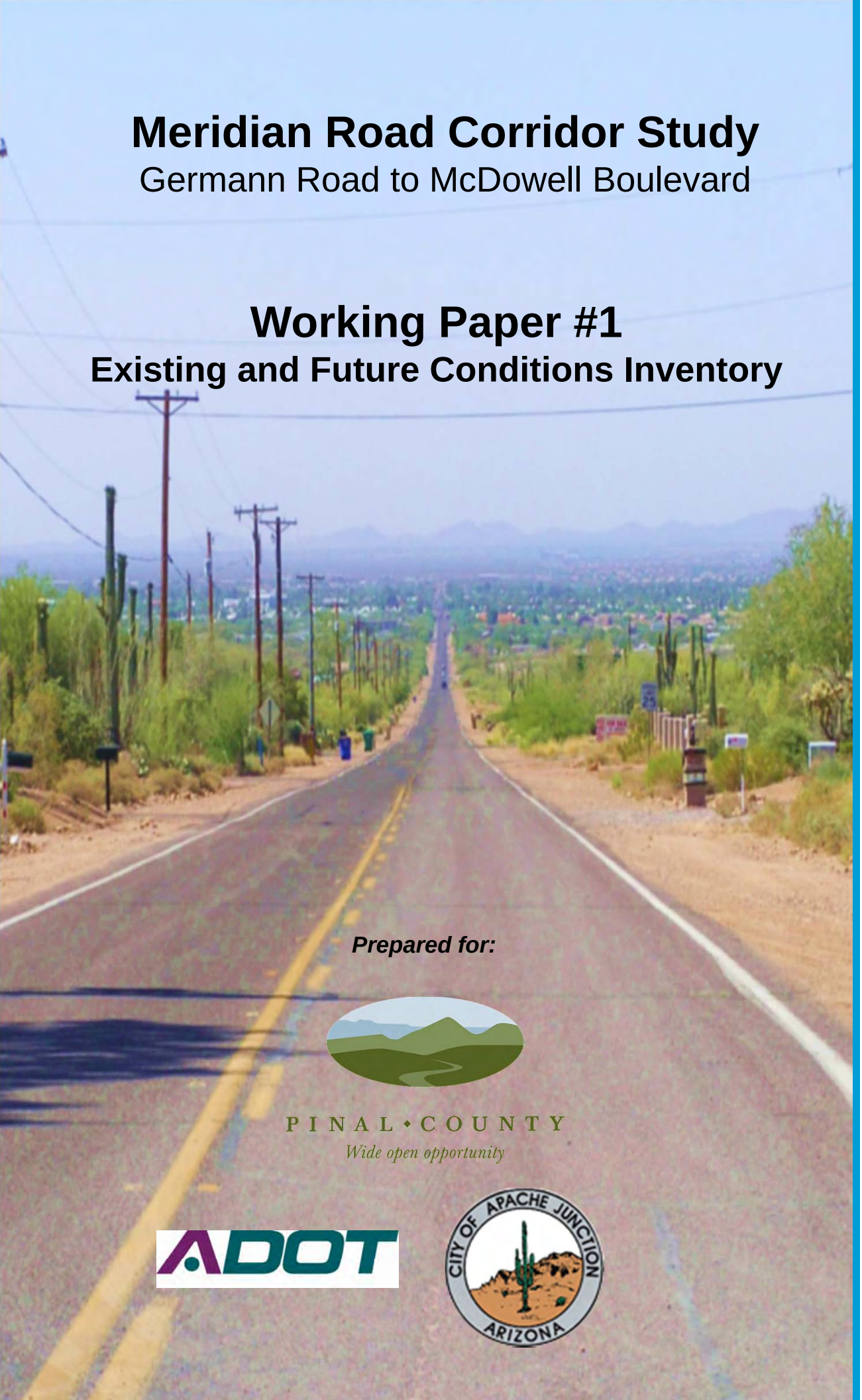

September 2012

Meridian Road Corridor Study

Germann Road to McDowell Boulevard

Working Paper #1

Existing and Future Conditions Inventory

Prepared for:

PINAL • COUNTY

Wide open opportunity

ADOT

CITY OF APACHE JUNCTION ARIZONA

Prepared by

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I. Introduction

Continued development along the Meridian Road corridor will lead to significant traffic increases in the future. Currently, there are only two north-south roadways that connect US 60 to Hunt Highway. The closest through route is Ironwood Drive, one mile east of Meridian Road. The other through route, Ellsworth Road, is five miles west. If either of these roads becomes obstructed, significant traffic delays will occur because no intermediate thoroughfare exists.

The principal focus of the Meridian Road Corridor Study is to address the transportation planning needs identified by the jurisdictions and more particularly to lead the local jurisdictions to develop consensus on facility type, number of lanes and right-of-way requirements to guide the future development of the road. This could be memorialized through an intergovernmental agreement or a memorandum of understanding.

Study Area

The study area for the Meridian Road Corridor Study is approximately 13 miles in length and is generally bounded by Germann Road on the south, McDowell Boulevard on the north, Ironwood Road on the east and Signal Butte Road on the west. Meridian Road is a section line alignment road that is located on the boundary between Pinal County and Maricopa County. The cities of Apache Junction and Mesa and the counties of Maricopa and Pinal along with the Town of Queen Creek all control portions of Meridian Road. Although Arizona State Land Department (ASLD) does not control portions of Meridian Road, ASLD does own a majority of the land to the east of Meridian Road, south of Baseline Road. Currently, Meridian Road is a discontinuous road within the study area. From McDowell Boulevard to Baseline Road and between a half mile north of Elliot Road and a half mile south of Warner Road Meridian Road is a paved two-lane roadway. For all the remaining segments of the study area Meridian Road is a discontinuous dirt road.

The study area is depicted in **Figure 1**.

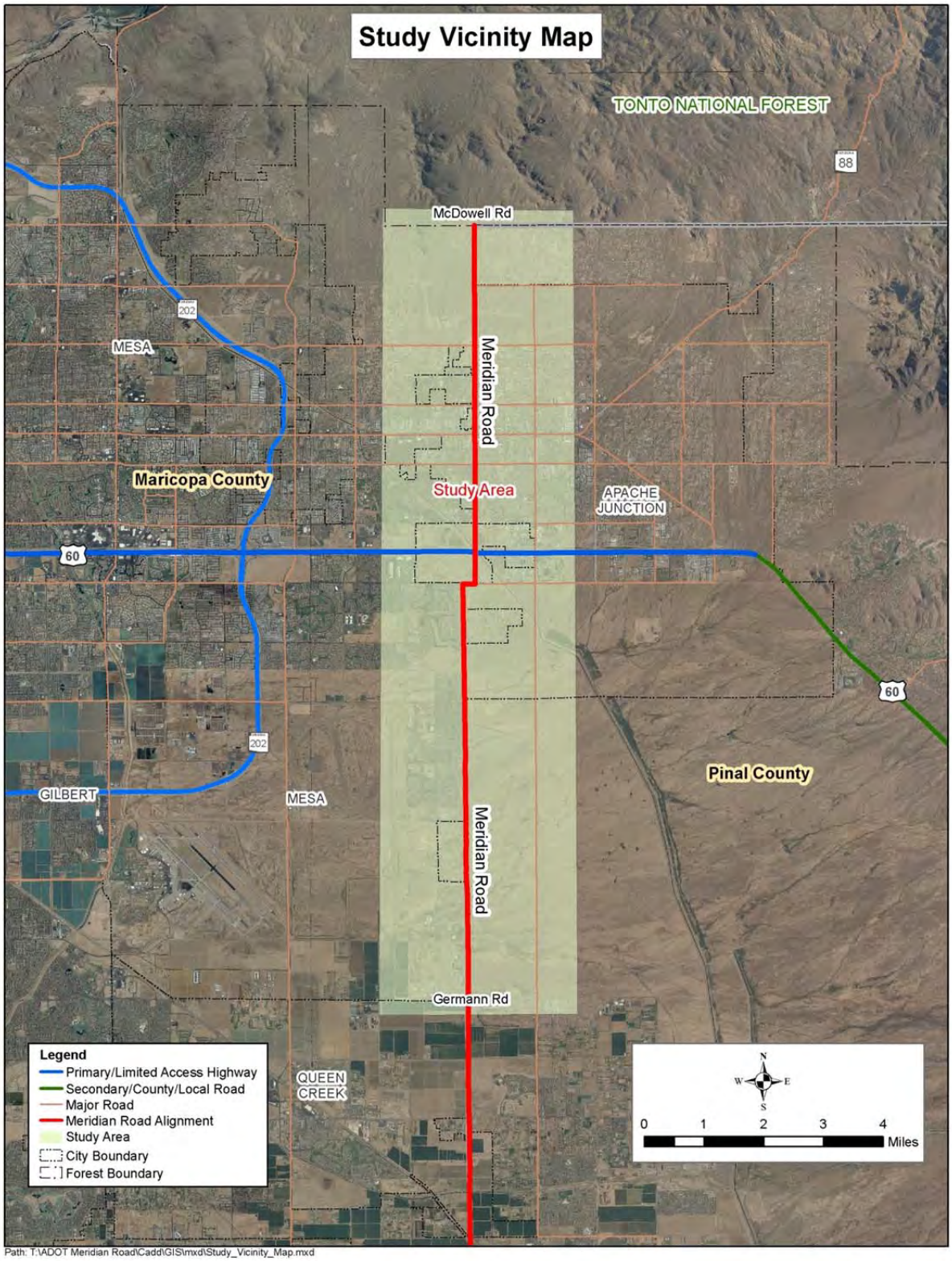


Figure 1: Study Area

Study Objectives

The purpose of the Meridian Road corridor Study is to document conditions along the existing roadway and to develop alternatives that will increase the safety and future level of service of Meridian Road. This study will also establish a roadway footprint and develop the ultimate right-of-way requirement for the corridor. Finally, the study will be utilized as a guide for local agencies and future development along the corridor.

In order to address the needs and purposes of the Meridian Road Corridor Study a number of goals and objectives were agreed with Stakeholders during the kick-off meeting. These goals and objectives area as follows:

- Identify and address planning level issues prior to the initiation programming and engineering design.
- Evaluate the future transportation needs of the corridor and identify the facility type, and the number of interim and ultimate lanes.
- Develop an implementation plan to bring about the recommended improvements, while acknowledging the need for sufficient flexibility to adapt to future changes.
- Identify and evaluate a preferred alignment within the southern portion of the corridor.
- Determine the required right-of-way requirements for the corridor
- To establish a consensus among the Arizona Department of Transportation (ADOT), local agencies/jurisdictions and private stakeholders regarding the preferred interim and ultimate facility type, and access control design elements for the corridor.
- Document the preferred facility location/concept alternatives and provide the necessary planning input to enable ADOT and the local agencies to move forward in the design and environmental process.

Report Objectives

The purpose of this working paper is to document recent plans and current and future conditions in the project study area; build a solid foundation for the alternatives analysis; ensure consideration of all relevant information; develop an understanding of community objectives, opportunities and constraints; and identify any deficiencies in the study area.

II. Vision and Goals

The proposed project is needed to support the continuing development and growth, occurring and anticipated, in the East Mesa, West Apache Junction, and the San Tan Valley region. Significant growth is anticipated in this region that could result in population growth, economic development, and increased traffic volumes. The purpose of this study is to evaluate the growing demands placed on local roads and streets by development in the region. The study will address the transportation planning needs identified by the jurisdictions and more particularly to lead the local jurisdictions to develop consensus on socio-economic demographic, modeling forecasts, roadway facility type, number of lanes, and right-of-way requirements to guide the future development of the road. The study will also include roadway improvement

phasing plans, cost estimates and implementation plans. Additionally, the study will examine multimodal opportunities necessary to accommodate growth and development, such as, bicycle and pedestrian needs.

III. Summary of Existing Plans and Studies

Related plans, reports and studies completed during the last 10 years were collected to compile available information and data pertinent to the Meridian Road Corridor Study. The purpose of this review is to gain an understanding of current issues and future plans within the study area. This chapter summarizes the available relevant information on existing and future conditions as contained in the plans, reports and studies collected.

Inventory

This section lists the reports and studies that were obtained and reviewed as part of the Meridian Road Corridor Study. **Table 1** provides a listing of the documents collected including document type, date completed, and agency/jurisdiction.

Table 1: Summary of Collected Documentation

Doc. Type	Jurisdiction Agency	Author/Originator	Document Title	Date
Report	Arizona Department of Transportation, City of Apache Junction	Jacobs	Apache Junction Transit Feasiblity Study Update	Jun-12
Report	Arizona Department of Transportation, City of Apache Junction	Jacobs	Apache Junction Comprehensive Transportation Study	May-12
Report	Arizona Department of Transportation	HDR Engineering, Inc.	North-South Corridor Study Draft Purpose and Need	Dec-11
Report	Arizona Department of Transportation	N/A	Germann Road Corridor Improvement Study Power Road to Ironwood Road A Planning Assistance for Rural Areas Study Phase I Public Involvement Report	Dec-11
PARA Study Application	Arizona Department of Transportation	Pinal County	Meridian Road Corridor Study	Aug-11
Report	Arizona Department of Transportation	N/A	State Route 802, Williams Gateway Freeway Final Environmental Assessment and Appendices	Apr-11
Report	Arizona State Land Department	Robert Grow Consulting	Superstition Vistas: Final Report and Strategic Actions	Spring 2011
Exhibit	Arizona State Land Department	N/A	Pinal County (Superstition Vistas) Proposed Comprehensive Plan Amendment	May-11
Report	Arizona State Land Department	Jackie Guthrie & Associates	Superstition Vistas: Pinal County Comprehensive Plan Amendment	Jun-11
Memorandum	Arizona State Land Department	Robert Charles Lesser & Company, Inc.	Underlying Assumptions and Argument in Support of Household and Employment Growth Projections for Superstition Vistas Arizona State Trust Land	May-09
Report	Arizona State Land Department	Robert Grow Consulting	Superstition Vistas: Environmental Armature Concept Summary	Apr-09
White Paper	N/A	EDAW Inc.	Superstition Vistas Water Strategy White Paper	Apr-09
White Paper	N/A	Kimley-Horn and Associates, Inc.	Superstition Vistas Transportation Planning White Paper	N/A
White Paper	N/A	Fregonese Associates	Superstition Vistas White Paper: Land Use Scenario Development	Mar-09
Report	City of Mesa	HDR Engineering, Inc.	Mesa Gateway Strategic Development Plan: Transportation Analysis Memorandum	Jan-09
Report	City of Mesa	N/A	City of Mesa Transportation Plan	Jun-02
Plans	Flood Control District of Maricopa County; City of Mesa	Stanley Consultants, Inc.	Siphon Draw Improvements Phase 2	Apr-09
Plans	Flood Control District of Maricopa County; City of Mesa	Stanley Consultants, Inc.	Siphon Draw Improvements Phase 1	Jan-09
Plans	Maricopa County Department of Transportation	YSMA Transportation Engineering Solutions	Intersection Improvements of Southern Avenue and Meridian Road	Jul-11
Book of Summaries	Maricopa County Department of Transportation	N/A	2010 Maricopa County Department of Transportation Corridor Studies Book of Summaries	Jan-11
Report	Maricopa County Department of Transportation	EPS Group, Inc.	Signal Butte Corridor Improvement Study: US 60 to Rittenhouse Road	Dec-09
Memorandum of Understanding	Maricopa County Department of Transportation, City of Mesa	N/A	Memorandum of Understanding Between Maricopa County and the City of Mesa for Plan Review, Plan Approval, Permitting, Inspection, Construction, Annexation, Operation and Maintenance of Elliot Road from Power Road to Meridian Road	Aug-08
Report	Maricopa County Department of Transportation	Kimley-Horn and Associates, Inc.	Elliot Road Corridor Improvement Study: Power Road to the Central Arizona Project Canal	Jun-08
Report	Maricopa County Department of Transportation	URS	Meridian Road Access Control and Corridor Improvement Study	Jan-06
Report	Pinal County	Nygaard/Nelson Consulting Associates	Pinal County Transit Feasibility Study Final Report	Apr-11
Report	Pinal County	Lima & Associates	Regionally Significant Routes for Safety and Mobility	Dec-08
Report	Pinal County	Kirkham Michael Consulting Engineers	Pinal County Small Area Transportation Study Final Report	Aug-06
Report	Pinal County	Kirkham Michael Consulting Engineers	Pinal County Small Area Transportation Study Final Transit Element Report	Aug-06
Report	Town of Queen Creek	Cambridge Systematics, Inc.	Queen Creek Small Area Transportation Study	May-07

General Findings and Recommendations

This section documents the findings and recommendations from existing studies and reports that are relevant to the study area.

Socioeconomic Data Compiled from Other Studies

Apache Junction Comprehensive Transportation Study (May 2012)

The study states that the City of Apache Junction has experienced a population growth rate of 1.41% per year from 2000 to 2010, which is lower than the average statewide growth rate of 2.46% per year and significantly lower than the Pinal County growth rate of 10.91% per year. Housing unit growth rates between 2000 and 2010 in the City of Apache Junction were 0.31%

per year, which is lower than the average statewide rate of 2.99% per year and significantly less than the Pinal County rate of 9.62% per year. (Page 7)

The study mentioned that the proposed Portalis Master Plan Community, a 7,700-acre master-planned community in Superstition Vistas, will have a large impact on the future growth of the City of Apache Junction. If the Portalis Master Plan Community becomes a reality the population of the City could more than double; however, development time frames for this area are uncertain. (Page 42)

Mesa Transportation Plan (June 2002)

The most recent transportation plan for the City of Mesa was completed in 2002. The Mesa Transportation Plan discusses all transportation issues affecting the City of Mesa and the implementation of the transportation plan expected to occur in phases between 2000 and 2025. The study states that the traffic volume growth within the City of Mesa from 1994 to 2000 ranges from 3% in the western part of the City to 59% in east Mesa. The largest percent increases occurred in east Mesa and south of US 60. (Page 4-6)

Elliot Road Corridor Improvement Study (June 2008)

The Elliot Road corridor encompasses Elliot Road alignment between Power Road and the Central Arizona Project (CAP), extending past Meridian Road. The study shows the existing (2006) and project future (2015 and 2030) population and employment in the Elliot Road corridor. The annual population and employment growth rates along the Elliot Road corridor between 2006 and 2015 are 6.0% and 19.7%, respectively. The annual population and employment growth rates along the Elliot Road corridor between 2006 and 2030 are 5.1% and 11.2%, respectively. (Page 15)

Pinal County Small Area Transportation Study (August 2006)

This study cites an 11% annual growth rate in population between 2005 and 2025 within Pinal County with most of the county's population located in the north central portion of the county. (Page 48) A 13% annual increase in employment is anticipated to occur between 2005 and 2025 within Pinal County with most of the county's employment located in the western portion of the county. (Page 52)

North-South Corridor Study, Draft Purpose and Need (December 2011)

This study cited population projections for Maricopa, Pima and Pinal Counties between 2010 and 2050 at 100%, 103%, and 462% change, respectively. Employment projections for Maricopa, Pima and Pinal Counties between 2009 and 2050 result in a 132%, 87% and 850% change, respectively. Finally, population and employment projections for the North-South Corridor between 2005 and 2050 result in a 832% and 3,927% change, respectively. (Page 12-13)

Meridian Road Corridor Study (August 2011)

The study cited that the MAG Regional Transportation Plan indicated that Meridian Road from Baseline Road to Germann Road would be constructed under Phase 3 (Years 2016-2020), a traffic interchange at Meridian Road/US 60 would be constructed under Phase 2 (Years 2011-

2015) and Gateway Freeway from the State Route 24 (SR 202L) to Meridian Road would be constructed under Phase 3 (Years 2016-2020) of the Plan. (Page 2-14)

Superstition Vistas Final Report and Strategic Actions (Spring 2011)

Superstition Vistas comprises of approximately 175,000 acres of undeveloped land. The land is held in trust by the Arizona State Land Department and is managed for beneficiaries, the public schools and other state public institutions. (Page 13)

There are six possible scenarios for the Superstition Vistas area. All scenarios assume that one million people would occupy the Superstition Vistas area (Page 4)

Mesa Gateway Strategic Development Plan: Transportation Analysis Memorandum (January 2009)

The Phoenix-Mesa Gateway Airport is expected to become a major East Valley employment center. The vision of the Mesa Gateway Strategic Development Plan is to attract 100,000 high wage/high value jobs, create a financially sustainable area, protect and promote the airport, and create a live, work, play community. The preferred land use concept includes 36,100 households and 165,700 of employment. The land use concept and traffic projections take into account the expansion of the Arizona State University Polytechnic Campus and a residential and commercial mixed-use development planned on the site of the former General Motors Proving Grounds. (Pages 24-32)

Pinal County Transit Feasibility Study (April 2011)

Between 2000 and 2007, Apache Junction's population grew from 32,000 to nearly 37,000. In addition to the City's year-round residents, the city estimates that it also has over 40,000 winter residents, many of whom are seniors. The city is largely residential, and has a very large proportion of mobile homes (50% of all housing units) and second homes (up to 40%). The city also has a significant number of adult-only communities. (Page 3-3)

