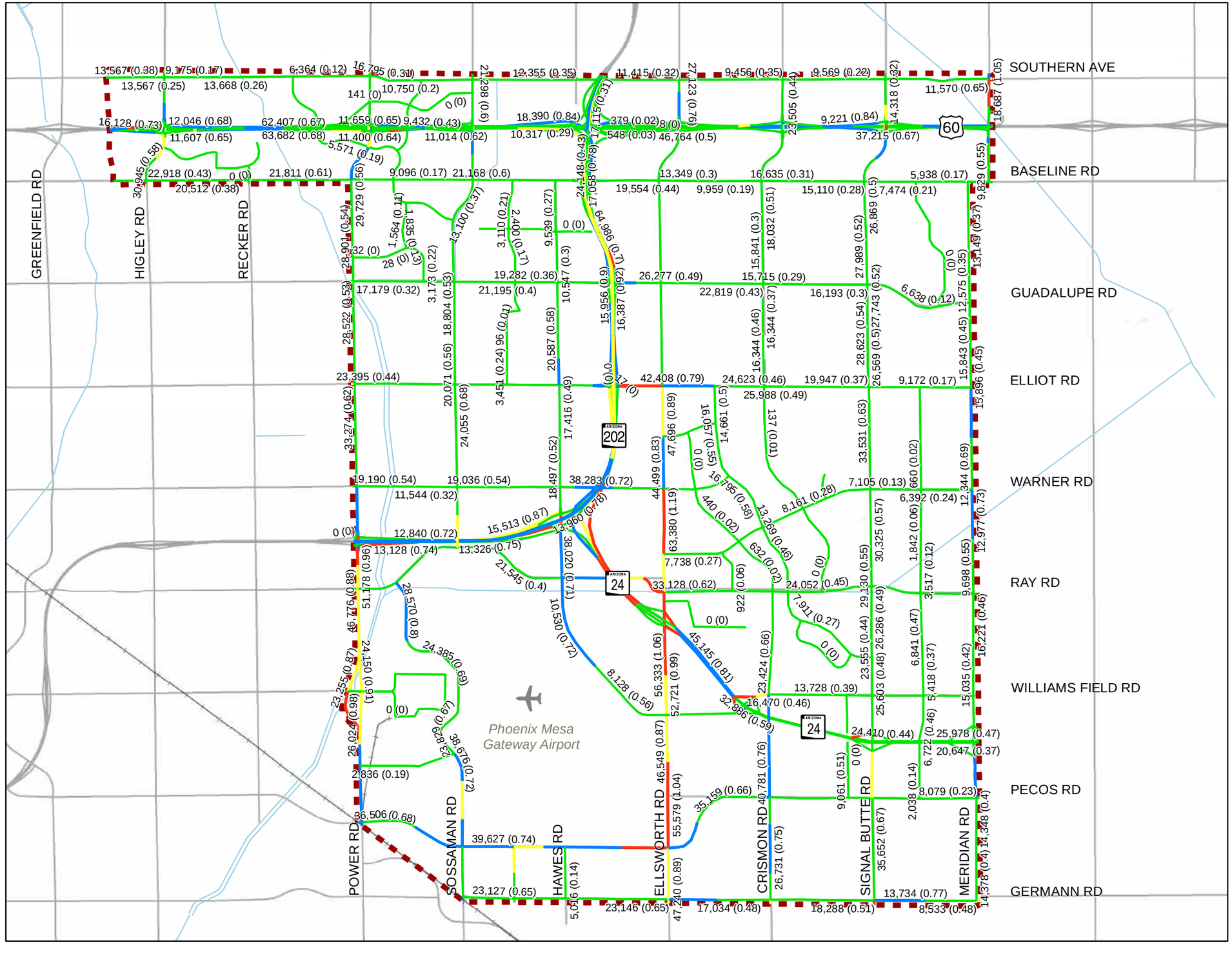
On Street Parking not allowed



City of Mesa
Traffic Volume 2040

2018 Southeast Mesa Land Use and Transportation Plan

2040 Improved Bi-directional Level of Service



Legend

- Study Area
- Airport
- Canal
- Railroad
- Major Street

2040 Level of Service

- C+
- D
- E
- F

Daily Traffic Volume (Volume-to-Capacity Ratio)

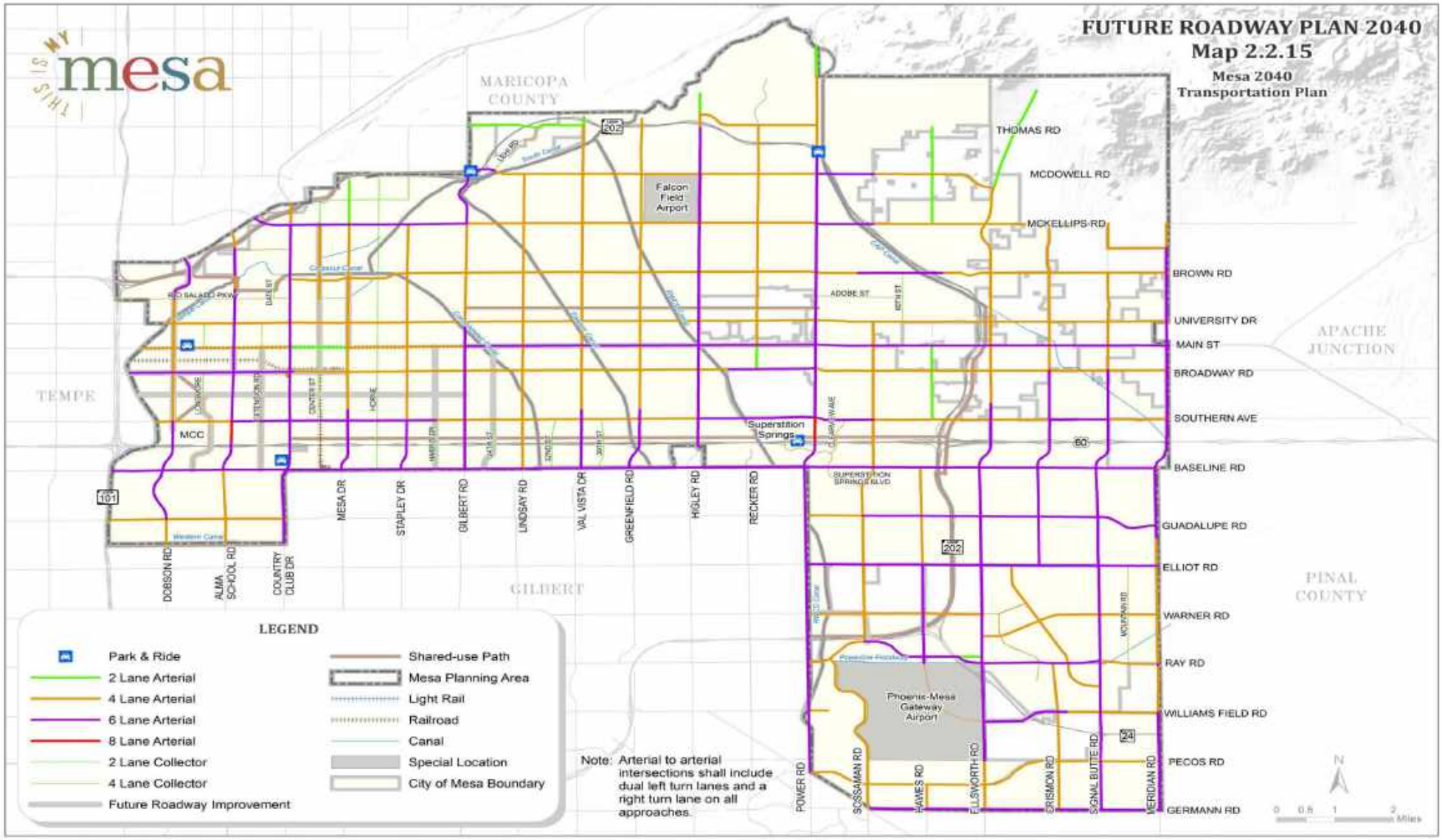
N W E S

0 0.5 1 2

Miles

mesa·az

City of Mesa
Future Roadway Plan 2040


FUTURE ROADWAY PLAN 2040
Map 2.2.15
Mesa 2040
Transportation Plan
mesa
MARICOPA COUNTY
TEMPE
GILBERT
APACHE JUNCTION
PINAL COUNTY
Falcon Field Airport
Superstition Springs
Phoenix-Mesa Gateway Airport
MCC
THOMAS RD
MCDOWELL RD
MCKELLIPS RD
BROWN RD
UNIVERSITY DR
MAIN ST
BROADWAY RD
SOUTHERN AVE
BASELINE RD
GUADALUPE RD
ELLIOT RD
WARNER RD
RAY RD
WILLIAMS FIELD RD
PECOS RD
GERMANN RD
DOBSON RD
ALMA SCHOOL RD
COUNTRY CLUB DR
MESA DR
STAPLEY DR
GILBERT RD
LINDSAY RD
VAL VISTA DR
GREENFIELD RD
HIGLEY RD
RECKER RD
POWER RD
SOSSAMAN RD
HAWES RD
ELLSWORTH RD
CRISMON RD
SIGNAL BUTTE RD
MERIDIAN RD
LEGEND
Park & Ride
2 Lane Arterial
4 Lane Arterial
6 Lane Arterial
8 Lane Arterial
2 Lane Collector
4 Lane Collector
Future Roadway Improvement
Shared-use Path
Mesa Planning Area
Light Rail
Railroad
Canal
Special Location
City of Mesa Boundary
Note: Arterial to arterial intersections shall include dual left turn lanes and a right turn lane on all approaches.
N
0 0.5 1 2 Miles