The study mentioned that Pinal County is still sparsely developed, and most new development has been large-scale residential communities. The number of major activity centers within the county is limited. The commercial district along Apache Trail and the Walmart in Apache Junction are included in the list of major activity centers with Pinal County. (Page 3-15)

Roadway Characteristics of Meridian Road

Meridian Road Corridor Study (August 2011)

Meridian Road is proposed to be a full six-lane facility with a right-turn lane and a left-turn lane in each direction at the arterial intersections. In addition, bike lanes in each direction are proposed, along with sidewalks, curb and gutters, shoulder landscaping and raised landscaped median. The study limits begin at Empire Boulevard and end at Southern Avenue. (Page viii)

Meridian Road is proposed to be a full six-lane facility up to the intersection with Southern Avenue with the northbound outside third lane serving as a dedicated right-turn lane at Southern Avenue. A full access traffic interchange at US 60 is also proposed. It was recommended to shift the section line alignment westward beginning just south of US 60 and tie

into the existing section line at the intersection with Baseline Road. A meandering section line alignment from Baseline Road to Empire Boulevard was recommended to optimize the use of existing right-of-way and to avoid impacts to existing facilities. Finally, a single point urban interchange (SPUI) is recommended for the future SR 24 Gateway Freeway. (Pages 7-1 – 7-12)

Apache Junction Comprehensive Transportation Study (May 2012)

The study listed several short term improvements needed to meet the traffic demand as the study area reached a population of 60,000. These improvements included:

- Half diamond interchange at US 60 and Meridian Road;
- Widen Meridian Road to four lanes from Broadway Road to Baseline Road;
- Intersection improvements at Southern Avenue and Meridian Road; and
- US 60 and Meridian Road Bridge rehabilitation. (Page 43)

The study listed several midterm improvements needed to meet the traffic demand as the study area reached a population of 75,000. These improvements included extending Meridian Road south of Baseline Road to the Apache Junction city limits as a four-lane roadway. The study recommends that the extension of Meridian Road as a four-lane roadway south of the city limits to Hunt Highway to improve capacity within the project influence area. (Page 64)

The study listed several long term improvements needed to meet the traffic demand as the study area reached a population of 130,000. These improvements under the preferred alternative included widening Meridian Road to six lanes between Apache Trail and Baseline Road. (Page 49-50)

Elliot Road Corridor Improvement Study (June 2008)

The preferred alternative for the Elliot Road Corridor recommended in this study places the right-of-way centerline for the new typical cross-section on the existing roadway centerline. This will result in an offset in Elliot Road at Meridian Road of more than 300 feet due to the existing section lines not lining up across the Maricopa/Pinal county line. The preferred Elliot Road Corridor alternative includes a 10,000-foot radius reverse curve that will not require superelevation, avoids an existing drainage wash, and aligns better with the planned Lost Dutchman Heights development roadway network and Siphon Draw Wash drainage basin. (Pages 47-49) Ultimately, once the City is built out, Meridian Road will be widened to a six-lane roadway from Apache Trail to Superstitions Boulevard. (Page 120)

Signal Butte Road Corridor Improvement Study (December 2009)

The study stated that on April 15, 2009, the Town of Queen Creek approved a general plan amendment that called for a realignment of Signal Butte Road and Meridian Road to consolidate the two transportation corridors between Queen Creek Road and Ocotillo Road. By combining the two transportation corridors, it will eliminate the need for a railroad crossing on Signal Butte Road and could expedite the development of a needed north-south corridor within the area. (Page 13)

Mesa Transportation Plan (June 2002)

The Mesa Transportation Plan was completed in June 24, 2002. This study recommended the construction of the Williams Field Freeway (now called SR 24), a six-lane parkway, from SR 202L to Meridian Road within 6 to 10 years. (Page 4-36) The construction of Elliot Road from Ellsworth Road to Meridian Road as 6-lane arterial and widening of Guadalupe Road and Baseline Road from Ellsworth Road and Meridian Road is recommended within 11 to 15 years. (Page 4-37) The construction of McKellips Boulevard from Sossaman Road to Meridian Road, Warner Road from Ellsworth Road to Meridian Road, Pecos Road from Power Road to Meridian Road and Signal Butte Road from Broadway Road to Warner Road as six-lane arterial roadways and the widening Southern Avenue from Ellsworth Road to Meridian Road and Signal Butte Road from Main Street to Broadway Road is recommended within 16 to 20 years. (Page 4-38) Finally, the construction of Meridian Road from Baseline Road to Germann Road and Signal Butte Road from Warner Road to Germann Road as six-lane arterial roadways and the construction of Brown Road from Ellsworth Road to Meridian Road and Signal Butte Road from McKellips Road to University Drive as four-lane arterial roadways is recommended within 21 to 25 years. (Page 4-39)

The study recommended future transit improvements including a local bus route along Signal Butte Road from Baseline Road to Pecos Road, an express bus route along US 60, a Transit Priority Corridor/BRT Line along Main Street, and recommends future service expansion as demand warrants within the area between US 60 and Germann Road and between Ellsworth Road and Meridian Road. (Page 5-25)

Future bicycle lanes are recommended along Meridian Road from Baseline Road to Germann Road and along every major crossroad from Brown Road to Germann Road. (Page 6-7)

Pinal County Small Area Transportation Study (August 2006)

This study cites recommended improvements to include:

- All regionally significant routes as six-lane major arterial facilities and
- All state highways as four-lane roadways except for the following, listed below:
  - Widen US 60 from SR 79 to Pinal/Gila County Line to six lanes;
  - Widen SR 347 from I-10 to SR 84 to 6 lanes;
  - Widen SR 287 from SR 79 to proposed North-South freeway to 6 lanes; and
  - Widen SR 79 from US 60 to Pinal/Pima County line to 6 lanes. (Page 63)

This study recommends adding an additional north-south roadway corridor to alleviate future congestion anticipated from new economic developments planned for the north central study area. The additional roadway should be a six-lane major arterial to accommodate the increase in traffic volumes and congestion that are expected in the area bounded by Williams Gateway, SR 79, SR 287 and Hunt Highway. (Page 75)

Queen Creek Small Area Transportation Study (May 2007)

The study shows improvements to the roadway network including a modified expressway connecting to the SR 24 Gateway Freeway at Meridian Road, a limited set of arterial improvements, widening of the SR 24 Gateway Freeway from Meridian Road to SR 202L, and an additional connector from Queen Creek Road to Germann Road just west of Hawes Road. (Page 3-4)

This study identified additional projects as part of the small area transportation study including improvements to Meridian Road from Germann Road to Riggs Road. The study classifies this section of Meridian Road as a high capacity facility or an access-limited facility. It is believed that by adding one high capacity facility, traffic on the arterial system can be reduced by 35%. Development of this road requires completion of the segment of Meridian Road within Mesa from the SR 24 Gateway Freeway to Germann Road and a potential southeast extension of this route into Pinal County. (Page 5-4)

Summary of Transportation Issues Identified by Other Studies

Meridian Road Corridor Study (August 2011)

The highest traffic volumes along Meridian Road are in the southern portion of the study area with 2030 average daily traffic of 30,000 to 60,000 vehicles per day between Williams Field Road and Empire Boulevard (Page 3-10).

The study cites that as a six-lane facility, the Year 2030 daily volume on Meridian Road is projected to exceed six-lane planning level volume threshold of 45,000 vehicles per day south of the intersection with Riggs Road/Combs Road. (Pages 3-13 – 3-14)

The study states that minimal existing right-of-way along Meridian Road has been dedicated. As a result, more than 65 feet of the right-of-way may be needed on one side of Meridian Road in some areas to accommodate the recommended alignment. (Page 8-11)

Apache Junction Comprehensive Transportation Study (May 2012)

The study showed that under no build conditions and population projections at 75,000, Meridian Road is anticipated to operate at a level of service C and D south of Southern Avenue. (Page 48) Under no build conditions and population projections at 130,000, Meridian Road is anticipated to operate at a level of service C and D south of Apache Trail with the segment between Southern and Baseline operating at a level of service E and F. (Page 52)

Under the preferred alternative (includes widening Meridian Road between Apache Trail and Baseline Road to six lanes) when the population within the study area reaches 130,000, the highest traffic volumes along Meridian Road are between Southern and US 60 at greater than 30,000 vehicles per day (Page 91). Level of service is anticipated to be at A and B for entire segment of Meridian Road under the preferred alternative. (Page 92)

The study recommends a local bus route along Meridian Road between Superstition Boulevard and Baseline Road when the population within the study area reaches 130,000. (Page 113)

Apache Junction Transit Feasibility Study Update (May 2012)

The study listed a "starter" service to be implemented to meet traffic demands as the study area reaches a population of 60,000. This "starter" route serves an area of the City that has the highest combined residential and employment densities, together with regional commuter services the City with Valley Metro. The route would provide service to the area bounded by Apache Trail to the north, Southern to the south, Delaware Drive to the west and SR 88 to the east. (Pages 78-81)

The study proposed several additional routes to be added to the area to meet traffic demand as the population reaches 75,000. These routes are proposed along Idaho Road and Baseline Road, Ironwood Drive and Meridian Road. The City of Apache Junction is proposing a local bus route along Meridian Road from University Drive/Superstition Boulevard to Broadway Avenue. This transit route would provide additional service to the area bounded by Meridian Road to the west, Apache Trail to the north, Ironwood Road on the east, and Baseline on the south that has a high combined residential and employment density. Wal-Mart, the County/DMV office, City Hall, mixed use center and a transit hub are significant trip generators located along the proposed route. (Pages 81, 84-90)

The study proposed several additional routes and an expansion of a previously proposed route to meet traffic demands at the population reaches 130,000. The new routes proposed will provide service along Idaho Road and Southern Avenue as well as Apache Trail, Old West Highway and Tomahawk Road. Additional service was proposed along Meridian Road between Broadway Avenue and Baseline Road. (Pages 91-98)

Elliot Road Corridor Improvement Study (June 2008)

The study shows 2030 average daily traffic (ADT) along Elliot Road west of Meridian Road at 29,500 vehicles per day and 23,600 vehicles per day east of Meridian Road based on 2030 Maricopa Association of Government (MAG) model outputs. 2030 average daily traffic along

Meridian Road north of Elliot Road is anticipated to be 14,600 vehicles per day and 25,600 vehicles per day south of Elliot Road based on 2030 MAG model outputs. Discrepancies between the 2030 MAG model and other travel demand models along the eastern portion of the study area resulted in an alternate set of 2030 ADT's. The alternate set of 2030 ADT's showed 40,400 vehicles per day and 32,300 vehicles per day along Elliot Road west and east of Meridian Road, respectively, and 38,900 vehicles per day and 48,400 vehicles per day along Meridian Road north and south of Elliot Road, respectively. (Pages 22-23)

Signal Butte Road Corridor Improvement Study (December 2009)

The highest traffic volumes along the Signal Butte Road corridor are south of Germann Road ranging between 37,000 vehicles per day and 52,000 vehicles per day. Due to the realignment of the Signal Butte Road and Meridian Road corridors, the traffic volumes along Meridian Road north of Ocotillo Road to SR 802 (SR 24) are anticipated to decrease significantly and the volumes along Signal Butte Road north of Queen Creek Road to SR 802 (SR 24) are anticipated to increase. (Pages 14-15)

Mesa Transportation Plan (June 2002)

The highest traffic volumes along Meridian Road are between Baseline Road and Warner Road ranging between 25,000 vehicles per day to 30,000 vehicles per day. (Page 4-19)

Pinal County Small Area Transportation Study (August 2006)

The highest traffic volumes along Meridian Road are located between SR 802 (SR 802) and Hunt Highway ranging from 38,000 vehicles per day and 68,000 vehicles per day. (Page 76) Level of service along Meridian Road is anticipated to be at a LOS of C or better except at the following locations:

- The segment between Broadway Road to Southern Avenue is anticipated to operate at a LOS D;
- The segment between Southern Avenue and US 60 is anticipated to operate at a LOS F;
- The segment between US 60 and Baseline Road is anticipated to operate at a LOS E;
- The segment between Queen Creek Road and Combs Road is anticipated to operate at a LOS D; and
- The segment between Combs Road and Hunt Highway is anticipated to operate at a LOS F. (Page 67)

Pinal County Transit Feasibility Study (April 2011)

The study cited that in 2006, the largest volume of travel for all trip purposes was between Pinal County and Maricopa County. The majority of these were from Apache Junction at 99,000 per day. The largest numbers of trips between areas within Pinal County are from Eloy, Maricopa, and Coolidge to Casa Grande, and from Florence to Coolidge. The largest flows to Pima County are from the Oracle area.

For work trips, the highest travel flows are also from Pinal County to Maricopa County. The largest of these are from Apache Junction at 20,000 per day. The largest work trip flows within Pinal County are to Casa Grande: 10,000 per day from Maricopa (which is the same level as to

Maricopa County), 8,000 per day from Eloy, and 6,000 per day from Florence. Given the popular success of Maricopa Xpress, these flows indicate that at the present time, commuter services could be feasible between Apache Junction and Maricopa County, between Maricopa and Casa Grande, and Eloy and Casa Grande. (Page 3-19)

There is already significant demand for transit from Apache Junction to Maricopa County, and over the next 15 years, work trip travel volumes will quadruple. In addition, work trip travel volumes from Maricopa County to Apache Junction will grow to almost as high as from Apache Junction to Maricopa County. Potential transit improvement includes the extension of Valley Metro services across the county line into Apache Junction to provide connections to and from the Phoenix area, and/or dedicated services between Apache Junction and Maricopa County. There will also likely be demand for service between Apache Junction and Florence. (Page 4-10)

IV. Existing Features Inventory

The following sections provide an inventory of existing features within the study area.

Drainage Features

Existing drainage features within the study corridor include several watersheds, floodplain, washes, flood control projects, bridges, culverts, low water crossings and the Central Arizona Project (CAP) Canal which crosses at US 60. Runnoff throughout the area generally flows from northeast to southwest. Meridian Road, from McDowell Boulevard south, is generally the boundary between Maricopa County and Pinal County. Watershed runoff that originates in Pinal County flows into Maricopa County, crossing Meridian Road. All existing flood control projects along the Meridian Road project corridor belong to the Flood Control District of Maricopa County (FCDMC), with intent to mitigate flooding impacts of upstream watersheds on Maricopa County property.

Figure 2 shows the watersheds that are bisected by Meridian Road. These watersheds include:

- Bulldog Wash – Buckhorn Mesa FRS
- Town of Apache Junction – Roosevelt Canal
- Siphon Draw
- Dinosaur Mountain-Roosevelt Canal
- Middle Queen Creek
- Peralta Canyon
- Apache Land Tank

Figure 3 shows the FEMA watershed that impact Meridian Road. These floodplains include seven Zone A floodplains and one Zone AH floodplain.

Figure 4 shows all existing crossing facilities within the project corridor. These crossings are identified in **Table 2** and include three FCDMC Projects: Signal Butte Flood Retarding Structure (FRS) and Floodway, the Siphon Draw Drainage improvements, and the Powerline FRS and Floodway.

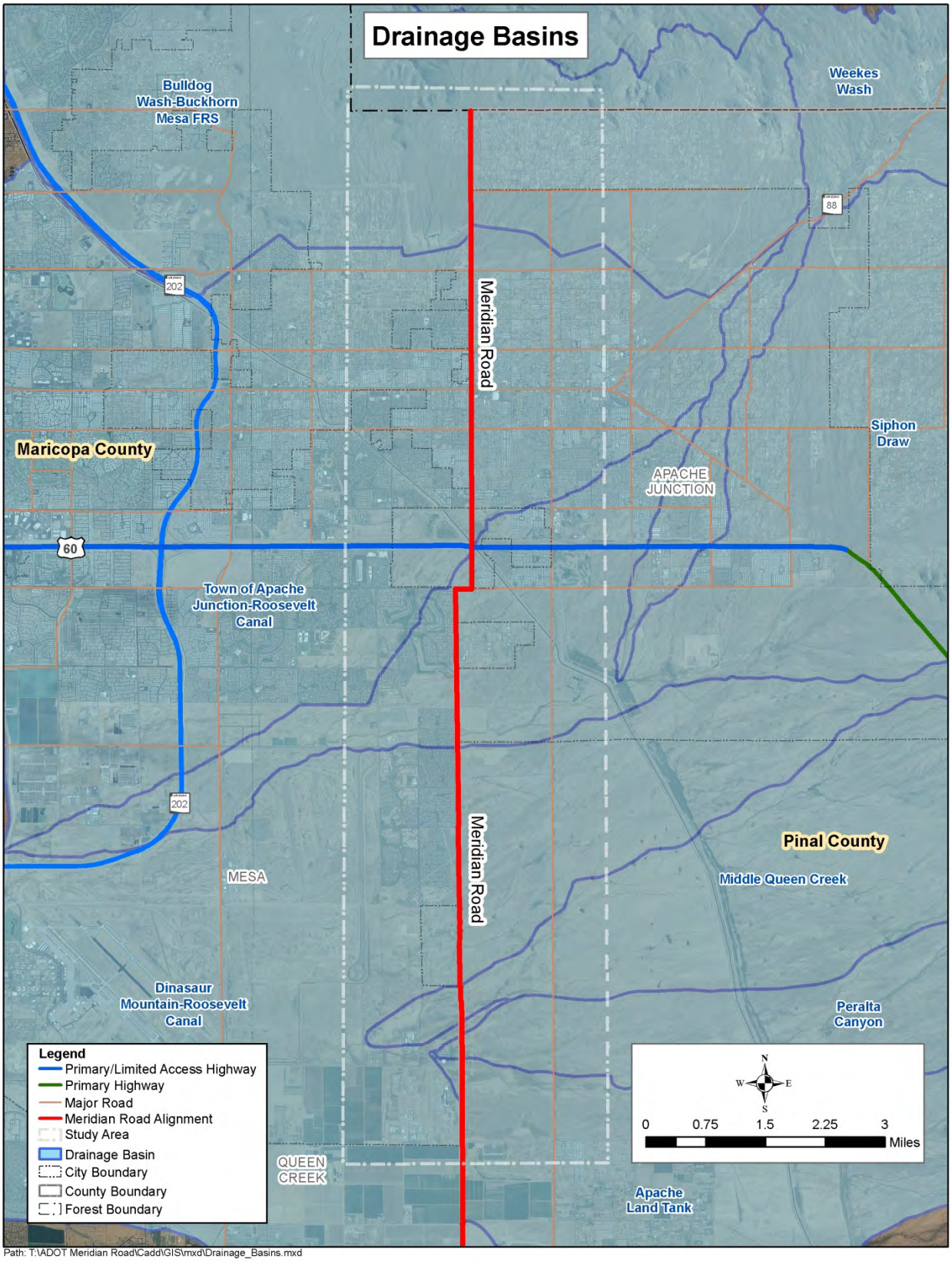


Figure 2: Drainage Basins

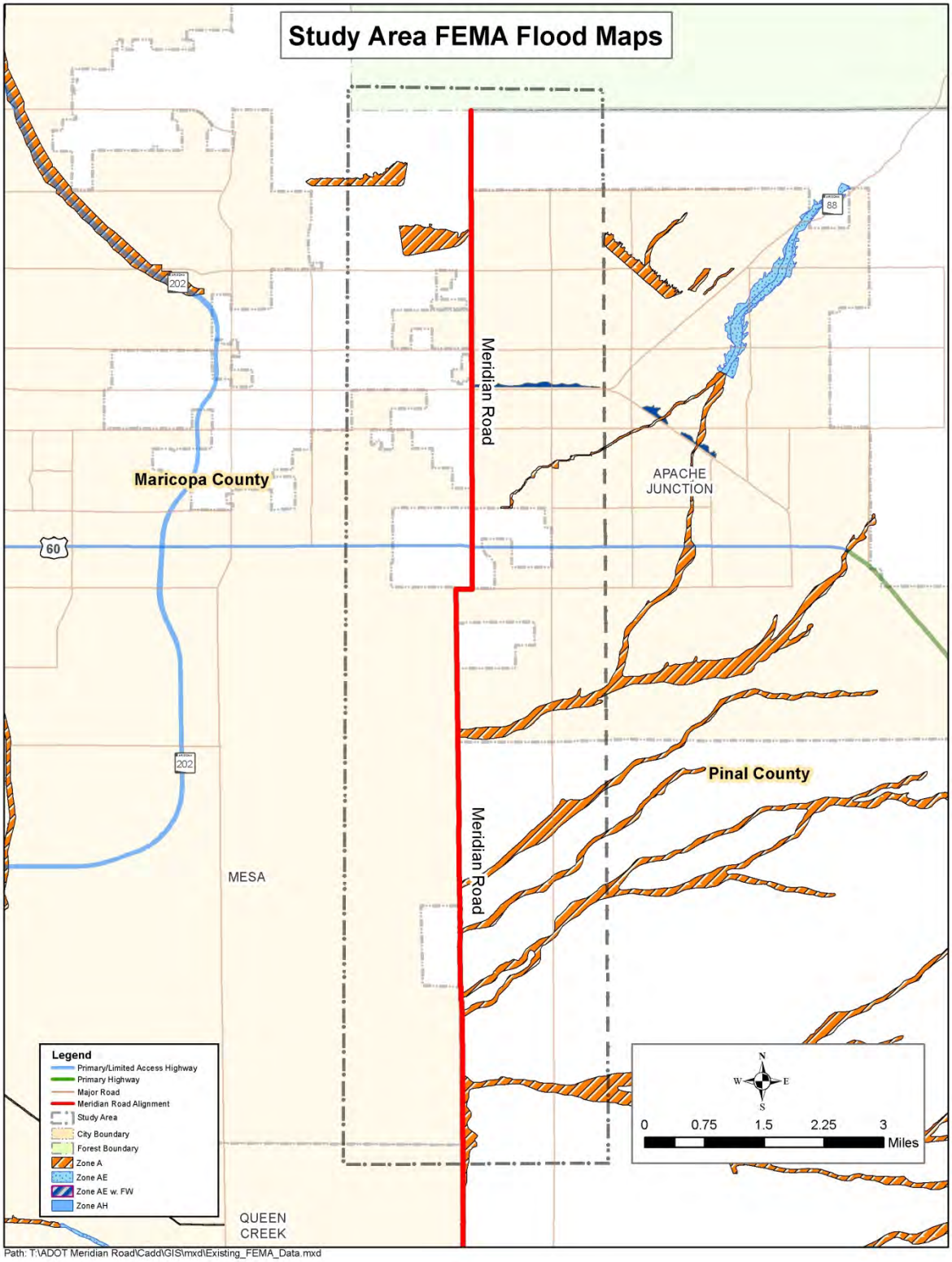


Figure 3: Existing FEMA Data

(The area west of Meridian Road and south of US 60 is located on unmapped, unprinted FEMA FIRM panels, and thus contains no delineated floodplains.)

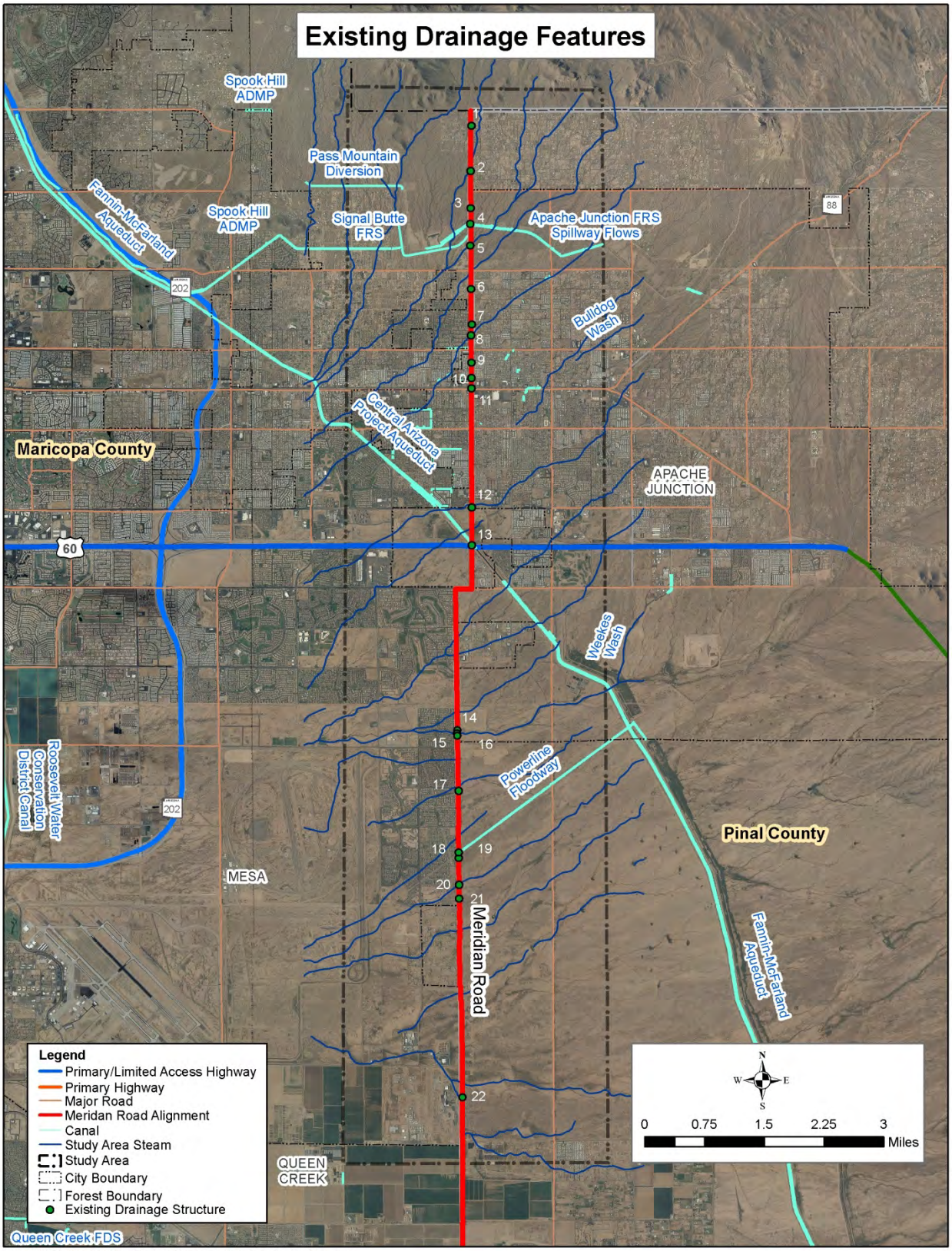


Figure 4: Existing Drainage Features

Table 2: Existing Crossing Facilities within Study Area

Crossing No.	Structure	Description	Location
1	18" RCP	existing cross-drainage	0.2 miles south of McDowell Blvd.
2	3-8' x 4' RCBC's	existing cross-drainage	0.1 miles north of Whiteley St.
3	Low Water Crossing	existing cross-drainage	0.2 miles south of McKellips Blvd.
4	Bridge (50' x 8.5')	Signal Butte FRS & Floodway	Flood Control Project: 0.43 miles south of McKellips Blvd.
5	4-48" CMP's	existing cross-drainage	0.3 miles north of Brown Rd.
6	2-40" x 30" CMP Squash	existing cross-drainage	@ Foothill St.
7	24" RCP	existing cross-drainage	Manzanita St.
8	10' x 3' RCBC	existing cross-drainage	0.04 miles north of Greasewood St.
9	Low WaterCcrossing	existing cross-drainage	channel between Happy Days Park and D Ave
10	Low Water Crossing	existing cross-drainage	A Ave
11	18" CMP	existing cross-drainage	Median of Main St./ Apache Trail
12	Low Water Crossing	existing cross-drainage	0.2 miles north of US 60
13	Bridge	CAP Canal	US 60
14	2-10' x 4' RCBC's	Siphon Draw Drainage Improvements	Flood Control Project: 0.07 miles north of Pronghorn Ave.
15	10' x 3' RCBC	existing cross-drainage	0.01 miles north of Pronghorn Ave.
16	2-24" RCP's	existing cross-drainage	0.05 miles south of Pronghorn Ave.
17	2-10' x 4' RCBC's	existing cross-drainage	0.04 miles south of Mesquite St.
18	4-10' x 4' RCBC's	existing cross-drainage	0.09 miles south of Segura Ave.
19	Bridge	Powerline FRS & Floodway	Flood Control Project: 0.11 miles south of Segura Ave.
20	Low Water Crossing	existing cross-drainage	0.23 miles south of Starfire Ave.
21	36" RCP	existing cross-drainage	0.09 miles north of Ray Rd.
22	Diversion Dike	existing cross-drainage	0.46 miles south of Pecos Rd.

East Mesa ADMP Structures Impacting Meridian Road

The purpose of an Area Drainage Master Plan (ADMP) is to identify existing flood-prone areas as well as projections of future conditions. Several existing and proposed detention basins, cross culverts, and collector channels identified in the East Mesa ADMP directly impact the Meridian Road corridor and are summarized below:

Signal Butte:

Signal Butte Flood Retarding Structure (FRS) is an earth-fill dam with a geo-membrane which is part of the Buckhorn-Mesa system. The Signal Butte FRS is 1.3 miles in length and has a height of 39 feet, with a storage capacity of 1,620-acre feet. It is situated 100 feet to the west of Meridian Road north of Brown Road/Lost Dutchman Boulevard. Any impact to the geo-membrane would be a fatal flaw for the Flood Control District. There is a maintenance road running alongside the dam which would need to be maintained at all times if Meridian Road is constructed or reconstructed. Any impact to the dam would require the involvement of Arizona Department of Water Resources (ADWP) and National Resources Conservation Service (NRCS) as well as the Flood Control District of Maricopa County.

Bulldog Floodway:

Part of the Signal Butte FRS, the channel crosses Meridian Road approximately a half mile north of Brown Road/Lost Dutchman Boulevard. The flow in this channel is not supercritical which would allow for the placement of new piers if the new structure was required to carry Meridian Road over the floodway. Access to the floodway is from Meridian Road which would need to be maintained at all times during any construction or reconstruction of Meridian Road.

Sunland Springs Channel and Siphon Draw Detention Basin:
The Siphon Draw Detention Basin is located east of Meridian Road in Pinal County and north of the Elliot Road alignment. The Sunland Springs Channel follows the Meridian Road alignment north of the Siphon Draw Basin. These facilities convey runoff reaching the site from two the CAP over chutes and intercepst runoff at the Pinal County line (Meridian Road alignment). The Siphon Draw Detention Basin collects channelized runoff and runoff from Siphon Draw and attenuates flows to allow a reduction in the size of downstream improvements. The Sunland Springs Channel which runs along the east side of Meridian Road is a concrete lined channel with eight drop structures extending 6,800 feet north of the Siphon Draw Basin. The channel acts as a flow-by system that discharges excess flows into the basin through a side channel spillway. The Siphon Draw Basin collects the overflow from the Sunland Springs Channel and from two additional locations.

Powerline Floodway:
Powerline Flood Retarding Structure (FRS) is the northern-most of a system of three flood control structures (Powerline FRS, Vineyard Road FRS and Rittenhouse FRS) running parallel to the CAP between the Baseline Road and Ocotillo Road alignments in Pinal County. Despite being located in Pinal County, the structures primarily provide flood protection for downstream portions of Maricopa County. Powerline FRS conveys storm water runoff to the Powerline Floodway which crosses Meridian Road a half mile south of Warner Road and outfalls at the East Maricopa Floodway. No structural impacts will be permitted to the Floodway. Any new bridge will require a clear span in order not to affect the supercritical flow in the channel. The Natural Resources Conservation Service (NCRS) will need to permit any construction impacts to the Floodway.

Land Subsidence/Earth Fissures

The project site has experienced historic and recent subsidence due to ground water withdrawal. According to the Arizona Department of Water Resources (ADWR's), index wells have indicated ground water levels have declined up to 300 feet since 1929. Groundwater deletion due to pumping has caused land subsidence to the underlying drained soils undergoing consolidation. Based on ADWR's synthetic aperture radar interferometry (InSAR) data, approximately 22 centimeters or 8.5 inches of subsidence has occurred in the area south of Baseline Road since 1992. ADWR's InSAR data for the Hawk Rock Area of East Mesa and Apache Junction is shown in **Figure 5**.

Groundwater depletion and the accompanying ground subsidence pose an on-going geological hazard in the form of earth fissures. There are many documented fissures associated with the rocky outcrop known as Hawk Rock about three quarters of a mile south of Baseline Road. The Arizona Geological Survey Earth Fissure Map of Apache Junction is shown in **Figure 6**.

Any alignment proposed for Meridian Road will pass through an active area of land subsidence and earth fissures which pose a risk to the road and any structures. As such site specific evaluation should be performed during future design phases.

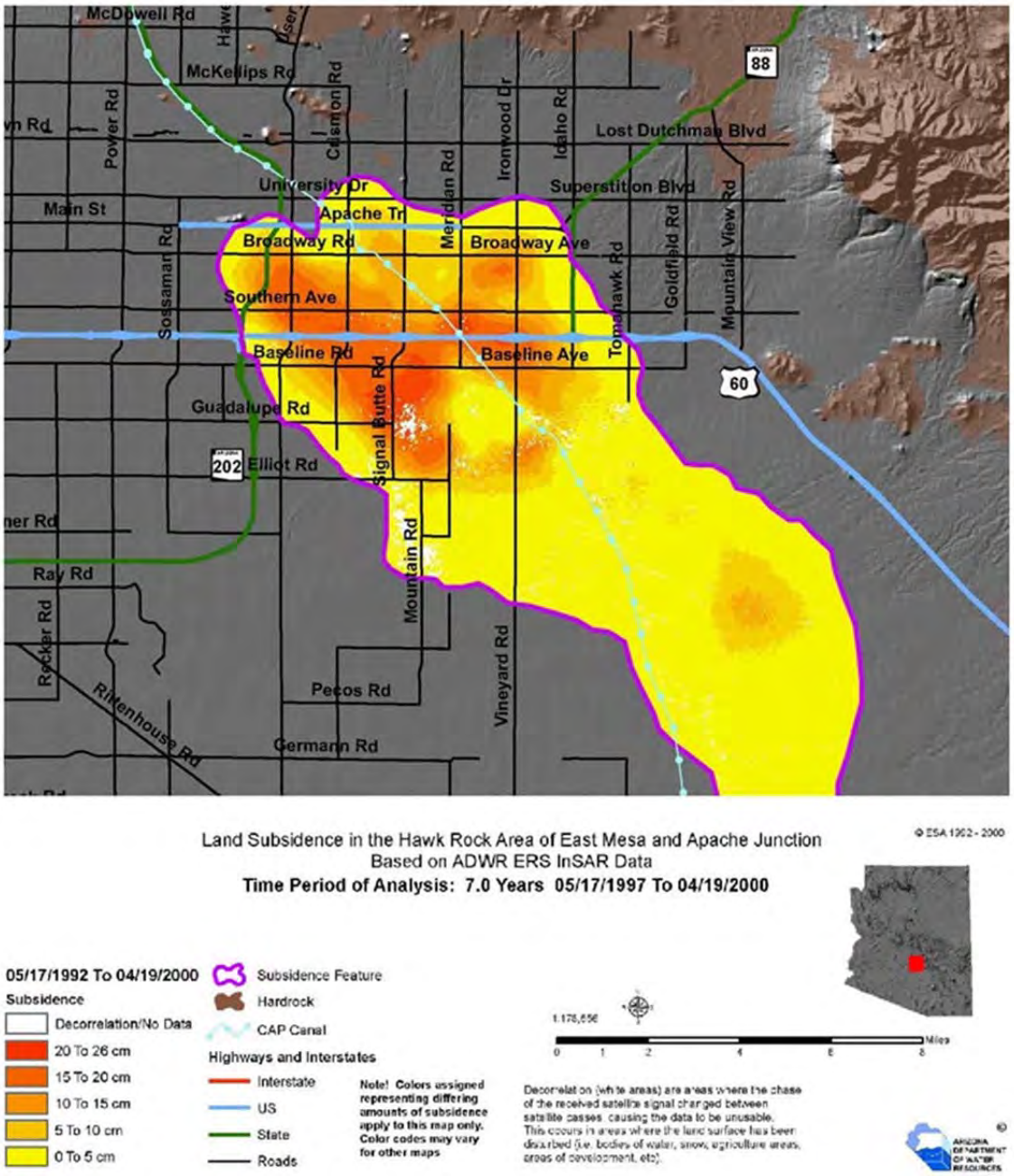


Figure 5: ADWR InSAR Data in the Hawk Rock Area of East Mesa and Apache Junction

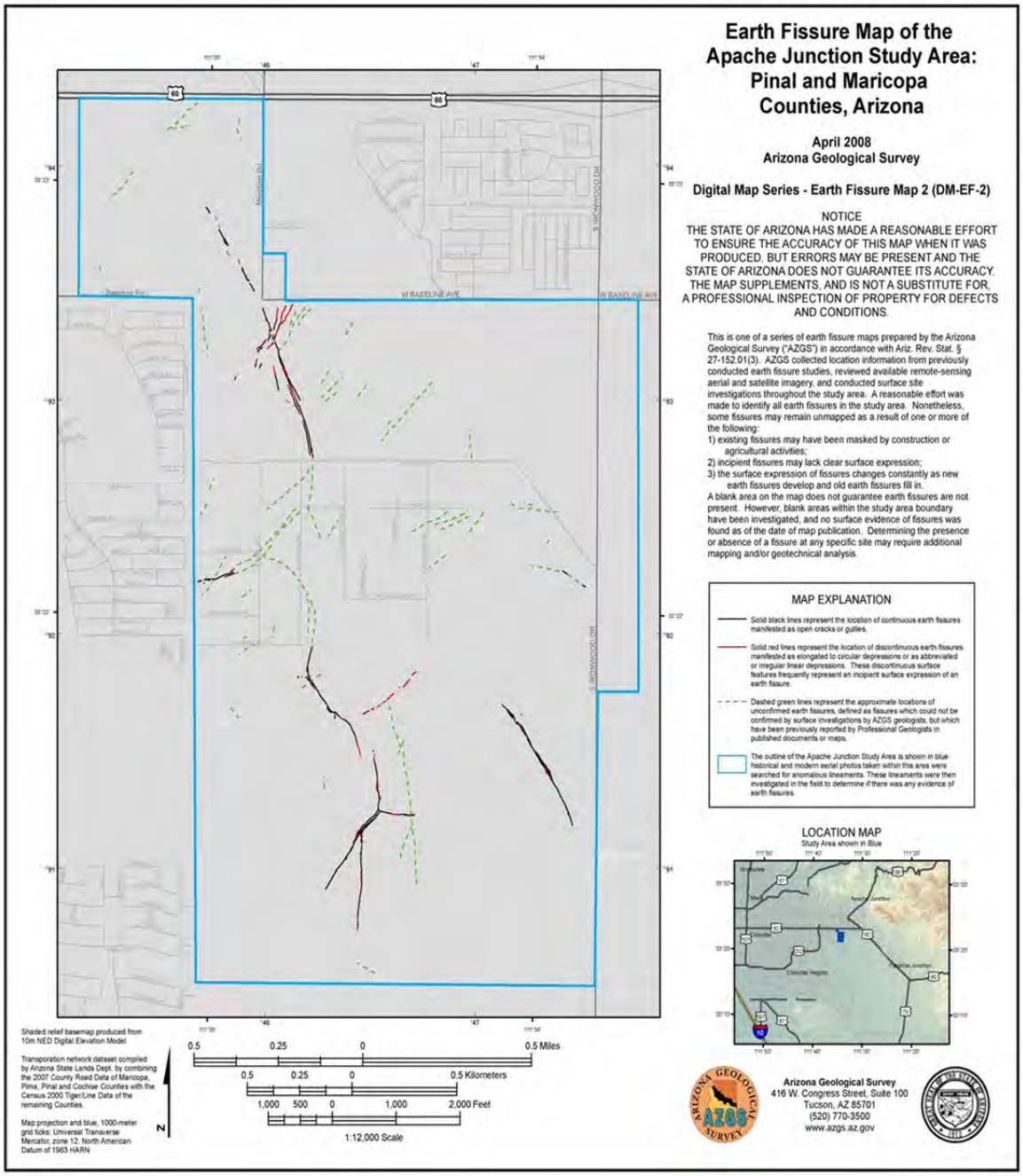


Figure 6: Arizona Geological Survey Earth Fissure Map of Apache Junction

Topography from Existing Sources

The topography along the Meridian Road alignment falls generally to the south. Approximately 15 unnamed washes are identified as crossing Meridian Road within the project limits. Additionally, Weekes Wash and Siphon Draw Wash combine upstream of Meridian Road and cross at one location. The average slope of the Meridian Road alignment varies along the corridor and is steeper in the northern section. **Figure 7** illustrates the general topography within the study area.

Existing Utilities

Arizona Blue Stake was contacted to identify the utility stakeholders within one mile either side of the study area. **Figure 8** illustrates the existing utilities within the study area. **Table 3** contains a list of the utility owners and utility types identified by Blue Stake within the study area.