PPGN TIA Total Traffic Volume Figures

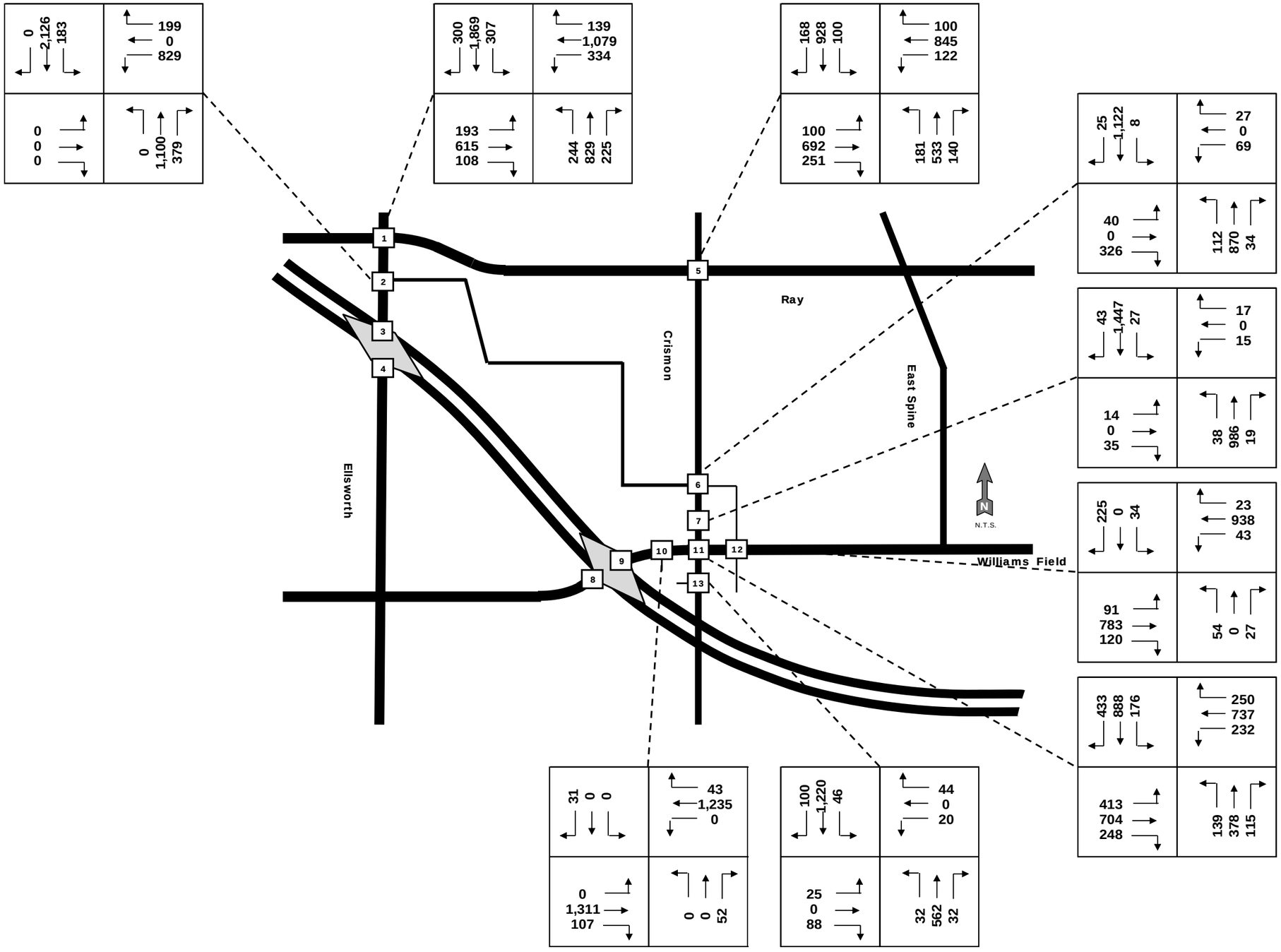


Figure 23: 2020 with PPGN Traffic Volumes – AM Peak Hour

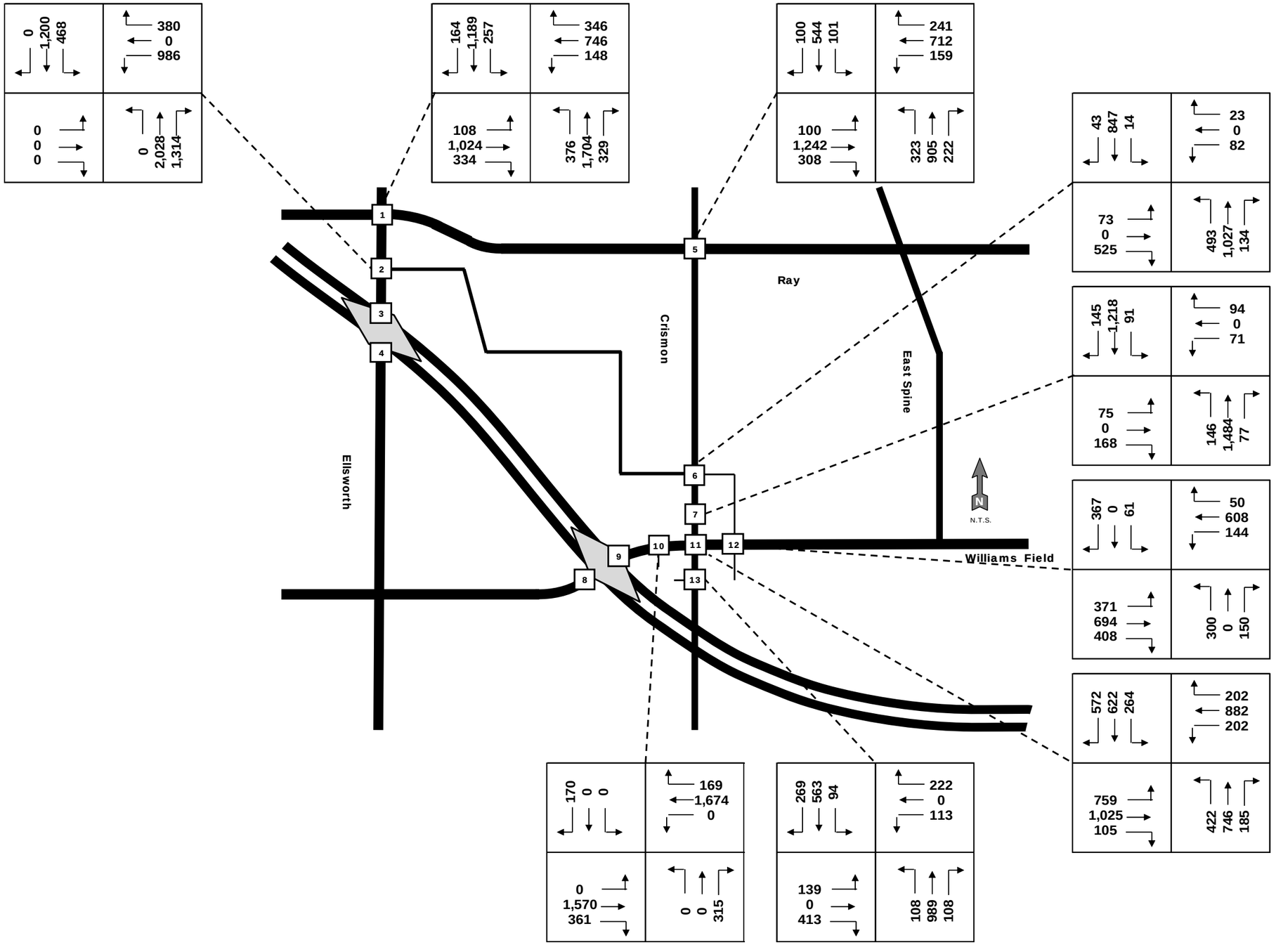


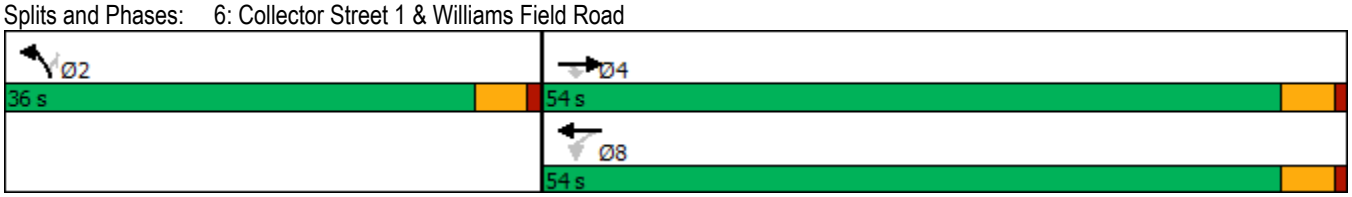
Figure 25: 2020 with PPGN Traffic Volumes – PM Peak Hour

Total AM Traffic Capacity Analysis

Phase Number	2	4	8
Movement	NBL	EBT	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	None
Maximum Split (s)	36	54	54
Maximum Split (%)	40.0%	60.0%	60.0%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	36	36
End Time (s)	36	0	0
Yield/Force Off (s)	31.5	85.5	85.5
Yield/Force Off 170(s)	20.5	74.5	74.5
Local Start Time (s)	0	36	36
Local Yield (s)	31.5	85.5	85.5
Local Yield 170(s)	20.5	74.5	74.5

Intersection Summary	
Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	50

Splits and Phases: 6: Collector Street 1 & Williams Field Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	900	158	6	1171	470	16
Future Volume (veh/h)	900	158	6	1171	470	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	978	172	7	1273	511	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1662	741	224	1662	1431	656
Arrive On Green	0.47	0.47	0.47	0.47	0.41	0.41
Sat Flow, veh/h	3647	1585	489	3647	3456	1585
Grp Volume(v), veh/h	978	172	7	1273	511	17
Grp Sat Flow(s),veh/h/ln	1777	1585	489	1777	1728	1585
Q Serve(g_s), s	15.4	4.9	0.8	22.6	7.7	0.5
Cycle Q Clear(g_c), s	15.4	4.9	16.2	22.6	7.7	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1662	741	224	1662	1431	656
V/C Ratio(X)	0.59	0.23	0.03	0.77	0.36	0.03
Avail Cap(c_a), veh/h	2312	1031	314	2312	1431	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	12.1	20.8	16.8	15.3	13.2
Incr Delay (d2), s/veh	0.3	0.2	0.1	1.0	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	1.6	0.1	8.5	3.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.2	12.3	20.9	17.8	16.0	13.3
LnGrp LOS	B	B	C	B	B	B
Approach Vol, veh/h	1150			1280	528	
Approach Delay, s/veh	14.8			17.9	15.9	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		36.0		40.1		40.1
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		49.5		49.5
Max Q Clear Time (g_c+I1), s		9.7		17.4		24.6
Green Ext Time (p_c), s		1.9		9.2		11.0

Intersection Summary		
HCM 6th Ctrl Delay		16.3
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	29

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	863	53	6	1014	163	17
Future Vol, veh/h	863	53	6	1014	163	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	75	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	938	58	7	1102	177	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	996	0	1503	469
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	565	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	690	-	~ 112	541
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	690	-	~ 111	541
Mov Cap-2 Maneuver	-	-	-	-	~ 111	-
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	$ 340.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	111	541	-	-	690	-
HCM Lane V/C Ratio	1.596	0.034	-	-	0.009	-
HCM Control Delay (s)	$ 374.8	11.9	-	-	10.3	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	13.3	0.1	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Total PM Traffic Capacity Analysis