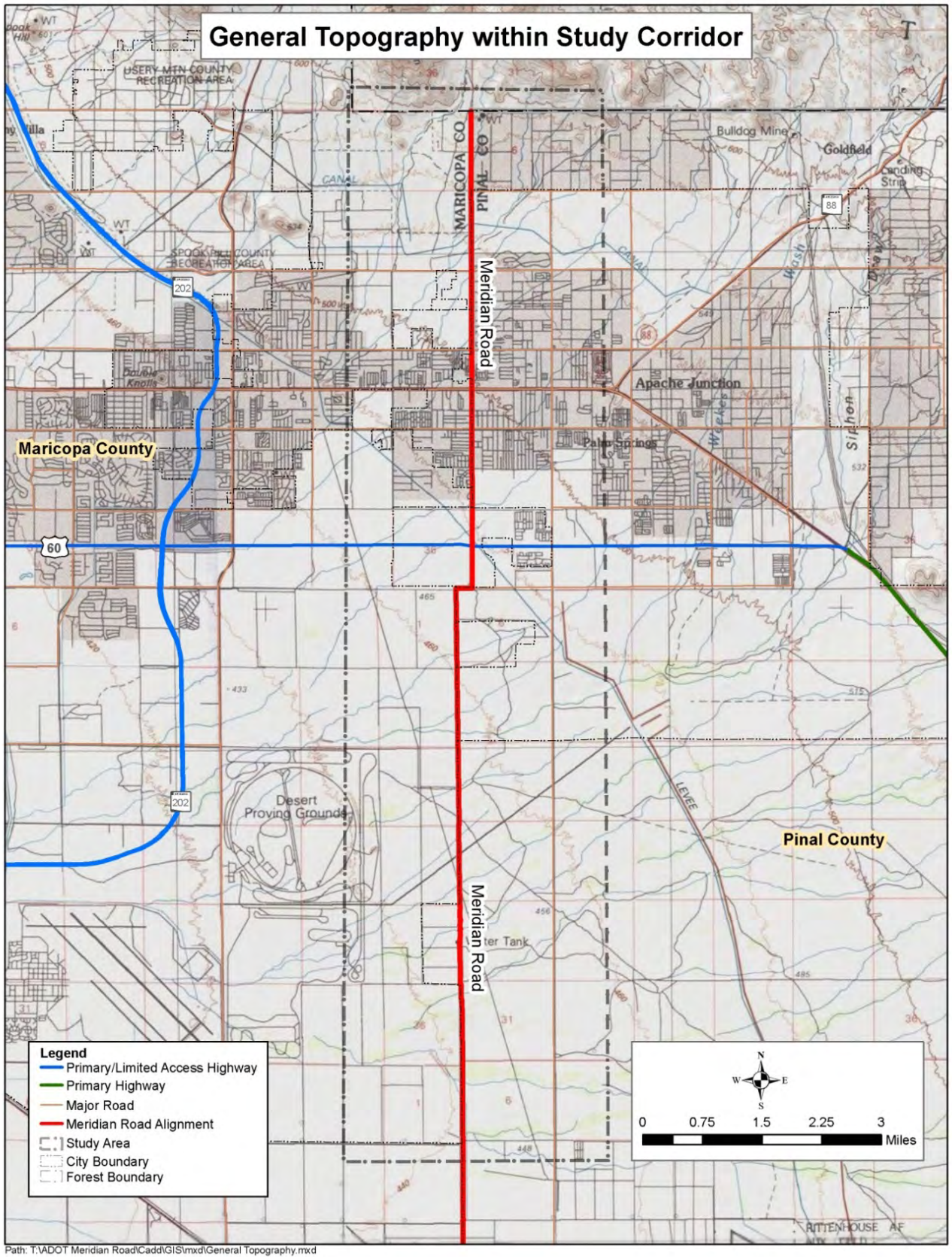


Figure 7: General Topography

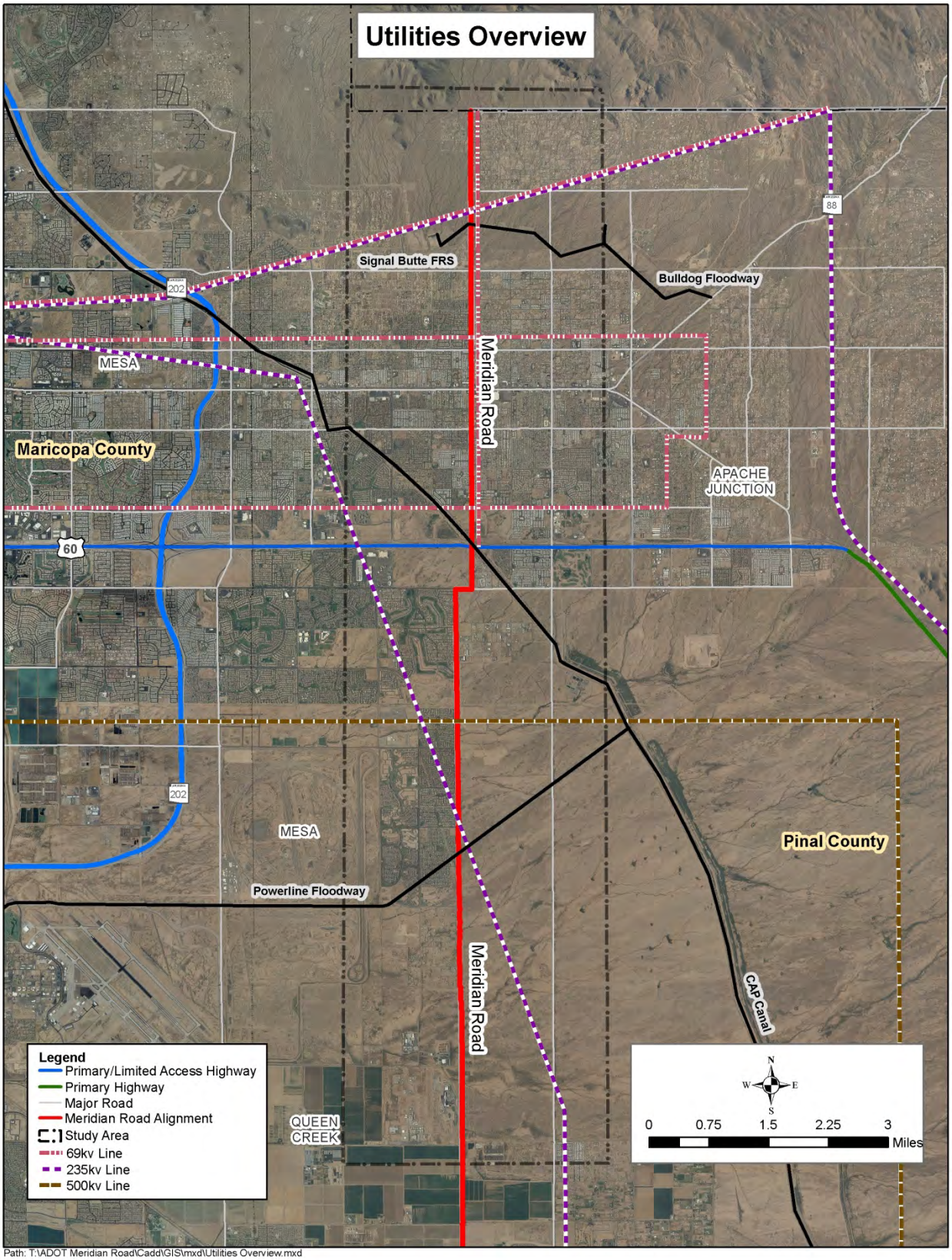


Figure 8: Existing Utilities

Table 3: Utility Stakeholders within the Meridian Road Corridor

Utility Company	Type of Facility
Salt River Project (SRP)	Communication, Electrical, Irrigation
Century Link	Coaxial, Fiber Optic
Cox Communication	CATV, Fiber Optic
Southwest Gas	Gas
Media Com	CATV
Arizona Water Company	Water
Central Arizona Canal (CAP)	Irrigation
AT&T	Fiber Optic
City of Mesa Utilities	Gas, Water

The utility stakeholders identified by Blue Stake were contacted to determine what facilities are within in the project study area and to request mapping. The following provides descriptions of the existing utilities within the Meridian Road corridor by utility stakeholder.

Overhead Electric: SRP overhead electric lines exist for the majority of the alignment of Meridian Road along the east side of the right-of-way. In addition, there are 500kV overhead electric transmission lines crossing Meridian Road diagonally just south of the Powerline Floodway and between Elliot Road and Guadalupe Road. 69kV overhead electricity lines cross Meridian Road at Southern Avenue, University Drive/Superstition Boulevard and just north of Brown Road/Lost Dutchman Boulevard. Finally, a pair of 230 KV lines paralleling the 69kV line also crosses Meridian Road just north of Brown Road.

Underground Electric: SRP underground electric lines exist in the vicinity of the new subdivisions along Meridian Road from half mile north of Elliot Road to one mile south of Elliot Road.

Irrigation: The CAP canal crosses Meridian Road at the US 60 overpass.

Natural Gas: The City of Mesa operates natural gas facilities in the corridor including a 4-inch pipeline extending in Meridian Road from Germann Road south to Queen Creek Road.

Potable Water: Arizona Water Company has numerous facilities in Meridian Road from Southern Avenue north to McDowell Boulevard. The City of Mesa operates a potable water system along Meridian Road. These facilities consist of a pipeline ranging from 12 inches to 20 inches in diameter extending from half mile north of Elliot Road to Warner Road and a pipeline ranging from 12 inches to 16 inches extending from Pecos Road to Germann Road. In addition, there are two City of Mesa well sites along Meridian Road located at the northwest corner of Germann Road and Meridian Road and at half mile south of Pecos Road on the west side of Meridian Road.

Sanitary Sewer: North of US 60 there are sanitary sewers located both under Meridian Road and crossing at major intersections within the study area.

Telephone: Both CenutryLink and Cox Communication have facilities along Meridian Road between Ocotillo Road and Lenora Road and from Rittenhouse Road to Empire Boulevard.

Cable TV: Cox Cable has facilities along Meridian Road in the vicinity of the new subdivisions on the west side of Meridian Road between half mile north of Elliot Road and one mile south of Elliot Road. Media Com has facilities along Meridian Road north of US 60.

Recreation Trails, Parks/Areas, and Open Space

There is one National Forest and one regional park located within the study area: the Tonto National Forest located at the northern terminus of Meridian Road and Usery Mountain Regional Park located northwest of the intersection of McKellips Boulevard and Meridian Road, adjacent to the Tonto National Forest. There are several access points to trails associated with these two regional parks along Meridian Road north of McKellips Boulevard. There is an existing Mesa Community Park, Skyline Park, located at Broadway Road and Crismon Road, approximately two miles west of Meridian Road. An existing Mesa Neighborhood Park, Augusta Ranch Park, is located at Guadalupe Road and Ellsworth Road, approximately three miles west of Meridian Road. An existing Apache Junction Community Park, Prospector Park, is located on Bureau of Land Management land north of Lost Dutchman Boulevard on Idaho Road, approximately two miles east of Meridian Road within the City of Apache Junction. Several lineal parks are located between Apache Trail and Southern Avenue and Idaho Road and Meridian Road. These lineal parks are oriented towards hiking, biking, horseback riding and walking trails.

Existing Access Management Conditions and Policy/Guidelines

Access management is a set of techniques that can be used to control access to highways, major arterials and other roads. The benefits of access management include improved traffic movement, reduced accidents, and fewer vehicle conflicts. Successful access management managed by change in access density seeks to simultaneously enhance safety, preserve capacity and provide for pedestrian and bicycles needs.

The corridor is split into two unique areas. Between Southern Avenue and Brown Road/Lost Dutchman Boulevard is an urban environment where as south of Southern Avenue is more rural. North of Southern Avenue stop signs control traffic turning into Meridian Road at most access points. The exceptions are Broadway Avenue, Apache Trail and University Drive/Superstition Boulevard where traffic signals control access on to and from Meridian Road. South of Southern Avenue the rural nature of the study corridor combined with low traffic volumes and the lack of paved roadways means that most of the roadway does not have access control. Access to the few paved sections of Meridian Road further south of Southern Avenue is by partial stop access control.

Access control procedures and design vary within the study corridor depending on the controlling jurisdictions although only minimally. The Pinal County Comprehensive Plan references the access management policies set out in the Regional Significant Routes Plan for Safety and Mobility. Within the Cities of Mesa and Apache Junction there are no specific access

control guidelines; however, access control is governed by their respective Design Standards. **Table 4** summarizes the access control within the study corridor. With Meridian Road following the section line between the various jurisdictions, approval for revisions to existing access or the establishment of new access points will need to be governed through some form of mutual agreement.

Table 4: Access Control Guidelines per Jurisdiction (for Urban Arterial Roads)

Access Control Feature	Pinal County	City of Mesa	City of Apache Junction
Medians	Divided with full or directional median openings at ¼ mile spacing	Divided with full or directional median openings at ⅛ mile spacing	Divided with full or directional median openings at ⅛ mile spacing
Traffic Signal Spacing	¼ mile and ½ mile locations fully coordinated and progressed where warranted	Between ⅛ and ⅙ mile and between ⅓ and ½ mile locations fully coordinated and progressed where warranted	¼ mile and ½ mile locations fully coordinated and progressed where warranted
Typical Traffic Control	Signalized, two-way stop	Signalized, two-way stop	Signalized, two-way stop
Access Driveway	100 feet from intersection	100 feet from intersection	100 feet from intersection
Full Access Driveway from Signal	660 feet	880 feet	880 feet
Partial; Access Driveway from Signal	330 feet	660 feet	660 feet
Driveway spacing	165 feet to 330 feet	60 feet (min)	N/A
Grade Separated Interchange Spacing	One mile location where warranted	One mile location where warranted	N/A
Grade Separated Interchange Type	May include SPUI or tight diamond if warranted and feasible	May include SPUI or tight diamond if warranted and feasible	N/A
Frontage Road	Possible	Possible	N/A
On-Street Parking	Prohibited	Prohibited	N/A

Within the more rural areas, access control will be established by identifying the supporting street system necessary to sustain existing and planned development in the corridor. The anticipated street system that will serve as the backbone for development in the study corridor will generally be the arterial street grid system. These roadways are expected to be developed as urban arterials as the population of the region grows. Existing developed arterials located within the more rural areas that intersect Meridian Road include Southern Avenue, Baseline Road, and Elliot Road. The remaining section lines that will serve as the corridors for future arterials are undeveloped. Other existing and future facilities in the corridor listed within the section of this report titled ***Roadway Network Deficiencies*** will also have a profound effect on future access control.

Existing Network and Roadway Classifications

A field review was conducted to inventory the existing number of lanes, posted speed limits, intersection lane configurations and traffic control type. The resulting information is depicted in **Figure 9, Figure 10** and **Figure 11** respectively.

Functional classification is the grouping of streets and highways into classes according to the character of service in which they are intended to provide. **Figure 12** depicts the current FHWA approved functional classification for roadways within the study area.

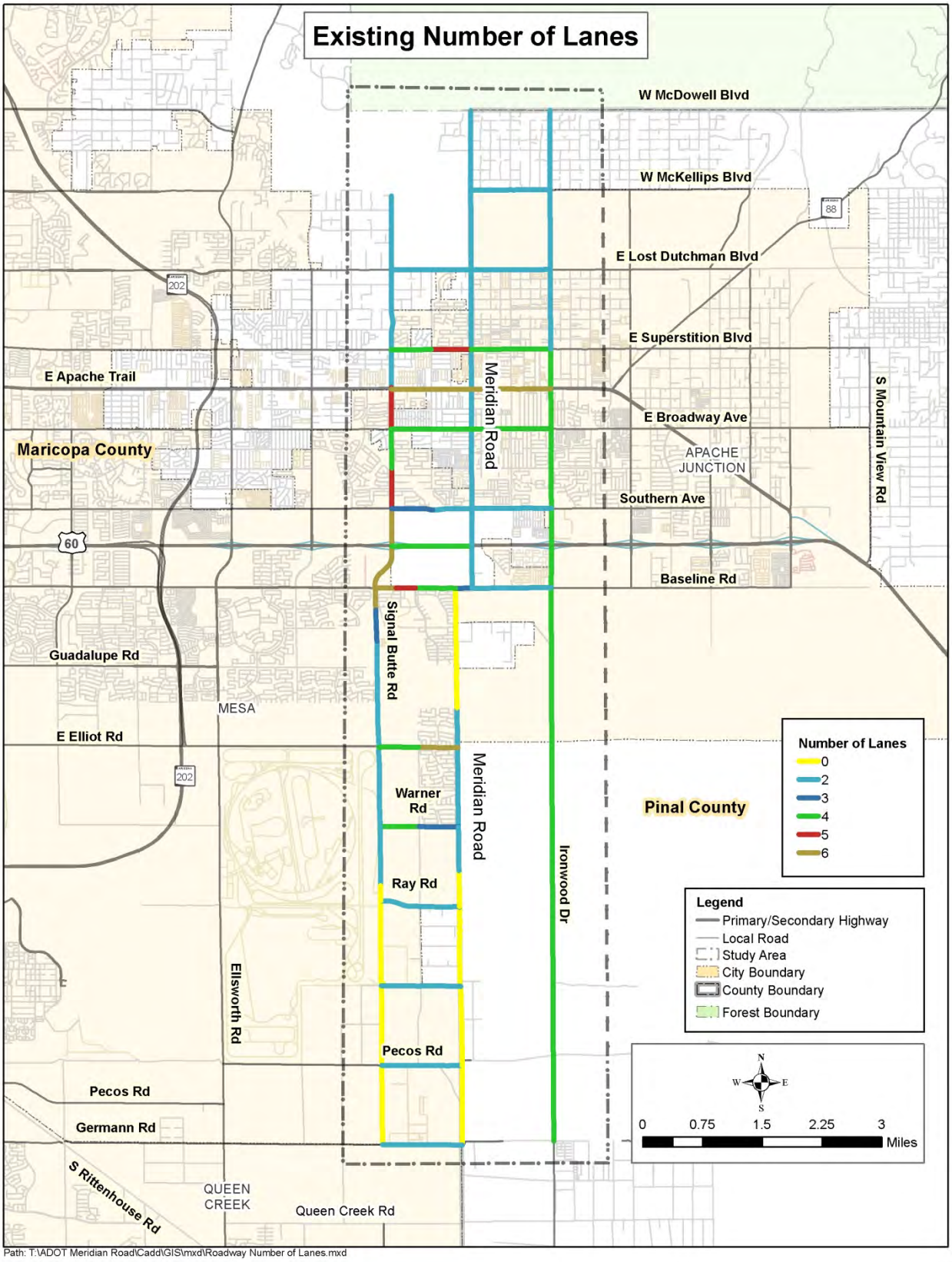


Figure 9: Existing Number of Lanes

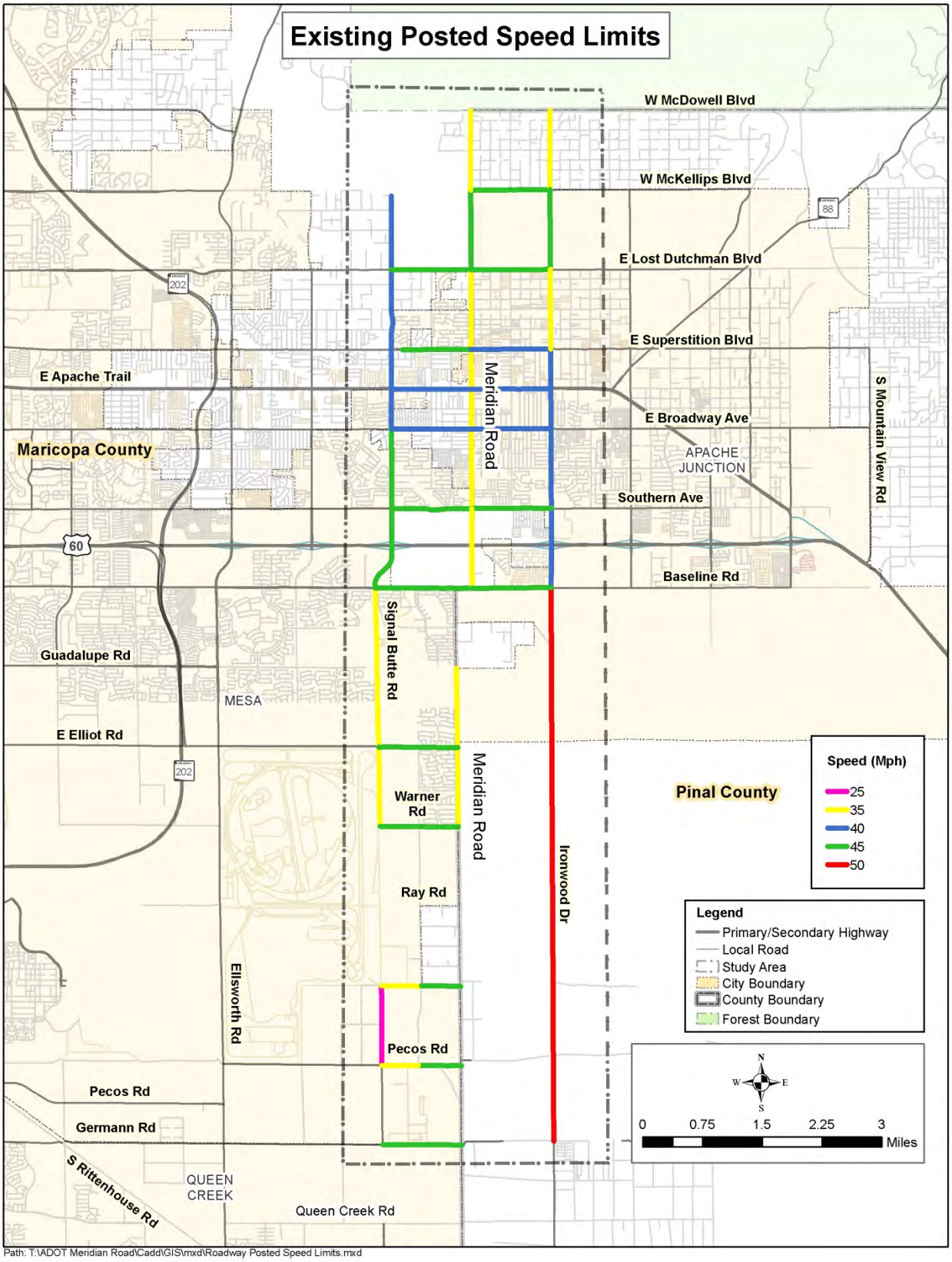


Figure 10: Posted Speed Limits

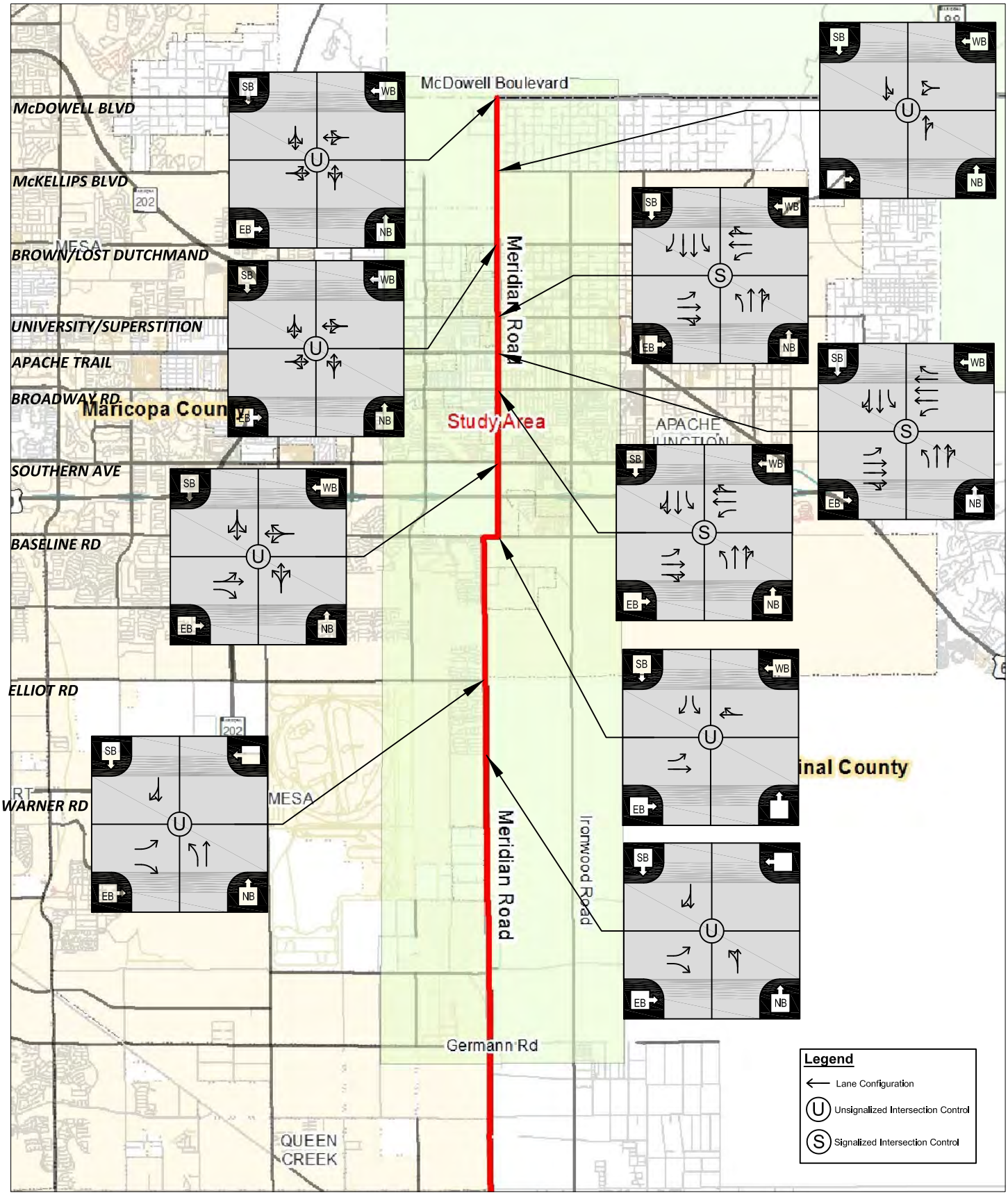


Figure 11
Existing 2012 Lane Configuration

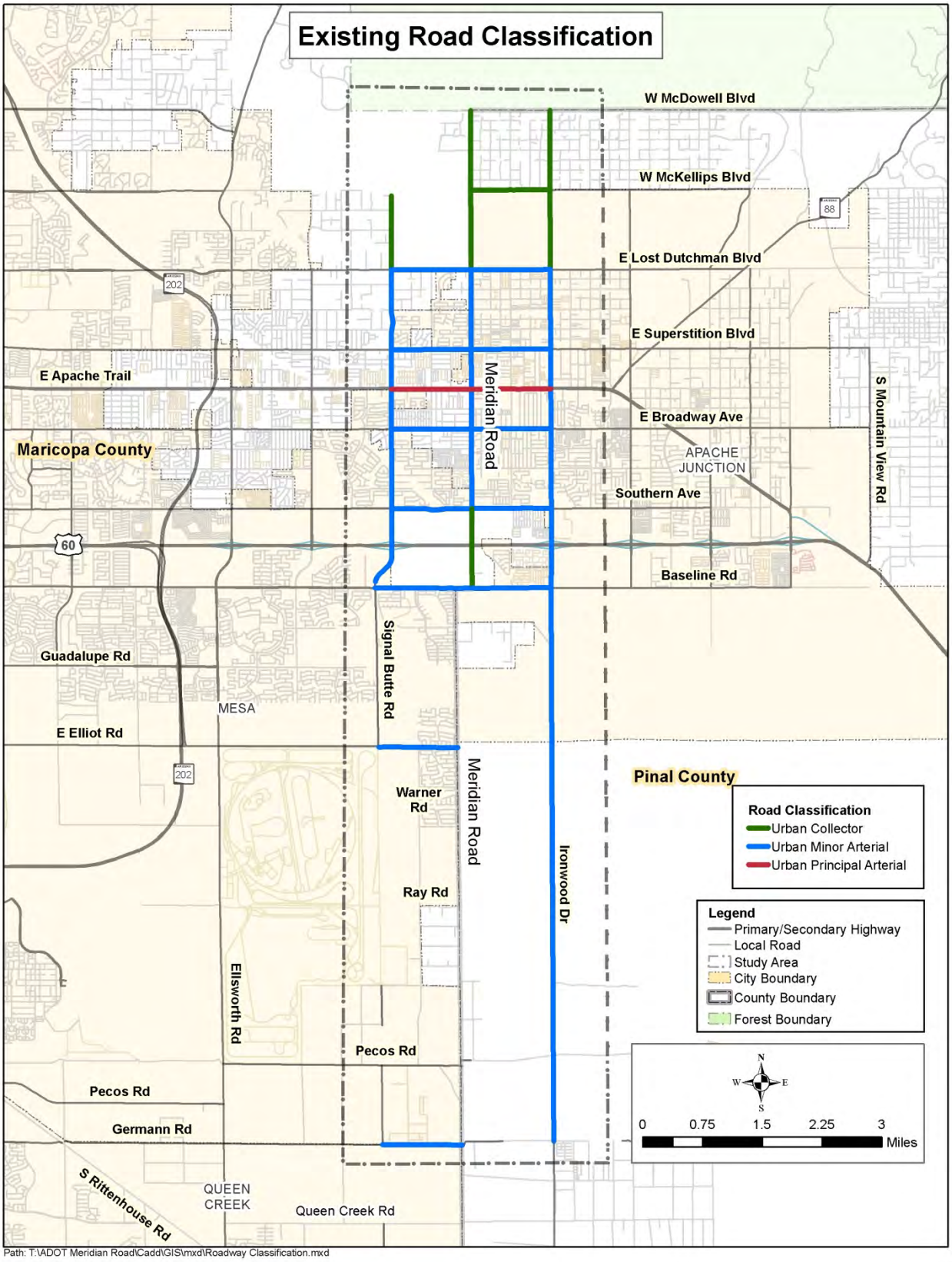


Figure 12: Existing FHWA Functional Classification

Existing right-of-way along Meridian Road varies between 33' feet and 75' feet with the majority of the existing right-of-way north of Baseline Road at 55 feet and the majority of the existing right-of-way south of Baseline Road at 65 feet. **Table 5** provides the existing right-of-way along Meridian Road.

Table 5: Existing Right-of-Way Widths

Roadway	From	To	ROW Width		Pavement Width
			West of Centerline (MCDOT)	East of Centerline (PCDOT)	
Meridian Road	McDowell Road	McKellips Boulevard	●40' North of Canyon St ●55' South of Canyon St	N/A	●24'
	McKellips Boulevard	Lost Dutchman Road	●55' from 1/2 mile south of McKellips Blvd to Lost Dutchman	N/A	●24'
	Lost Dutchman Road	Superstition Boulevard	●33' North of Windsong St ●33' South of Windsong St ●55' South of Smoke Tree St ●65' South of Silverado Estates	●50' between Lost Dutchman Rd and Concho Street ●33' between Concho Street and Tepee St ●50' between Tepee St and Shiprock St ●33' between Shiprock St and Silverado Estates ●50' between Silverado Estates and Superstition Boulevard	●24' ●40' ●45' ●45' ●76'
	Superstition Boulevard	Apache Trail	●55'	●50' for a 300' segment south of Superstition Boulevard ●None from 300' south of Superstition Boulevard to Gregory Street ●50' from Gregory St to Apache Trail	●62' ●24' ●62' at intersection
	Apache Trail	Broadway Avenue	●Undefined from Apache Trail to 4th Street ●55' from 4th St to 220' north of Broadway Road ●40'from 220' north of Broadway Rd to Broadway Rd	●40'	●65' ●26' ●65' at intersection
	Broadway Avenue	Southern Avenue	●65' North of Wier Ave ●0' South of Wier Ave to Pueblo Ave ●55' from Pueblo Ave to Southern Ave	●50' from 290' south of Broadway Ave to Southern Ave	●26' ●widens at intersection
	Southern Avenue	Baseline Road	●55'	●50'	●26'
	Baseline Road	Guadalupe Road	●65'	N/A	No Pavement
	Guadalupe Road	Elliot Road	●55' for 1/2 mile south of Guadalupe ●65' for 1/2 mile north of Elliot	N/A	No Pavement
	Elliot Road	Warner Road	●65' north of Mesquite St ●55' south of Mesquite St ●65' from 200' north of Renfield Ave ●70 ' from 600' north of Warner Road	N/A	●36'
	Warner Road	Ray Road	●55' to north of Starkey Ave ●65' South of Starke Ave to 545' north of Ray Rd ●75' from 545' north of Ray Rd to Ray Road	N/A	●32' ●No Pavement ●No Pavement
	Ray Road	Williams Field Road	●65'	N/A	No Pavement
	Williams Field Road	Pecos Road	●55'	N/A	No Pavement
	Pecos Road	Germann Road	●65' from Pecos Road to 565' north of Germann Road ●75' for a 565' segment north of Germann Road	N/A	No Pavement

Existing Pavement Evaluation

Maricopa County Department of Transportation (MCDOT) operates a Pavement Management Program which provides a systematic process to plan pavement preservation activities. The

identify optimum strategies and select cost-effective pavement preservation methods. MCDOT Operations uses three categories to evaluate the roadway. The first category is the pavement condition rating (PCR) which rates the condition of the pavement by measuring the physical distresses in the pavement such as cracking and potholes. The next rating category is the international roughness index (IRI), which measure the roughness of the pavement surface. The final rating is the Sufficiency Rating. This rating is based on six different types of geometric distress which are inventoried for safety. These distresses are: lane width, shoulder width, bottlenecks, drainage, and horizontal and vertical sight distance. **Table 6** provides the current pavement condition survey for the roadways within the study area. **Table 7** provides a description for the pavement condition ratings.

Table 6: Current Pavement Condition Survey

From Road	To Road	PCR	IRI	Suff	Last Work Done	Date
Warner Road	Renfield Avenue	88	88	89	Open,Grade,Drain,Base & Pvmt	5/20/2009
Renfield Avenue	Mesquite Street	88	88	89	Open,Grade,Drain,Base & Pvmt	5/20/2009
Baseline Road	Southern Avenue	40	225	91	Crack-fill	11/12/2010
Southern Avenue	Pueblo Avenue	40	361	86	Crack-fill	11/16/2010
Pueblo Avenue	Broadway Road	40	361	86	Crack-fill	11/15/2010
Broadway Road	Apache Trail	54	325	83	Crack-fill	11/16/2010
Apache Trail	Apache Trail	60	325	91	Crack-fill	11/17/2010
Apache Trail	University Drive	73	218	97	Crack-fill	11/18/2010
University Drive	Brown Road	58	218	89	Crack-fill	11/18/2010
Brown Road	McKellips Boulevard	60	225	89	Crack-fill	11/17/2010
McKellips Boulevard	McDowell Road	85	149	97	Crack-fill	11/17/2010

Table 7: Pavement Condition Rating

Rating	Description
Less than 40	Poor
40-54	Fair
55-70	Good
71-84	Very Good
85-100	Excellent

The average PCR for county roads in Maricopa County is 82.61. The average PCR for Meridian Road from Warner Road to McDowell Boulevard is a good rating at 62.00. **Table 8** provides a description for the international roughness Index.

Table 8: International Roughness Index

Rating	Description
0-59	Very Smooth
60-94	Smooth
95-170	Average
171-220	Rough
Greater than 220	Very Rough

The average roughness of the county roads in Maricopa County is 163.09, which is rated as average. The average IRI rating for Meridian Road between Warner Road and McDowell Boulevard is 235, which is rated as very rough.

A sufficiency rating number between 0 and 100 is determined for each section of road with 100 being the best. If the rating is less than 35, the roadway is programmed for re-construction. The average sufficiency rating for Meridian Road between Warner Road to McDowell Boulevard is 90.

Existing Multimodal Transportation

City of Apache Junction has limited transit providers in the area. Two private-sector operators currently provide demand-response public transportation service in the area. These providers offer service to either Phoenix Sky Harbor or Phoenix-Mesa Gateway Airport, as well as local service to Wal-Mart, Superstition Springs Mall, and a variety of medical appointments. The remaining transit providers within the City of Apache Junction are operated by East Valley Senior Services provided mileage reimbursement programs, coupon booklets for cab fare, and passenger van service for medical appointments and grocery shopping. There are currently bike lanes along Meridian Road between University Drive/Superstition Boulevard and Tepee Street (half mile north of University Drive/Superstition Boulevard). There is an existing sidewalk along the west side of Meridian Road between Tepee Street and University Drive/Superstition Boulevard, between a half mile north of Elliot Road and Warner Road, and for an approximately half mile segment south of Warner Road. A discontinuous sidewalk exists along Meridian Road between University Drive/Superstition Boulevard and Southern Avenue.

V. Existing Socioeconomic Data

Jurisdictions within the Corridor

The study area is segmented into five separate jurisdictions (City of Apache Junction, City of Mesa, Town of Queen Creek, Pinal County and Maricopa County) that control development through their own adopted general/comprehensive plans, zoning ordinances, and subdivision regulations.

Existing Land Use

From McDowell Boulevard to Southern Avenue the primary land use is low to medium density residential with pockets of commercial. The residential is characterized by a number of RV parks such as El Dorado Mobile Home Resort and Coral Sand RV Park. Southern Avenue to Baseline Road land use patterns include primarily rural-residential with small parcels of commercial, industrial and low density residential. A small pocket of fabrication and heavy equipment manufacturing uses is located among other commercial and industrial operations south of Baseline Road. Further south the existing land use pattern within the study area primarily reflects the rural residential and agricultural themes that have existed in the region for decades. The eastern half of the study area is occupied largely by agricultural uses and large-lot, single-family homes such as Sunland Springs Subdivision, Bella Via and Superstition View Ranchettes.

Currently undeveloped rural land platted for future development is located to the west of Meridian Road. The residential developments located to the north typically exhibit smaller lot sizes (approximately six units to the acre) than those located to the south.

Several industrial employment areas are located in south Mesa and east Queen Creek. Specifically, the Landstar Polymer plant, located at the northwest corner of the intersection of Meridian and Pecos roads, is a rubber recycling facility currently under development that is expected to be a cornerstone of the Meridian Business Park in Mesa. Similar uses nearby include TRW Safety Systems, which manufactures automobile airbags, and the Arch Chemical semiconductor chemical manufacturing plant. **Figure 13** shows the existing land uses within the study corridor.

Existing Zoning

The existing zoning districts utilized by the City of Mesa, City of Apache Junction, Maricopa County and Pinal County that fall within the study area have been collapsed into five general categories to illustrate a consistent pattern of zoning among differing county and city/town designations. The majority of the planning area is primarily occupied by single-family residential, agricultural, and farming-related uses.

The majority of the northern portion of the study area from Southern Avenue to University Drive/Superstition Boulevard, is zoned for medium density single-family homes. In addition there are several isolated areas of community commercial mainly at the corners of the major arterial intersections. North of University Drive/Superstition Boulevard, the zoning changes to low density residential with large areas of park and open space notably Usery Mountain Regional Park and the Tonto National Forest. Between Southern Avenue and Baseline Road, the zoning is categorized as light industry/ Business Park.

South of Baseline Road most of the corridor has been designated as low to medium density single-family residential. Small islands of light industrial zoning exist just north of Guadalupe Road on the east side of Meridian Road and again on the west side around Pecos Road and Germann Road.

Land Jurisdiction and Ownership

The study area contains property within portions of unincorporated Pinal and Maricopa Counties as well as substantial land areas currently incorporated into the communities of Mesa, and Apache Junction. The City of Mesa's land occupies a majority of the western portion of the corridor. To the east, the land is occupied by the City of Apache Junction north of Elliot Road and by Unincorporated Pinal County to the south. Private entities own a majority of the land within the study area. The only exception to this trend exists on the west side of the study area bordered by Baseline Road to the south and Southern Avenue to the north. At this location, Arizona State Trust land and the Bureau of Reclamation, which operates the CAP canal, are the property owners. On the east side of the study area, in Pinal County from Baseline Road to Germann Road, nearly all of the study area is held as Arizona State Trust land in both unincorporated Pinal County and the City of Apache Junction. In addition, the Bureau of

Reclamation also owns a small portion of this region located to the north of Guadalupe Road that is occupied partially by industrial and manufacturing uses. **Figure 14** shows the land ownership within the study area.