Phase Number	2	4	8
Movement	NBL	EBT	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	None	None
Maximum Split (s)	26	64	64
Maximum Split (%)	28.9%	71.1%	71.1%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	26	26
End Time (s)	26	0	0
Yield/Force Off (s)	21.5	85.5	85.5
Yield/Force Off 170(s)	10.5	74.5	74.5
Local Start Time (s)	0	26	26
Local Yield (s)	21.5	85.5	85.5
Local Yield 170(s)	10.5	74.5	74.5

Intersection Summary	
Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 6: Collector Street 1 & Williams Field Road

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1197	530	18	919	310	11
Future Volume (veh/h)	1197	530	18	919	310	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1301	576	20	999	337	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1958	873	177	1958	1094	502
Arrive On Green	0.55	0.55	0.55	0.55	0.32	0.32
Sat Flow, veh/h	3647	1585	243	3647	3456	1585
Grp Volume(v), veh/h	1301	576	20	999	337	12
Grp Sat Flow(s),veh/h/ln	1777	1585	243	1777	1728	1585
Q Serve(g_s), s	17.6	17.4	4.3	11.9	5.0	0.4
Cycle Q Clear(g_c), s	17.6	17.4	21.9	11.9	5.0	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1958	873	177	1958	1094	502
V/C Ratio(X)	0.66	0.66	0.11	0.51	0.31	0.02
Avail Cap(c_a), veh/h	3113	1388	256	3113	1094	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.8	10.8	18.6	9.5	17.6	16.0
Incr Delay (d2), s/veh	0.4	0.9	0.3	0.2	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	5.2	0.2	3.9	2.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.2	11.6	18.8	9.7	18.3	16.1
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	1877			1019	349	
Approach Delay, s/veh	11.3			9.9	18.2	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	26.0	41.9	41.9
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	59.5	59.5
Max Q Clear Time (g_c+I1), s	7.0	19.6	23.9
Green Ext Time (p_c), s	1.1	17.8	9.8

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	13.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1027	181	19	830	108	11
Future Vol, veh/h	1027	181	19	830	108	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	100	-	75	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1116	197	21	902	117	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1313	0	1609	558
Stage 1	-	-	-	-	1116	-
Stage 2	-	-	-	-	493	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	523	-	~ 95	473
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	523	-	~ 91	473
Mov Cap-2 Maneuver	-	-	-	-	~ 91	-
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	579	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	250.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	473	-	-	523	-
HCM Lane V/C Ratio	1.29	0.025	-	-	0.039	-
HCM Control Delay (s)	274.8	12.8	-	-	12.2	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	8.5	0.1	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

City of Mesa Engineering and Design Standards
Figure 2.5 – Traffic Signal and Median Spacing