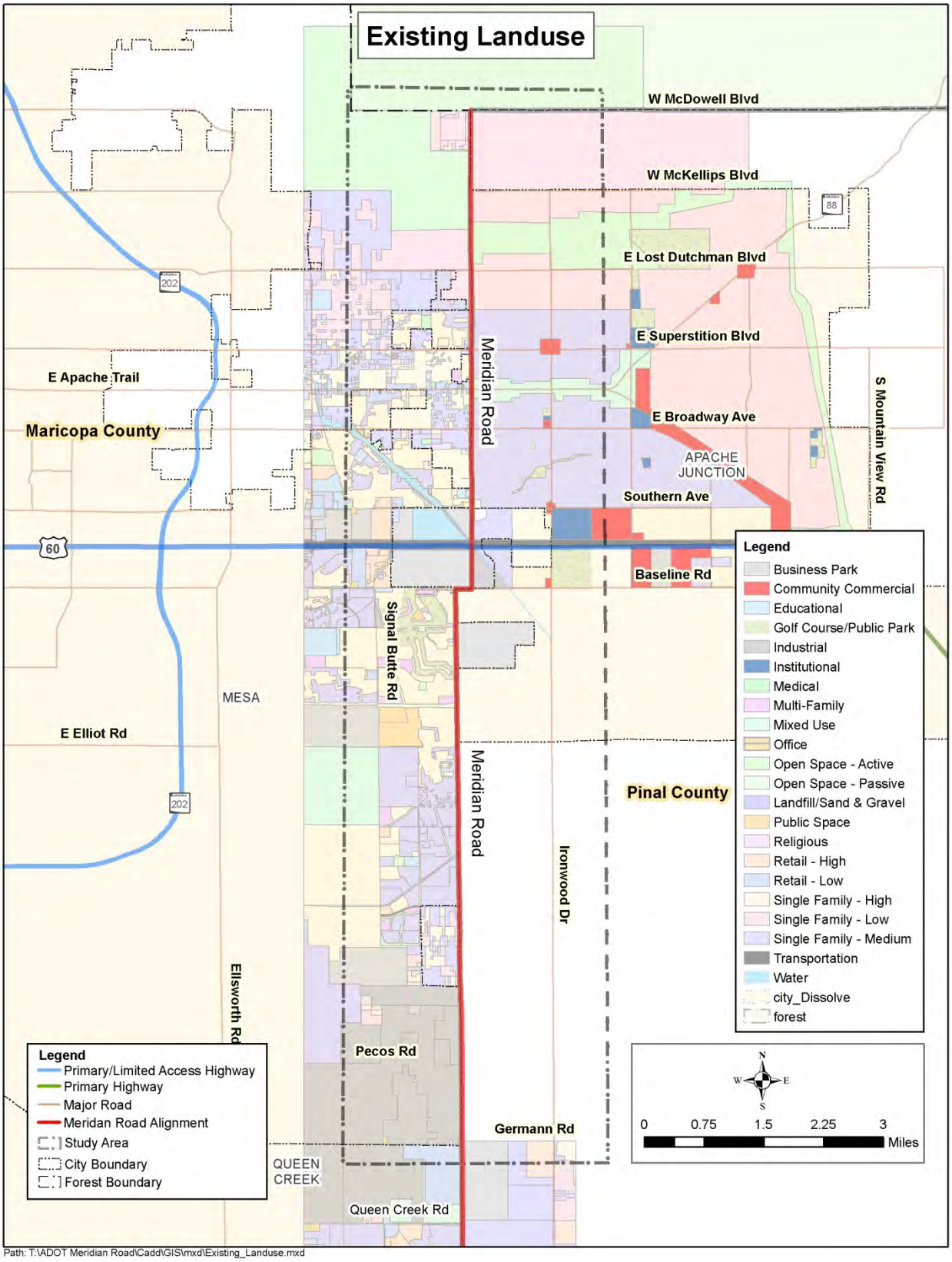


Figure 13: Existing Land Uses

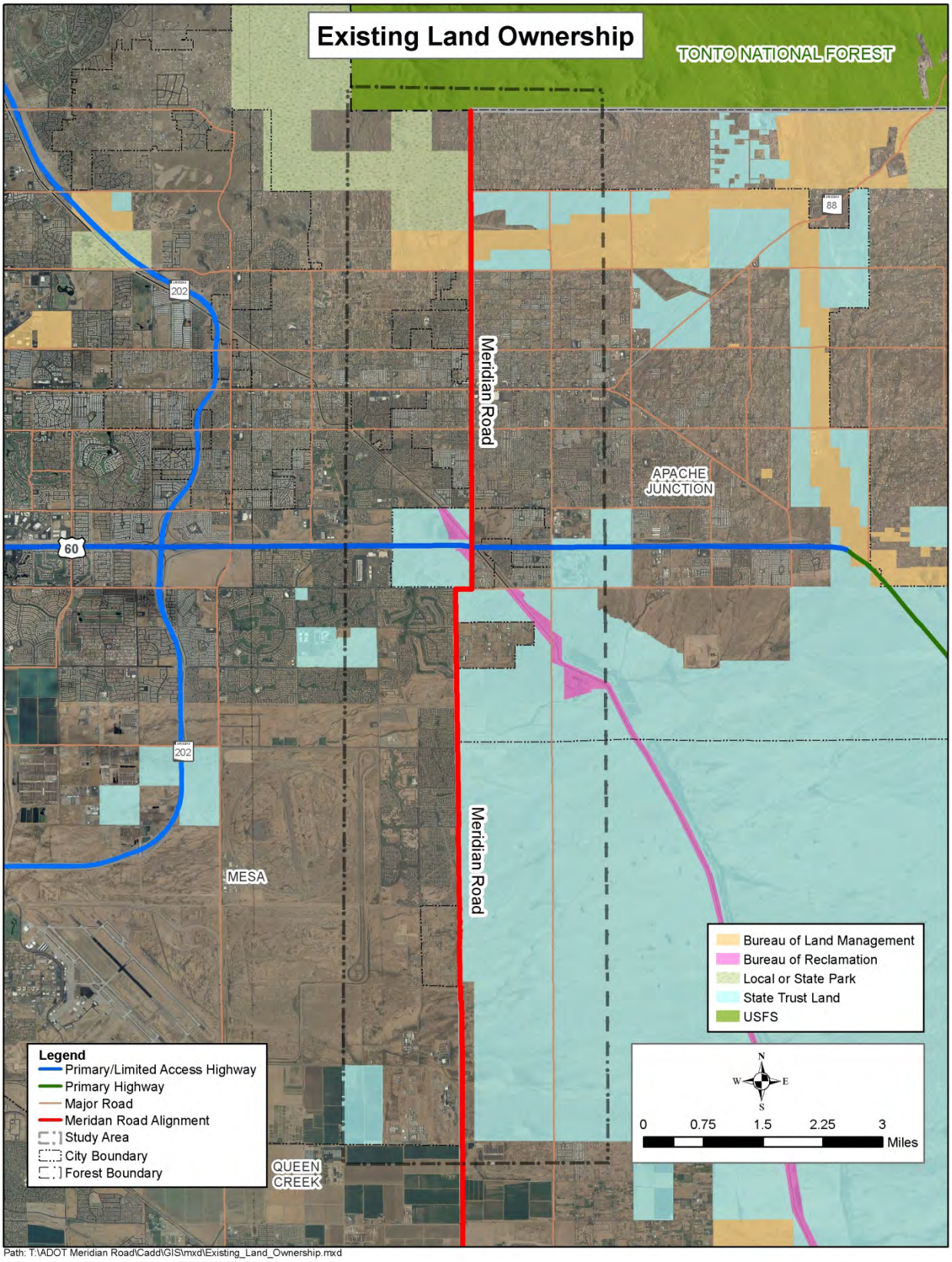


Figure 14: Existing Land Ownership

VI. Existing Traffic Data

Existing 2012 Traffic Volumes

Traffic Research and Analysis (TRA) collected 48 hour approach and departure volumes with automatic traffic recorders in fifteen minute intervals at nine locations within the study area along Meridian Road to obtain the ADT volumes. A seasonal adjustment factor of 20% was applied to the approach and departure volumes. The seasonal adjustment factor was determined based upon ADOT's monthly ADT volumes collected within the study area. The 2012 adjusted ADT volumes are shown in **Table 9** and illustrated in **Figure 15**. A detailed report of the traffic counts are contained in Appendix A.

TRA counted current traffic volumes at ten existing intersections within the study area on Tuesday, May 22, 2012. Turning movement counts were collected in fifteen minute intervals from 6:00 AM to 9:00 AM and from 3:30 PM to 6:30 PM.

Based on information from the ADOT Transportation Data Management System, in the Apache Junction area the month in which the traffic volumes peak is 20 % higher than traffic volumes in the month of May. Therefore, a seasonal adjustment factor of 20% was applied to the turning movement volumes. The 2012 adjusted turning movement counts for the AM and PM peak periods are shown in **Figure 16**. A detailed report of the turning movement counts are contained in Appendix A.

Table 9: 2012 Average Daily Traffic Volumes

Meridian Road Segment	Direction	Average Daily Traffic (VPD) 2012*
McDowell Road to McKellips Boulevard	NB	612
	SB	655
McKellips Boulevard to Brown Road/Lost Dutchman Boulevard	NB	1,534
	SB	1,632
Brown Road/Lost Dutchman Boulevard to University Drive/Superstition Boulevard	NB	2,707
	SB	2,914
University Drive/Superstitions Boulevard to Apache Trail	NB	3,494
	SB	3,352
Apache Trail to Broadway Road	NB	3,350
	SB	3,673
Broadway Road to Southern Avenue	NB	2,633
	SB	2,467
Southern Avenue to US 60	NB	2,633
	SB	2,467
US 60 to Baseline Road	NB	1,570
	SB	1,495
Guadalupe Road to Elliot Road	NB	731
	SB	697
Elliot Road to Warner Road	NB	781
	SB	713

* Approach and Departure volumes are adjusted to account for a 20% seasonal factor
NB – Northbound
SB - Southbound

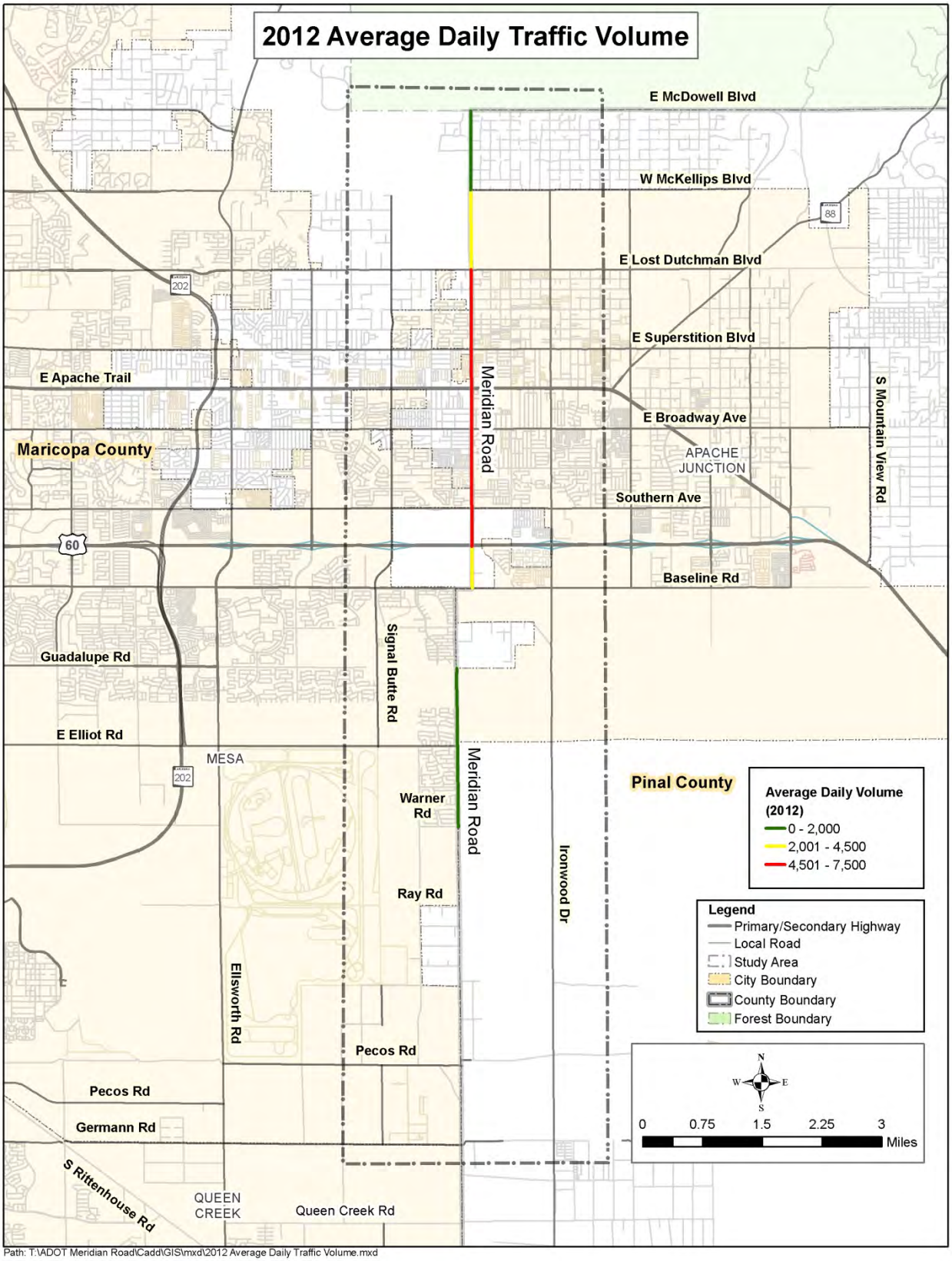


Figure 15: Existing 2012 Average Daily Traffic Volumes

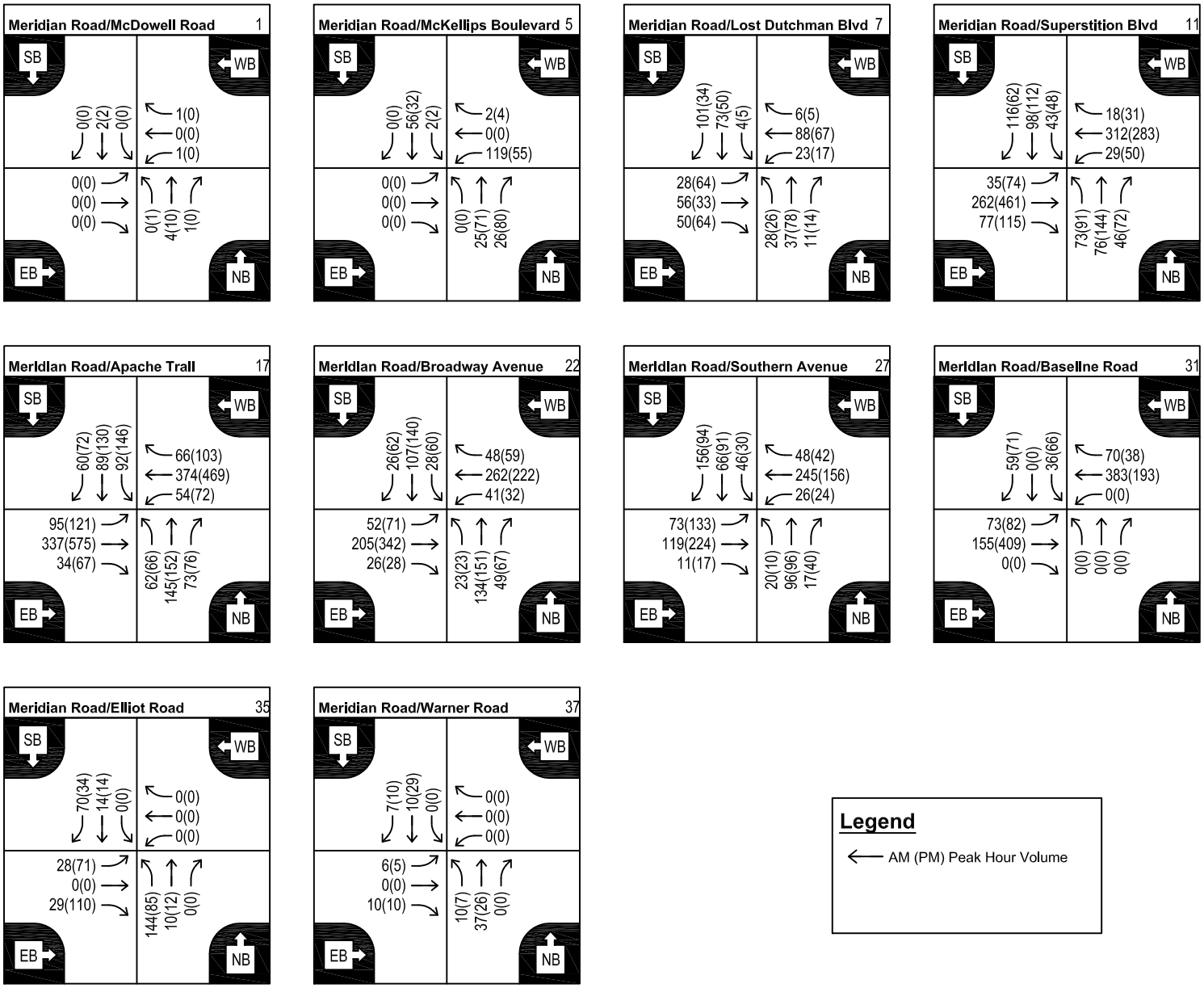


Figure 16
Existing 2012 Turning Movement Volumes

Existing 2012 Level of service

The ability of a transportation system to transmit the transportation demand is characterized as its level of service (LOS). LOS is a rating system from "A", representing the best operation, to "F", representing the worst operation. The appropriate reference for LOS operation is the *Highway Capacity Manual*, published by the Transportation Research Board. This manual characterizes the LOS for an urban street facility as described in **Table 10**.

Table 10: Level of Service Criteria for Urban Street Facilities

Level-of-Service	Characterized by HCM as:
A	Primarily free-flow speed. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decrease in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operation may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections has a volume -to-capacity ratio greater than 1.0.

In general, LOS A and B represent no congestion, LOS C and D represent moderate congestion, and LOS E and F represent severe congestion.

LOS can be calculated for roadway segments, intersections, and freeway mainline lanes and ramps. LOS estimates also can be calculated for different periods, including daily conditions and peak hour conditions. The LOS analysis discussed in this section focuses on planning level roadway segment performance within the study area based on daily roadway segment volumes. Analysis of study area intersections based on peak hour turning movement volumes and anticipated delay is discussed in the following section.

The widely accepted *2009 Quality/Level of Service Handbook* published by the Florida Department of Transportation was the planning guidelines relating LOS to daily volumes to

estimate capacity for roadway segments. These guidelines are not an exact description of the actual operating LOS on a particular roadway segment, but they give an indication of when the roadway falls below acceptable levels of service.

Table 11 shows the capacity threshold values for the ADT levels obtained in May of 2012 for this study. Arterial street capacity thresholds were derived directly from "Table 4-1, Generalized Annual Average Daily Volumes for Florida's Urbanized Areas (Freeway & State Two-Way Arterial Facilities)," published by the Florida Department of Transportation (FDOT) in the widely accepted 2009 Quality/Level of Service Handbook. Information relevant to arterial facilities in FDOT's 2009 Quality/Level of Service Handbook served as reference for the development of specific values to reflect current Metropolitan Phoenix area conditions and future conditions anticipated to exist ultimately in the Study Area. Pertinent data related to the 2009 Quality/Level of Service Handbook is included in Appendix B.

As indicated in **Table 11**, LOS D was considered the threshold of acceptable operations for arterial facilities. The LOS threshold measures reflect the traffic volume characteristics of each facility or grouping of facility types. The selection of these LOS threshold values accounts for the expectations of the drivers as well as the relative costs associated with the construction of each facility type. ADT volumes in excess of the thresholds illustrated in **Table 11** indicate a condition in which the volumes on a given roadway segment exceeds the planning-level capacity for that facility.

Table 11: Summary of Generalized Annual Average Daily Volume Threshold Values by Facility Type

Facility Type	Number of Through Lanes	Roadway Classification	Level of Service Threshold	Daily Volume Threshold Values
Major Arterial	6	Class I (<2 Signals/Mi.)	LOS D	55,300
Minor Arterial	5	Class I (<2 Signals/Mi.)	LOS D	46,000
Minor Arterial	4	Class I (<2 Signals/Mi.)	LOS D	36,700
Minor Arterial	2	Class I (<2 Signals/Mi.)	LOS D	16,500

Figure 17 depicts the current LOS for segments of Meridian Road within the study area.

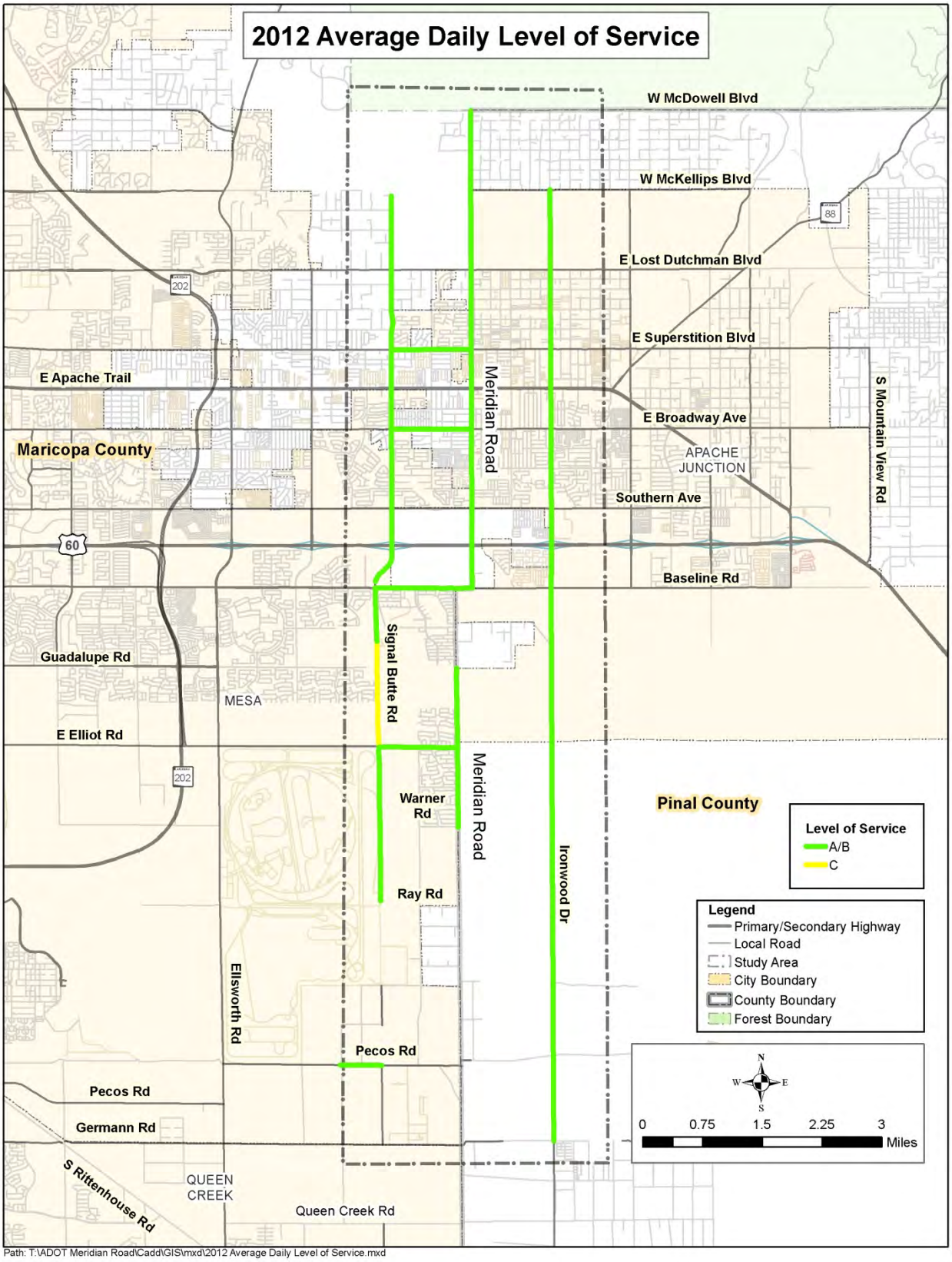


Figure 17: 2012 Average Daily Level of Service

The Highway Capacity Manual considers the average delay per vehicle as the measure to determine the LOS of a signalized intersection. The delay and LOS are calculated for the intersection, each approach, and each turning movement. **Table 12** lists the LOS criteria for signalized intersections as stated in the *Highway Capacity Manual*. **Table 13** the level-of-service criteria for the unsignalized study area intersections.

Table 12: Level-of-Service Criteria for Signalized Intersections

Level-of-Service	Average Control Delay (s/veh)
A	≤ 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

Table 13: Level-of-Service Criteria for Unsignalized Intersections

Level-of-Service	Average Control Delay (s/veh)
A	≤ 10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

One of the important conditions for determining LOS at an intersection is the number of lanes provided for each movement on each approach at the intersection. The existing intersection geometry for each study intersection is discussed within the section of this report titled ***Existing Roadway Network***. The existing intersection geometry for the study area intersections is shown in **Figure 11.**

The LOS for the study area intersections was evaluated using *Synchro* software, which utilizes the criteria described in **Table 12** and **Table 13**. The existing LOS for the signalized and unsignalized intersections within the study area are shown in **Figure 18**. **Appendix C** provides the complete results of the existing 2012 LOS analyses.

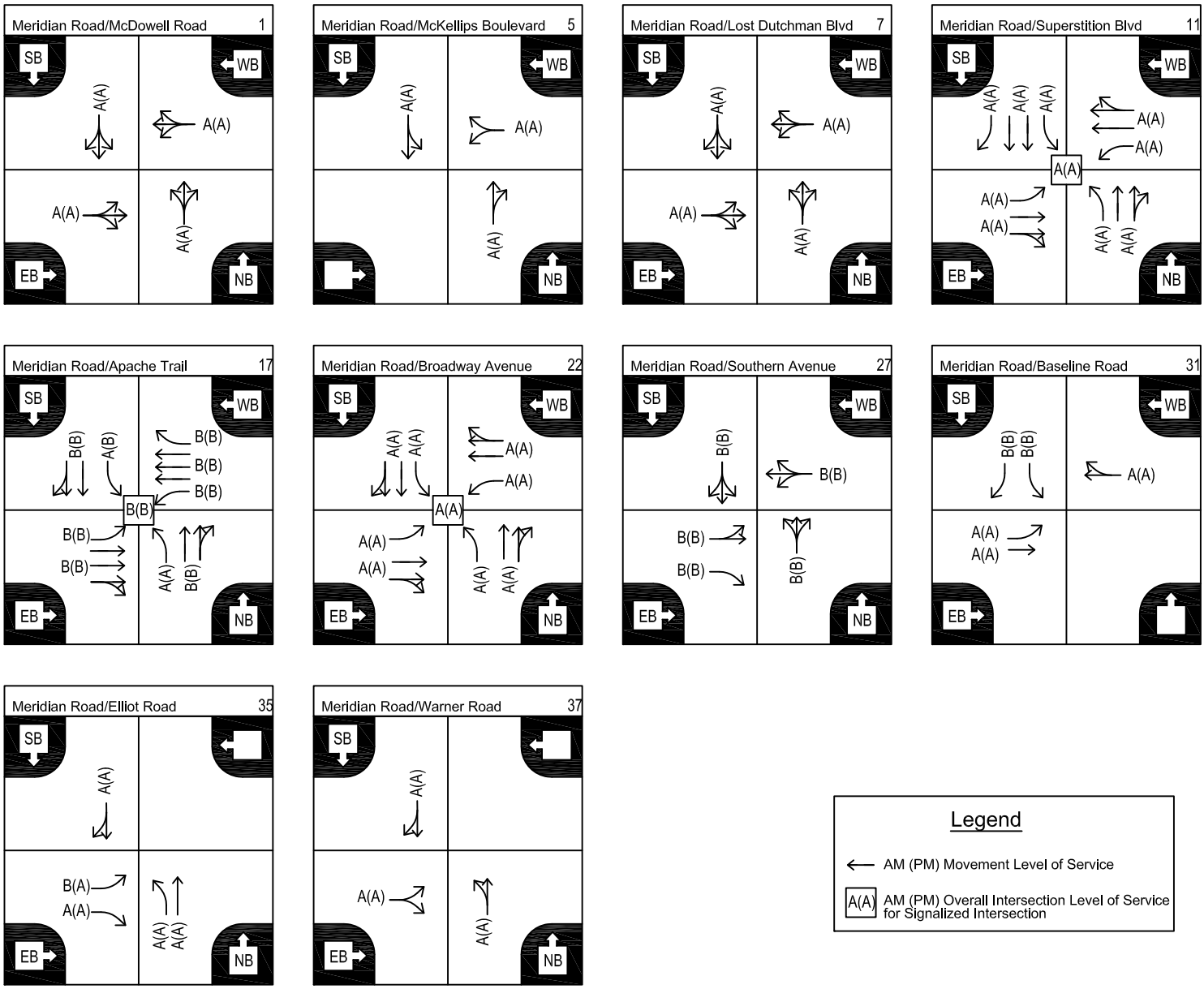


Figure 18
Existing 2012 Level of Service

Crash Data

Crash analysis was conducted for Meridian Road within the study area to identify trends, patterns, predominant crash reasons, and high crash rate intersections. The purpose of the crash analysis is to identify locations that need to be addressed to improve safety. Data for crashes occurring between June 2007 and June 2012 was obtained from ADOT's Accident Location Identification Surveillance System (ALISS) database. During this five year period, a total of 7 crashes occurred within the study area. **Figure 19** illustrates the location and type of each crash during the analysis period.

Of the 7 crashes within the study area, analysis of the crash data found:

- 3-single vehicle, 2-rear-end, 1-rear-to-side and 1-left-turn
- 4 were non-injury crashes, 1 possible injury, 1 incapacitating injury and 1 fatality
- 2 following too close, 2 failure to stop at stop sign, 1 unknown, 1 exceeding lawful speed and 1 inattention/distraction
- All 7 crashed occurred during dry conditions
- 3 crashes occurred during daylight and 4 in the dark

Fatality crash rates were computed for roadway segments with high numbers of crashes. Crash rates for roadway segments are expressed as "crashes per 100 million vehicle miles traveled" (MVMT). The following formula was used to calculate the fatality rate:

$$\frac{100{,}000{,}000 \text{ x no. of fatalities}}{\text{ADT x no. of years x 365 x length of segment}}$$

Similarly average annual total crash rates were calculated for particular segments using the following formula:

$$\frac{1{,}000{,}000 \text{ x no. of crashes}}{\text{ADT x no. of years x 365 x length of segment}}$$

Crash Rate Comparisons

The fatality crash rate for the Meridian Road study area is 0.014. This fatality rate is considerably lower than the 2005-2009 average Arizona and U.S. fatality crash rate of 1.29 and 1.13, respectively (per the 2009 Arizona Crash Facts Summary prepared by ADOT Intermodal Transportation Division). The average annual total crash rates for the Meridian Road study area segment is 0.099. This rate is predominantly lower than the 2009 Arizona and U.S. crash rates of 1.7 and 1.8, respectively (per 2009 Arizona Crash Facts Summary prepared by ADOT Intermodal Transportation Division and the Traffic Safety Facts 2009 prepared by NHTSA).

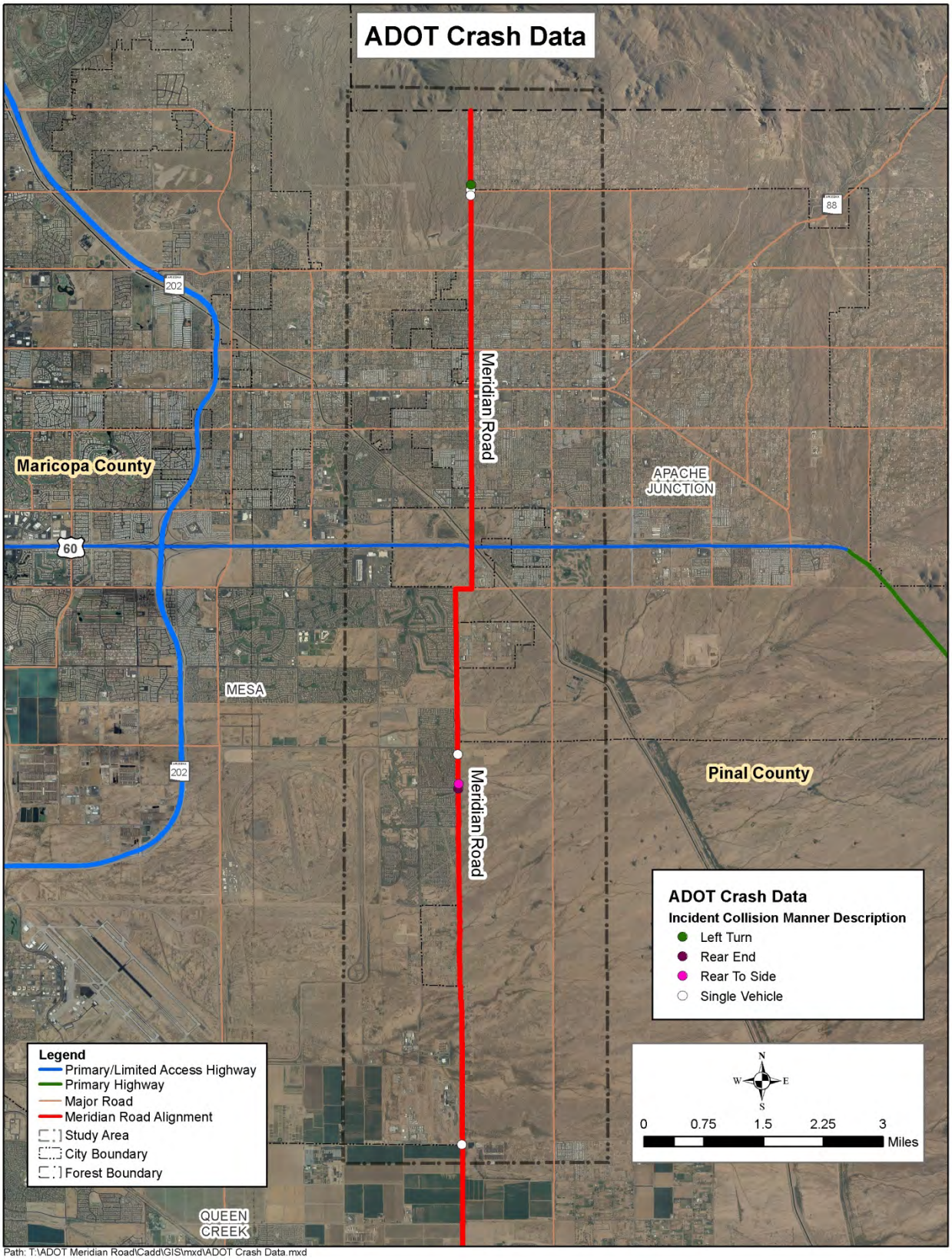


Figure 19: Crash Location and Type

VII. Environmental Summary

This section summarizes the existing environmental conditions for the Meridian Road Corridor Study Area, which is generally bounded by Germann Road on the south, McDowell Boulevard on the north, Ironwood Road on the east and Signal Butte Road on the west. This environmental overview is not intended to meet the requirements of the National Environmental Policy Act (NEPA).

The Environmental Summary describes the study area in terms of its physical and natural, and cultural resources contexts. The study area includes lands within the Cities of Mesa and Apache Junction, and the counties of Maricopa and Pinal . The information presented is based on existing data sources from municipal, county, state, and federal agencies; and, on a "windshield" survey of the study area.

Population Living within Study Area

The study area is predominately White with some Hispanics, African American, Asian, American Indian Alaskan Native, Native Hawaiian Pacific Islanders, and others. Based on 2010 US Census there are elderly, low-income, disabled and female heads of household populations are found in the study area; however, these groups represent a small percentage of the overall population. There are approximately 51,779 White, 1,339 African American, 1,282 Asian, 540 American Indian Alaskan Native, 141 Native Hawaiians Pacific Islanders, and 3,568 Other in the study area. There are 10,075 Hispanic and 48,962 Non-Hispanic. The approximate population is 60,768 for the Meridian Road Corridor Study Area. Four the census tracts overlap outside the Study Area.

Environmental Justice

The study area contains a population of approximately 60,768 persons with an average of 85 percent being white. Title VI Environmental Justice populations are relatively low in the study area.

Biotic Community

The majority of the study area is relatively flat with an average elevation of 1,200 feet above sea level. No permanent natural water sources exist within the study area; however, numerous ephemeral washes dissect the study area. The middle portion of the study area is dominated by creosote bushes with scattered ironwood, mesquite and palo verde. The study area provides cover and foraging opportunities for wildlife due to the presence of vegetation and ephemeral washes.

The southern portion of the study area is located in the Lower Colorado River Sonoran Desertscrub with vegetation that include honey mesquite (Prosopis glandulosa), ironwood (Olneya tesota), blue paloverde (Cercidium floridum), desert willow (Chiopsis linearis), creosotebush (Larrea tridentata), white bursage (Ambrosia dumosa), canyon ragweed (Ambrosia ambrosioides), indigo bush (Psorothamnus schottii), big galleta (Hilaria rigida), catclaw acacia (Acacia greggii), burrobrush (Hymenoclea salsola), saltbush (Atriplex polycarpa), and desert broom (Baccharis sarothroides). The northern portion of the study area is in the Sonoran Desertscrub - Arizona Upland Subdivision where vegetation generally appears similar to a

scrubland or low woodland of leguminous trees with intervening spaces held by several open layers of shrubs and perennials succulents. Species found within this subdivision include: blue paloverde, ironwood, mesquites (Prosopis spp.), catclaw acacia, foothill paloverde (Cercidium microphyllum), crucifixion thorn (Canotia holacantha), chollas (Opuntia spp.), saguaro (Carnegia gigantean), organ pipe (Stenocereus thurberi), barrel cactus (Echinocactus horizonthanlonius), and fishhook barrel cactus (Ferocactus wislizenii) (Brown, D.E., 1994).

Wildlife

Wildlife found in the Sonoran Desertscrub (Lower Colorado River and Arizona Upland subdivisions) includes the following:

Mammals: Desert mule deer (Odocoileus hemionuscrooki), feral burros (Equus asinus), coyote (Canis latrans), javelina (Dicotyles tajacu), desert cottontail (Sylvilagus auduboni), black-tailed jackrabbit (Lepus californicus), ground squirrels (Ammospermoshilus spp.), pocket mice (Perognathus spp.).

Birds: Burrowing owl (Athene cunicularia), quail (Lophortyx spp.), mourning dove (Zenaida macroura), doves (Zenaida spp.), road-runner (Geococcyx californianus), raven (Covus cryptoleucus), cactus wren (Campylorhynchus brunneicapillus).

Reptiles: Chuckwalla (Sauromalus obesus), common lizards (Uma spp.), whiptails (Cnemidophorus spp.), horned lizards (Phrynosoma spp.), rattlesnakes (Crotalus spp.).

Amphibians: Couch's spadefoot (Scaphiopus couchii), red-spotted toad (Bufo punctatus), Sonoran Desert toad (B. alvarius), Great Plains toad (B. cognatus), American bullfrog (Ranacatesbeiana) (Brown, D.E., 1994).

A scoping letter has been submitted to Arizona Game and Fish Department (AGFD) for any listing of threatened and endangered species in the study area. Available and existing literature review shows the study area provides suitable habitat for various native wildlife species, but does not contain suitable habitat for any federally threatened and endangered species or candidates species listed in for the southern portion of the study area south of US 60.

Visual Character and Noise

The Meridian Road corridor is in an air nonattainment area for carbon monoxide, ozone, and particulate matter smaller than 10 microns, which have transportation control measures in the State Implementation Plans and Federal Implementation Plan.

Potential sensitive noise receivers located adjacent to the Meridian Road alignment include residences, school, and churches. Grace Community Church on Apache Trail is located approximately one quarter of mile from Meridian Road. There are four other churches between Meridian Road and Ironwood Road. The Imagine Prep at Superstition school is located south of Broadway Road near Ironwood Road. Other schools within the study area include Excalibur Charter High School at Main Street and Signal Butte, Briton Elementary School at the northwest

corner of southern Blvd and Meridian Road, and Meridian Elementary School at the northwest corner of Mountain Road and Mesquite St.

Potential sensitive noise receivers within the study area include residences located adjacent to the Meridian Road alignment. Existing noise data are not currently available for the study area. During subsequent environmental documentation activities for the study area, ambient noise levels may need to be monitored at specific locations. The future noise quality for the study area would need to be evaluated against the existing noise data to conform to the ADOT Noise Abatement Policy.

Water Resources

Potential jurisdictional waters of the US located in the study area include several unnamed washes. These should be delineated before construction to determine the need for Sections 401 and 404 permits. The Central Arizona Project (CAP) canal traverses the study are at US 60 and Meridian Road. The area south of the Powerline Floodway is part of the East Mesa Area Drainage Master Plan which is under study. There are portions of the northern part of study area that occur within Zone A of the FEMA Flood Map.

Section 4(f) and Section 6(f) Properties

In the newer residential development between Baseline Road and Ray Road, there are multi-use facilities as retention basins during periods of increased flooding and may function as parks, trails and recreation areas during times of reduced rainfall and water run-off. The Little League Park is located at southwest corner of Apache Trail and Ironwood.

There are numerous hiking and equestrian trails within the study area and the most northern trail is the Pass Mountain Trail within the Usery Mountain Regional Recreation Area north of McDowell Boulevard. There is also a recreational trail than runs parallel to the CAP canal which may serve as multi-use and equestrian trial.

P & M Equestrian Park is located at the northwest corner of Brown Road and Meridian Road. The project may impact the equestrian park since it is adjacent to the Meridian Road. The Superstition Air Park (park for model airplanes) is located within the large earthen bermed retention basin north of Brown Rd and east Meridian Road.

Hazardous Materials

A review of available Arizona Department of Quality (ADEQ) databases revealed leaking underground storage tank (LUST) locations which are shown in **Table 14**.

Table 14: Leaking Underground Storage Tank Locations

Location	UTM	Type
At Signal Butte along West Apache Trail	X:444424, Y: 3697549	LUST
Between Meridian and Mountain Road along West Apache Trail	X: 445532, Y: 3697589	LUST
Between Meridian Road and Ironwood along West Apache Trail	X: 447071, Y: 3697589	LUST
At Ironwood along West Apache Trail	X: 447644, Y: 3697393	LUST
At Delaware Road and Broadway	X:446862, Y: 3696650	LUST
East Baseline Road east of Meridian Road	X: 446340, Y: 3693443	LUST
On West Germann Road east of Meridian Road	X: 446288, Y: 3682205	LUST

Sharon Hodges of Allands conducted the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and the Resource Conservation and Recovery Act (RCRA) database search for the property located South of McDowell Road and North of Germann Road, from Signal Butte Road to just East of Ironwood Drive, Mesa and Apache Junction, Arizona, being in Sections 1, 12, 13, 24, 25 and 36, Township 1 North, Range 7 East; Sections 5 through 8, 17 through 20, and 29 through 32, Township 1 North, Range 8 East; Sections 1, 12, 13, 24, 25 and 36, Township 1 South, Range 7 East; Sections 5 through 8, 17 through 20, and 29 through 32, Township 1 South, Range 8 East; Section 1, Township 2 South, Range 7 East; and Sections 5 and 6, Township 2 South, Range 8 East, Gila and Salt River Base and Meridian.

The CERCLIS list contains sites which are either proposed to or on the National Priority List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. Those sites on the No Further Action Planned (NFRAP) list have no further remedial action planned. This database is provided by EPA dated June, 2012, and Allands searched for facilities within a 0.5 mile search distance from subject property exterior boundaries. There were no CERCLIS / NFRAP facilities found located within subject property boundaries.

Under Resource Conservation and Recovery Act (RCRA) the Environmental Protection Agency compiles a database of facilities that are involved in the generation of hazardous materials. This database is from the Arizona Department of Environmental Quality RCRAInfo Database, dated June, 2012 and Allands checked for Federal RCRA facilities located within a 0.125 mile search distance from subject property exterior boundaries. **Table 15** lists the RCRA facilities within 0.125 mile of the Meridian Road Corridor Study study area.