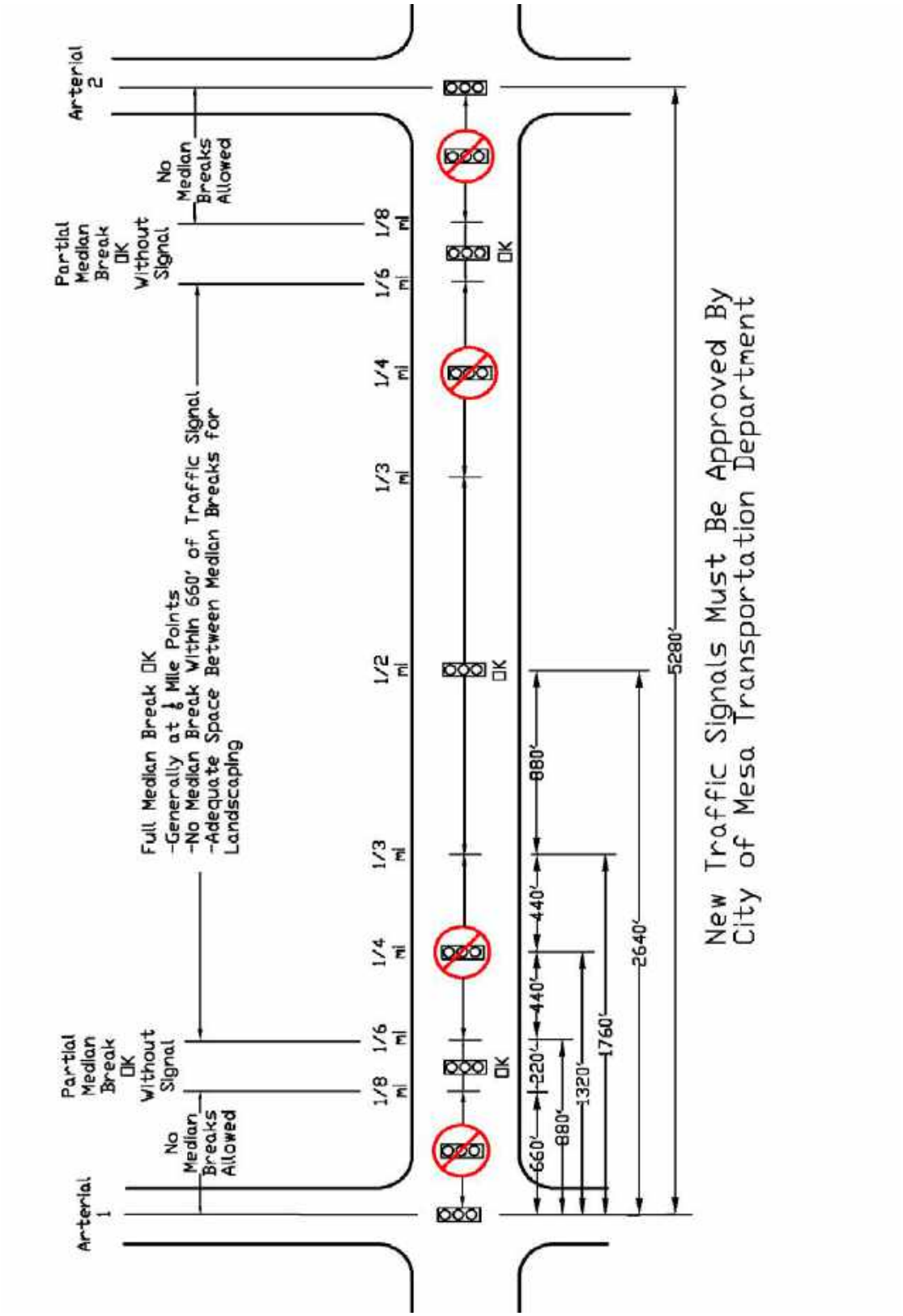


Figure 2.5 – Traffic Signal and Median Spacing

Left-Turn Storage Calculations

Left-turn Storage Analysis

Intersection	Direction (N,S,E,W)	Peak volume (vph)	Signalized??? (Place an "X") Yes	Signalized??? (Place an "X") No	If signalized: Cycle Length (seconds)	If signalized: # of Left-turn Lanes (#)	Required Storage per Lane (ft.) (75' min. default)
							0
Community Street 1 and Williams Field Road	NB	470	X		90	2	225
	WB	18	X		90	1	75
							0
							0
							0
Community Street 2 and Williams Field Road	NB	163		X			150
	WB	19		X			75
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0

SAMPLE CALCULATIONS

SIGNALIZED INTERSECTIONS

Storage: = [((veh/interval) + z x (SQRT(veh/interval)))/L] x 25 ft/vehicle

N = (veh/interval)
N = [(V) x (C/3600)]

Where :

z = 1.282 for 90 % confidence level (Most commenly used)
z = 1.645 for 95 % confidence level

Where:

V = vehicles per hour
C = cycle length in seconds
25 ft/veh = Average Length of Vehicles
L = number of left turn lanes

UNSIGNALIZED INTERSECTIONS

Storage = [(V/60 minutes) x 2 minutes] x 25 ft/vehicle

Where:

V = vehicles per hour
25 ft/veh = Average Length of Vehicles

Right-Turn Storage Calculations

Right-turn Storage Analysis

Intersection	Direction (N,S,E,W)	Peak volume (vph)	Signalized??? (Place an "X") Yes	Signalized??? (Place an "X") No	If signalized: Cycle Length (seconds)	If signalized: # of Left-turn Lanes (#)	Required Storage per Lane (ft.) (75' min. default)
							0
Community Street 1 and Williams Field Road	NB	16	X		90	1	75
	EB*	265	X		90	1	250
							0
							0
							0
Community Street 2 and Williams Field Road	NB	17		X			75
	EB	181		X			100
							0
*50% Right Turn on Red Reduction was Applied							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0
							0

SAMPLE CALCULATIONS

SIGNALIZED INTERSECTIONS

Storage: = [((veh/interval) + z x (SQRT(veh/interval)))/L] x 25 ft/vehicle

N = (veh/interval)
N = [(V) x (C/3600)]

Where :

z = 1.282 for 90 % confidence level (Most commenly used)
z = 1.645 for 95 % confidence level

Where:

V = vehicles per hour
C = cycle length in seconds
25 ft/veh = Average Length of Vehicles
L = number of left turn lanes

UNSIGNALIZED INTERSECTIONS

Storage = [(V/60 minutes) x 2 minutes] x 25 ft/vehicle

Where:

V = vehicles per hour
25 ft/veh = Average Length of Vehicles

City of Mesa
Engineering and Design Standards
Section 208.4.2

208.4.1 Deceleration lanes may be provided at retail, multi-family, industrial or commercial sites depending on the size of the site. Generally, deceleration lanes should be provided at retail sites with 40,000 gross square feet or more of building area. Multi-family and private street residential developments should provide deceleration lanes if there are 100 or more units per access point for the site. Industrial parks with 200,000 gross square feet or more of building area, business parks and general office buildings with 100,000 gross square feet or more, and medical office buildings with 40,000 gross square feet or more should provide deceleration lanes. Smaller developments may need deceleration lanes also, based on site-specific conditions. Institutional sites such as hospitals and colleges are large enough to warrant deceleration lanes in most cases. Deceleration lanes should be provided for all of the driveways along a site where the lanes are required. If a driveway is mainly used for service and delivery vehicles, and it is separated from the main parking area, it may not require a deceleration lane.

208.4.2 A typical deceleration lane for a site driveway shall not be within the taper for the intersection. It shall be designed per Figure 2.2. and provide at least 150 feet of storage, a 100-foot taper or reverse curve, and a 12-foot wide lane. Longer storage or tapers may be necessary depending on the site.

Section 209 - Pavement Tapers

209.1 Projects are required to provide sufficient pavement tapers at all necessary locations (such as the beginning or end of a project) to properly guide traffic.

209.2 The pavement section for tapers shall be per C.O.M. Standard Detail M-19.01.

209.3 Pavement tapers shall be constructed with a thickened edge per M.A.G. Standard Detail 201.

209.4 **Taper Length Formulas:** Taper lengths for merging traffic (lane drop) situations are calculated by the following formulas:

When the design speed is 40 mph or Less:

$$TL = \frac{W * S^2}{60}$$

When the design speed is 45 mph or greater:

$$TL = W*S$$

TL = Taper Length in Feet
S = Design Speed in Miles per Hour. The design speed is five (5) mph over the speed limit
W = Width in feet of the offset between the edge of the travel lane and the edge of the lane after the taper

209.5 Taper length for non-merging (lane introduction) traffic situation (such as where pavement widens with traffic) is normally fifty feet (50') minimum. However, there may be some instances when more than fifty-feet (50') of taper may be required. The requirement for a longer taper will be determined on a case-by-case basis by the City.

209.6 The Engineer shall investigate the existing conditions and if determined to be substandard the project shall saw cut and remove any existing pavement tapers when extending or installing new pavement improvements.

City of Mesa
Engineering and Design Standards
Section 212.4

determined by the Transportation Department. Any trees that are to be located within SVTs must be reviewed and approved by the Transportation Department. Field changes may be required for the acceptance of a landscaping permit if it is found that the SVT is adversely impacted by new landscaping.

211.2 **Visibility of Traffic Control Devices**

211.2.1 **Stop Signs:** All stop signs shall be fully visible to approaching traffic from a distance no less than the stopping sight distance, which is to be calculated per the latest edition of the AASHTO Green Book based on a design speed of 5 mph over the speed limit. Stopping sight distance triangles for approaches controlled by stop signs are shown on Figure 2.4. There shall be no fence, wall, shrubbery, tree, or any other obstruction to vision between a height of two and one-half feet (2.5') and ten feet (10') above the sidewalk within the stopping sight distance triangle approaching a stop sign.

211.2.2 **Traffic Signals:** Visibility of traffic signal indications shall be maintained per Section 4D.12 of the 2009 Manual on Uniform Traffic Control Devices.

211.2.3 **Other Traffic Control Devices:** Visibility of all other traffic control devices has to be maintained. For instance, landscaping along a roadway shall be placed in a manner that does not block signing.

211.3 There should not be interference with the line of sight of a driver such as the overgrowth of a plant that is on the edge of the SVT.

Section 212 - Raised Medians

212.1 Raised median islands shall be installed in accordance with the adopted City of Mesa 2040 Transportation Plan as discussed in Section 202.4.

212.2 **Median Curbs:** Median curb shall be installed per M.A.G. Standard Detail 222, Type "A". In certain situations, the City may require curb and gutter to be constructed per M.A.G. Standard Detail 220, Type "A".

212.3 **Median Widths:** Median widths shall be as specified by the Transportation Department. Standard widths are sixteen feet (16') from face of curb to face of curb on full width medians and four feet (4') from face of curb to face of curb within a left turn traffic storage area. Median widths at arterial intersections shall vary in width as noted in the M-46 series of Mesa Standard Details.

212.4 **Left Turn Lanes:** Standard left turn lanes within a median shall have one hundred and fifty (150') of storage and one hundred feet (100') of reverse curve. Left turn lanes within a median at an arterial intersection shall have two hundred and fifty feet (250') of storage and one hundred and twenty feet (120') of reverse curve.

212.5 **Termination:** Medians shall terminate in a bull nose per M.A.G. Standard Detail 223. Medians shall terminate at a point perpendicular to the curb return adjacent to the median's bullnose, or as directed by the City.

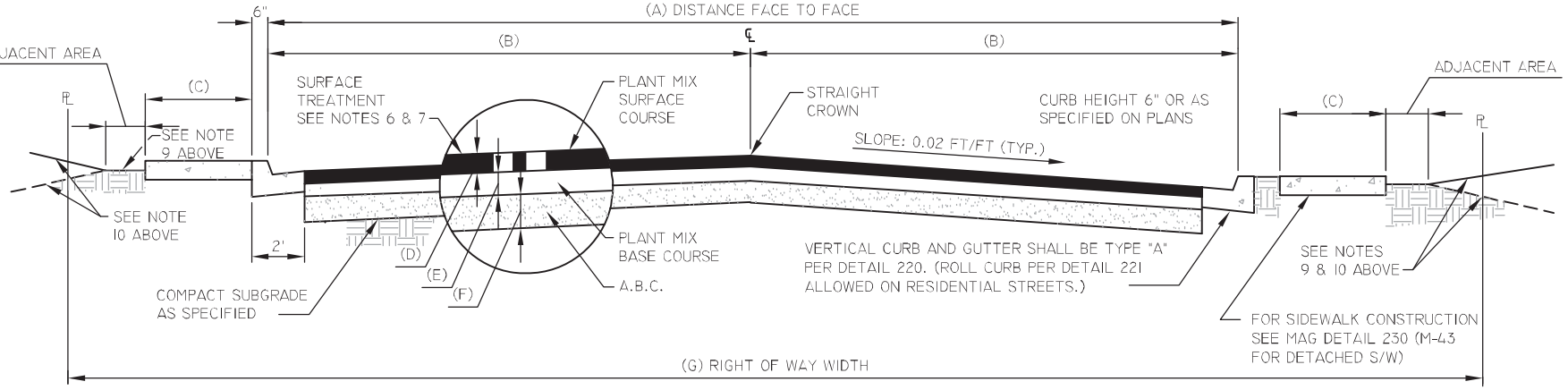
2017 Mesa Standard Details and Specifications
Detail No. M-19.01

NOTES

1. ALL STREETS TO BE CONSTRUCTED WITH A STRAIGHT CROWN AT A 2% CROSS SLOPE.
2. WHERE 10" A.B.C. IS REQUIRED, IT IS TO BE INSTALLED IN (2) TWO EQUAL LAYERS.
3. A.B.C. FILL TO CONFORM TO SECTION 702 (AGGREGATE BASE).
4. ASPHALT CONCRETE SHALL CONFORM TO THE CURRENT EAST VALLEY ASPHALT COMMITTEE HOT ASPHALT MIX CRITERIA, 2012 EDITION, AND BE APPROVED BY THE EAST VALLEY ASPHALT COMMITTEE (EVAC).
5. ALL NEW AND REHAB ARTERIAL STREET SURFACE COURSE ASPHALT SHALL BE POLYMER MODIFIED TERMINAL BLEND RUBBER (PMTR+) PER EVAC CRITERIA.
6. SURFACE TREATMENT OF THE FINAL SURFACE COURSE FOR "R" ASPHALT MIXES, INCLUDING PARKING LOT MIXES, SHALL BE APPLIED AS FOLLOWS:
   APPLY A POLYMER MODIFIED MASTERSEAL OR EQUIVALENT MEETING COM REQUIREMENTS (AS DETERMINED BY THE CITY REPRESENTATIVE) AT A MINIMUM APPLICATION RATE OF.12 GAL PER SQ YD FOR EACH OF TWO APPLICATIONS, NOT TO EXCEED .30 GAL PER SQ YD TOTAL (OR PER MANUFACTURER'S RECOMMENDED GUIDELINES). APPLY WITHIN 3 MONTHS OF ASPHALT PLACEMENT OR AS DIRECTED BY THE CITY REPRESENTATIVE. SEE MESA AMENDMENTS FOR SPECIFICATION AND LIST OF ACCEPTABLE PRODUCTS. EACH PRODUCT WILL REQUIRE A SUBMITTAL FOR APPROVAL PRIOR TO PLACEMENT.
7. SURFACE TREATMENT OF THE FINAL SURFACE COURSE FOR "A" ASPHALT MIXES SHALL BE APPLIED AS FOLLOWS:
   APPLY CQS-TR FOG SEAL WITH A DILUTION OF 1:1 WITH WATER AND APPLICATION RATE OF .08 GAL PER SQ YD. APPLY NO SOONER THAN 6 MONTHS AFTER ASPHALT PLACEMENT OR AS DIRECTED BY THE CITY REPRESENTATIVE WITHIN 1-YEAR OF ASPHALT PLACEMENT, NOT TO EXCEED ONE (1) TREATMENT. SEE MESA AMENDMENTS FOR SPECIFICATION. FOG SEAL WILL REQUIRE A SUBMITTA_ FOR APPROVAL PRIOR TO PLACEMENT.
8. UTILITY ADJUSTMENTS SHALL BE COMPLETED PRIOR TO APPLICATION OF SURFACE TREATMENT.
9. FINISH ELEVATION OF THE ADJACENT PARKWAY SHALL BE 1" BELOW THE TOP OF SIDEWALK FOR A MINIMUM DISTANCE OF 1-FOOT. BEYOND THE 1-FOOT, THE SLOPE SHALL NOT EXCEED 6:1.
10. MAX. 6:1 SLOPE ALLOWED EXCEPT WHERE AREA IMMEDIATELY ADJACENT TO R.O.W. OR SIDEWALK HAS 4' MIN. AREA AT SLOPE OF 6:1 OR LESS. THEN SLOPE BEYOND SAID 4' AREA CAN BE INCREASED TO A MAX OF 4:1. SIDEWALK WIDTHS SHOWN ON THIS DETAIL SHALL TAKE PRECEDENT OVER MAG DETAIL 230.

	ROADWAY (WIDTH)		SIDEWALK (WIDTH)	SURFACE COURSE (DEPTH) (TYPE)	BASE COURSE (DEPTH) (TYPE)	A.B.C. FILL (DEPTH)	RIGHT OF WAY (WIDTH)
	FACE TO FACE	CL TO FACE					
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
LOCAL STREET RESIDENTIAL LAND USE	34'	17'	5'	3.0" R-1/2"	N/A	6"	50'+8 PUFE
LOCAL STREET RESIDENTIAL LAND USE, OPTIONAL	34'	17'	5'**	3.0" R-1/2"	N/A	6"	50'+10' PUFE
LOCAL STREET INDUSTRIAL	40'	20'	5'	2.0" A-1/2"	3.0" A-3/4"	8"	60'+20' PUFE
LOCAL STREET COMMERCIAL	46'	23'	5'	2.0" A-1/2"	3.0" A-3/4"	8"	80'+8 PUFE
COLLECTOR STREET *	34'/40'/46'	17'/20'/23'	6'	3.5" R-3/4"	N/A	6"	80'/80'/80'+8 PUFE
MAJOR COLLECTOR STREET *	68'	34'	6'	2.0" A-1/2"	3 1/2" A-3/4"	10"	110'+8 PUFE
ARTERIAL STREET *	68'/72'/88'/94' ***	34'/36'/44'/47' ***	6'	2.0" A-1/2" PMTR±	3 1/2" A-3/4"	10"	110' TO 130'+8 PUFE ***

* DETACHED, LINEAR SIDEWALKS ARE REQUIRED. SEE DETAIL M-43.
** USE 5' DETACHMENT
*** MAY BE WIDER AT INTERSECTIONS AND TURN LANES - SEE M-46.01 THROUGH M-46.05.



mesa·az

TYPICAL STREET SECTION

DETAIL NO. M-19.01

REV. 06/20/2017