Table 15: Resource Conservation and Recovery Act (RCRA) Facilities

EPA ID	FACILTY	ADDRESS	NOTIFICATION DATE	STATUS
AZR000047035	Apache Junction Cancer Center	2080 W Southern Ave	3/1/2008	CEG
AZR000047034	Apache Junction Cancer Center	2080 W Southern Ave	2/23/2009	CEG
AZR000044545	EVDI Medical Imaging Ironwood	2080 W Southern Ave	1/29/2009	SQG
AZS000047480	HD Automotive & Machine Shop	2210 W Apache Trail	8/31/2004	N
AZR000500769	Statewide Environmental Oil Services	2475 W Dallas Ave	2/10/2008	N
AZR000043166	Wal Mart Store 1381	2555 W Apache Trail	3/2/2009	CEG
AZR000042374	Solvents Systems Inc	4793 S Desert View Dr	5/8/2006	N
AZE050323002	Sunbelt Tank Services	4932 S Penny Lane	6/21/2005	N
AZR000037812	MUSD 4 Pur Oper / Sousa Elem	616 N Mountain	2/14/2005	CEG
AZD982491649	TRW VSSI / TRW Vehicle Safety Systems Mesa Ii Facility	11202 E Germann Rd	2/3/2010	LQG / CORRACTS
AZR000506931	CMC Steel Arizona	11444 E Germann Rd	2/2/2009	N
AZE060911001	CRM Of America LLC	11400 E Pecos Rd	4/23/2008	SQG
AZR000004846	Walgreens 2963	11545 E Apache Trail	7/31/2001	N
AZR000503607	Wal-Mart Super Center 3833	1606 S Signal Butte Rd	3/2/2009	SQG
AZR000506899	Bright Now Dental	1804 S Signal Butte Rd	1/12/2009	CEG
AZR000506196	Gateway Smiles	1901 S Signal Butte Rd	1/8/2009	CEG
AZR000001016	Fuji Film Electronic Materials USA / Arch Chemicals Inc / Olin Electronic Materials	6550 S Mountain Rd	3/25/2010	LQG
AZR000002394	MGC Pure Chemicals America Inc	6560 S Mountain Rd	2/21/2008	N
AZR000046987	Top Drawer Components Apache Junction	5154 S Delaware Dr	2/17/2009	CEG

LQG: Large quantity generator (more than 1000 kg per month)
SQG: Small quantity generator (100 – 1000 kg per month)
CEG: Conditionally exempt small quantity generator (less than 100 kg per month)
N: Not a generator verified or inactive generator

Cultural Resources

Background Research

A site file check covering both the area identified as the project corridor and a 1-mile study area buffer was conducted. The online AZSITE Cultural Resource Database was checked. Approximately 65 archaeological projects have taken place within one mile of the project area; because none of them examined any portion of the project corridor within the past 10 years, no further information about these previous projects is provided herein. Twenty-five sites have been previously recorded in the review area, of which three occur within or immediately adjacent to the 200-foot-wide corridor (**Table 16**). NA15612 is a small Hohokam artifact scatter on the west side of Meridian Road between US 60 and Baseline Road; AZSITE has no record of its National Register eligibility. AZ FF:9:17(ASM) is the historic US Highway 80, which follows the Apache Trail alignment across the project corridor; the site as a whole has been determined eligible under Criteria A and D, but the segment through the project corridor lacks integrity of design, setting, materials, workmanship, and feeling, so it does not contribute to the site's overall eligibility. AZ U:10:36(ASM) is a large Hohokam resource procurement site; the western

extent of the site intersects the project corridor roughly midway between Guadalupe and Elliot roads.

AZSITE shows no historic buildings in the review area. A review of the online Maricopa County Assessor's GIS database did not identify any buildings 45 years or older on the west of the corridor. The Pinal County Assessor Office does not maintain a similar online database so additional research would be required to determine if any buildings on the east side of the corridor are historic.

Table 16: Summary of Previously Recorded Cultural Resources within the Study Area

Agency Site No.*	Site Type	Eligibility Recommendation
NA15611	Hohokam artifact scatter	No data
NA15612	Hohokam artifact scatter	No data
NA15613	Historic homestead	No data
AZ FF:9:17(ASM)	Historic US Highway 80	Determined eligible (Criteria A and D)
AZ U:10:7(ASM)	Historic habitation site	Not evaluated
AZ U:10:12(ASM)	Hohokam artifact scatter	Not evaluated
AZ U:10:12(ASU)	Hohokam artifact scatter	No data
AZ U:10:13(ASM)	Hohokam artifact scatter	Not evaluated
AZ U:10:36(ASM)	Hohokam resource procurement site with artifact scatter and 32 roasting pits	Recommended eligible (Criterion D)
AZ U:10:37(ASM)	Hohokam artifact scatter with rock pile	Recommended eligible (Criterion D)
AZ U:10:38(ASM)	Hohokam sherd scatter with rock scatter	Unknown
AZ U:10:40(ASM)	Hohokam sherd scatter with rock scatter	Unknown
AZ U:10:41(ASM)	Hohokam artifact scatter	Unknown
AZ U:10:45(ASU)	Hohokam sherd scatter	No data
AZ U:10:78(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:79(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:80(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:104(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:105(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:137(ASM)	Hohokam artifact scatter	Recommended not eligible
AZ U:10:139(ASM)	Hohokam artifact scatter	Recommended eligible (Criterion D)
AZ U:10:151(ASM)	Hohokam artifact scatter	Determined not eligible
AZ U:10:178(ASM)	Hohokam artifact scatter	Recommended not eligible
AZ U:10:179(ASM)	Hohokam artifact scatter with rock cluster	Recommended not eligible

Bold indicates sites within or immediately adjacent to the project corridor

Windshield Survey

A windshield survey of the project area was conducted on July 26, 2012 by Kristin Fangmeier. The entire length of the corridor was driven in both directions except where access was restricted by fences or no paved or dirt road existed. **Table 17** describes the current conditions along the project corridor. North of US 60, much of the project corridor is developed and

Meridian Road is paved; south of US 60, Meridian Road is largely unpaved and crosses through mostly undeveloped land.

Table 17: Summary of Current Corridor Conditions

Northern Crossroad	Southern Crossroad	Current Corridor Conditions	Recommendations for Further Work
McDowell Boulevard	McKellips Boulevard	Paved two-lane road with bladed shoulders. Some adjacent parcels are developed but corridor along road is largely natural vegetation (60 percent).	Conduct Class III survey of undeveloped areas
McKellips Road	Lost Dutchman Boulevard	Paved two-lane road with bladed shoulders. Some adjacent parcels are developed but corridor along road is largely natural vegetation (80 percent).	Conduct Class III survey of undeveloped areas
Lost Dutchman Boulevard	Superstitions Boulevard	Paved two-lane road with bladed or landscaped shoulders. Widens to include center turn lane south of Smoketree Street. Widens to four lanes with center turn lane and right-turn lane north of University Drive. Most adjacent parcels are developed but corridor along road has some natural vegetation (40 percent).	Conduct Class III survey of undeveloped areas
Superstitions Boulevard	Broadway Avenue	Paved two-lane road with bladed or landscaped shoulders. Widens to four lanes with center turn lane near intersections at each end and at Apache Trail. Adjacent parcels are developed with little to no natural vegetation (less than 10 percent).	No further work
Broadway Avenue	Southern Avenue	Paved two-lane road with bladed or landscaped shoulders, with occasional right turn lanes. Widens to four lanes with center turn lane near intersection at Broadway Road. Most adjacent parcels are developed with no natural vegetation, but a small section (approx. 500 ft long) on both sides of road north of Southern Avenue is undeveloped.	Conduct Class III survey of undeveloped area north of Southern Ave.
Southern Avenue	Baseline Road	Paved two-lane road with bladed shoulders. Few adjacent parcels are developed so majority of project corridor is open (80 percent).	Conduct Class III survey of undeveloped area
Baseline Road	Guadalupe Road	Corridor not accessible (fenced off) but aerial imagery shows moderate disturbance. Some adjacent development.	Conduct Class III survey
Guadalupe Road	Elliot Road	Northern half not accessible but aerial imagery shows moderate disturbance (blading and/or dirt road). Southern half is paved two-lane road with center turn lane. Shoulder is landscaped on west side (back of residential development) and bladed on east side (undeveloped).	Conduct Class III survey of undeveloped areas
Elliot Road	Warner Road	Paved two-lane road with center turn lane. Shoulder is landscaped on west side (back of residential development) and bladed on east side (undeveloped).	Conduct Class III survey of undeveloped areas

Table 17: Summary of Current Corridor Conditions (continued)

Northern Crossroad	Southern Crossroad	Current Corridor Conditions	Recommendations for Further Work
Warner Road	Ray Road	North half is paved two lane road. Shoulder is landscaped on west side (back of residential development) except parcel at southwest corner of intersection at Warner Road and bladed on east side (undeveloped). South half is inaccessible but aerial imagery shows moderate disturbance (blading and/or dirt road) between residential development and undisturbed desert.	Conduct Class III survey of undeveloped areas
Ray Road	Williams Field Road	Bladed dirt road or two-track through disturbed but largely undeveloped desert. Some houses along the road.	Conduct Class III survey of undeveloped areas
Williams Field Road	Pecos Road	Bladed dirt road or two-track through disturbed but largely undeveloped desert. Some houses along the road.	Conduct Class III survey of undeveloped areas
Pecos Road	Germann Road	Bladed dirt road or two-track through disturbed but largely undeveloped desert. Some adjacent development.	Conduct Class III survey of undeveloped areas

Recommendations for Further Cultural Resource Work

Based on the results of the desktop search of the AZSITE database, the Meridian Road corridor has not been surveyed within the past 10 years. The windshield survey revealed that the corridor occurs in a mixed urban and rural environment; although portions of the corridor have been developed, others contain largely undisturbed desert. Therefore, it is recommended that the undeveloped areas within the project corridor be subject to a Class III pedestrian survey to identify any previously recorded cultural resources. It is possible that AZ U:10:36(ASM) will require mitigation prior to construction; NA15612 may also require additional work if the survey determines that the site extends into the project corridor. It is unlikely that AZ FF:9:17(ASM) will require further work due to the lack of integrity; it is recommended that a formal evaluation of the historic highway alignment be conducted at the time of the Class III survey. In addition, a historic building assessment is recommended to determine if any standing buildings 45 years or older occur along the project corridor.

VIII. Future Conditions

The following sections provide an inventory of future conditions within the study area.

Flood Control District Channels

As part of an update of the Area Drainage Master Plan (ADMP), the Flood Control District of Maricopa County (FCDMC) is studying a number of options for drainage and capacity issues. The study area is divided into three somewhat independent zones which include three proposed alternatives for consideration. These are summarized below:

ADOT SR 24 Zone:

The SR 24 Zone includes the contributing area between the Powerline Floodway and the future State Route 24 (SR 24) freeway. The future freeway drainage system is the back bone of this zone and will intercept runoff and convey it to the Powerline Floodway. The remaining drainage issues are concentrated between the Mountain View Road and Meridian Road alignments from Ray Road on the north to Williams Field Road on the south. Significant runoff generated in Pinal County combines with local flow and floods large tracks of land and impedes traffic and local access. Three alternatives have been developed for this area. Alternative 1 includes an interceptor channel along Meridian Road south of Ray Road to SR 24 along with an interim detention basin within the SR 24 right-of-way. Alternative 2 is similar to Alternative 1 except the detention basin would be permanent and be located further north at Galveston Road. Alternative 3 addresses more frequent, smaller flooding, rather than the 100-year protection of the regional issues. The components of this alternative include a series of roadside channels which discharge into an existing channel.

Ellsworth Zone:

This zone extends from the proposed SR 24 Gateway freeway to Queen Creek Road and includes the drainage area contributing to the exiting Ellsworth Channel which has capacity concerns. Other drainage issues include chronic flooding along Pecos Road. Three alternative solutions have been recommended for this zone. Alternative 1 includes channels along Meridian Road from the proposed SR 24 to Queen Creek Road together with a channel along Pecos Road. A detention basin is also proposed at the intersection of Meridian Road and Pecos Road as well as at Pecos Road and Ellsworth Road. Alternative 2 is similar to Alternative 1 except that the Pecos Road Channel is offset from the road to follow historic drainage patterns and the basin at the intersection Pecos Road and Ellsworth Road is eliminated. Alternative 3 is again similar to Alternative 1 except a portion to the Pecos Road Channel is shifted a quarter mile to the south and would require some modification to the existing Ellsworth Channel.

Rittenhouse Zone:

The Rittenhouse Zone includes the area from Germann Road to Queen Creek Road and deals with drainage complaints along Germann Road and capacity concerns with the Rittenhouse Channel. As with the other zones three alternatives have been developed to alleviate the drainage problems. Alternative 1 includes regional channels on Germann Road and Queen Creek Road from Meridian Road to the existing Rittenhouse Channel along with lateral channels connecting the two channels. Detention basins along each regional channel will also be included. Alternative 2 replaces the Germann and Queen Creek channels with a single channel roughly following historic flow paths. Several lateral channels will also be included to convey flow into the main regional channel. Similar to Alternative 1, Alternative 3 eliminates the detention basins and instead recommends that a future development would be subject to a higher retention requirement. The alternative will include the preservation of some agricultural land within the drainage area to reduce overall runoff.

The proposed channels for the regional facility will be constructed with 8:1 landscaped slopes with a low-flow movable bed channel. This will produce a top width of approximately 125 feet. Combined with the roadway right-of-way this gives an overall width of around 250 feet. Potential conflicts arise on how to best center the proposed channel and roadway to make best use of the existing right-of-way, limit conflicts with existing properties and limit land take within Pinal County. The majority of the land adjoining Meridian Road in Pinal County is owned by Arizona State Land Department (ASLD). ASLD will advocate that the channels be designed for post development conditions; enabling them to potentially waive on-site detention. This would give ASLD an incentive to participate in the regional system. However, FCDMC assumes the post development condition will include on-site detention, therefore allowing for a smaller regional facility. It will be incumbent for the designers to coordinate the roadway alignments and cross sections with ASLD and FCDMC as well as other project partners.

Future Recreation Trails, Parks/Areas and Open Space

The *City of Apache Junction 2010 General Plan* Park and Recreation Implementation Plan states plans for expansion of Prospector Park, development and implementation of community parks, neighborhood parks, trails and open spaces, and special use facilities within the Portalis and Superstition Vistas Communities, development and implementation of a master plan for Siphon Draw Park, and expand and implement non-motorized trails and open spaces guidelines within the City. One future community park is planned at Elliot Road and Meridian Road.

The *City of Mesa 2025 General Plan* shows three future neighborhood parks within two miles of Meridian Road at Crismon Road and Brown Road, Signal Butte Road and Baseline Road, and Crismon Road and Ray Road. The City is also proposing a community park and metro park at Signal Butte Road and Guadalupe Road and a metro park at Crismon Road and Brown Road.

Future Multimodal Transportation

The City of Mesa is proposing to expand the express bus route along US 60 east past Meridian Road. The City is proposing that Main Street east of the light rail terminus to Meridian Road become a transit priority corridor. A transit priority corridor will provide enhanced bus service and can improve level of service within the corridor by improving intersection capacity and providing buses a dedicated or shared lane with assigned traffic signal priority. Local bus routes along major crossroads between McKellips Boulevard and Southern Avenue was expanded from Power Road to Ellsworth Road. Local bus routes along Baseline Road are proposed to be expanded from Power Road to Signal Butte Road. New local routes are proposed for all major crossroads south of Baseline Road. The City of Mesa is also proposing new bike lanes along Meridian Road south of Baseline Road as well as along all major crossroads between Brown Road and Germann Road in the vicinity of the study area.

The City of Apache Junction is proposing a local bus route along Meridian Road from University Drive/Superstition Boulevard to Baseline Road. This transit route would provide additional service to the area bounded by Meridian Road to the west, Apache Trail to the north, Ironwood Road on the east, and Baseline on the south that has a high combined residential and employment density. Wal-Mart, the County/DMV office, City Hall, mixed use center and a

transit hub are significant trip generators located along the proposed route. The City is proposing bike lanes or bike paths along Tepee Street, Apache Trail, and 16th Avenue (half mile south of Broadway Avenue) in the vicinity of the study area. An equestrian route is proposed a quarter mile south of Lost Dutchman Boulevard in the vicinity of the study area.

IX. Future Socioeconomic Data

Planned Land Use

Located between Meridian Road and Signal Butte Road in Mesa is the Master Planned Community of Bell Via, which incorporates a mix of residential densities ranging from four to six units to the acre. The Portalis development (formerly Lost Dutchman Heights) is 7,700 acres of State Trust Land set to be developed as a master planned community. It is estimated that full build out will be 2045 with 39,000 units of future residential development and a population of 90,000 residents, 6-8 million square feet of future commercial building development and 250+/- acres of light industrial/business park development with 24,000 employees.

Superstition Vistas includes 175,000 acres of raw desert land held in trust by the Arizona State Land Department situated east of Meridian Road and extending to US 60. The area is designed as an integrated master planned community featuring housing, employment centers and interconnected transportation system. Though the region would benefit from Superstition Vistas' capacity to handle future growth, the extent of development of Superstition Vistas depends immediately on State Trust Land policy and actions and the delivery of adequate infrastructure. Without adequate transportation infrastructure the growth of Superstition Vistas will stall. Economic development is necessary for Superstition Vistas' future growth, though the degree to which this area can reach its economic development potential will depend on adequate transportation infrastructure. Depending on future growth rates the estimated population will be between 250,000 and 1 million.

Future Land Development within the Corridor

Future growth along and within the study area is expected to respond to three key development related influences. Most prominently in Mesa is the conversion of the Phoenix-Mesa Gateway Airport from a general aviation airport to a reliever commercial facility for Sky Harbor International Airport in Phoenix. This has triggered further significant commercial and residential expansion not only for the southeast valley, but northern Pinal County as well. Complementing the transition and development of this aviation facility is the construction of the SR 24 Gateway Freeway. This limited access roadway is expected to accommodate new residential growth in the southeast valley and to generate substantial commercial, office, and industrial opportunities at its intersection with primary arterial roadways in the area. General Motors (GM) operated a 5,000-acre proving ground and research facility. Closure of the proving grounds operations will lead to redevelopment and disposition of this property in various configurations that include both residential and employment opportunities. The Mesa Gateway Strategic Development Plan shows blended residential along with medium-high density

residential and urban centers at strategic node points within the research facility. Furthermore, Mesa's adopted General Plan also identifies a substantial amount of land for light and general industrial development. This is in response to the expansion of services at WPhoenix-Mesa Gateway Airport and reflects the anticipated employment development within this region.

On the east side of the Meridian Road corridor in Pinal County, future land uses are recommended to occur in a much more generalized manner. The Pinal County Comprehensive Plan permits both flexibility and innovation for future development. Anticipating continued annexation and subsequent development in the area near the incorporated City of Apache Junction. The goal of this area is to retain large tracts of rural parcels in single ownership so that master planned communities can be devolved in the future along with the establishment of roadways, service areas and other infrastructure improvements. This is typified by the planned region area known as Superstition Vistas, in northern Pinal County, which is expected to create additional internal and external trips within the study area.

Pinal County's Land Use Plan also shows an employment corridor between Williams Field Road and Pecos Road. A High Intensity Activity Center, Williams Gateway Freeway Activity Center, is located at Ironwood Road between Williams Field Road and Pecos Road. The Williams Gateway Freeway Activity Center includes medium and high density residential development. Build out population associated with this residential development could accommodate approximately 21,000 people. Approximately 300 acres of various employment types are also identified for planning purposes that could result in the potential for 29,000 jobs in this area. **Figure 20** shows the future land uses within the study corridor.

Population and Employment

In 2010, the total residential population within the boundaries of the project influence area includes nearly 210,000 people within the three municipalities of Mesa, Apache Junction and Queen Creek and the two counties of Pinal and Maricopa that encompass the area. The area of influence is generally bounded by McDowell Boulevard to the north, Germann Road to the south, US 60 to the east, and SR 202L to the west. By the year 2031, the resident population in the influence area is expected to grow more than 250 percent, reaching nearly 583,000 residents. The most dramatic population gain among the jurisdictions and the counties is expected to occur in Pinal County. The majority of this area is currently owned by the Arizona State Land Department, and includes Portalis and Superstition Vistas master planned communities. The future development of these communities will trigger a population jump from approximately 34,300 in 2010 to nearly 240,000 in 2031. Significant population increases in Apache Junction, Mesa, Pinal County and Queen Creek are also reflected in **Table 18**.

Job growth in the area of influence is also expected to rise through the year 2031 and will generally follow the pattern of growth for residential population. Nearly 43,700 jobs currently exist within the project influence area, a majority of which are contained in the industrial and commercial core of southeast Mesa. However, as the Phoenix-Mesa Gateway Airport and SR 24 Gateway Freeway corridor continues to develop, future jobs will locate on the eastern portion of the corridor as well. Pinal County, which is estimated to produce the greatest rise in resident

population, will also exhibit the greatest gain in job growth. Currently, approximately 2,800 jobs exist in Pinal County. The county only captured six percent of the total jobs located within the entire project influence area. In 2031, the approximate 24,500 jobs expected to exist in Pinal County will account for 12.5 percent of the total study area employment. Queen Creek, Mesa, and Apache Junction are all expected to experience significant employment gains.

Table 18: Project Influence Area Population Projections

MPA	Total Population Observed in 2010 Census	Total Population Projected for 2010	Total Population Projected for 2025	Total Population Projected for 2031
Apache Junction	42,570	75,186	134,424	151,419
Mesa	137,170	128,639	163,436	171,912
Pinal County	14,243	34,339	181,212	223,632
Queen Creek	13,233	15,611	32,052	36,322
TOTAL	**207,216**	**253,775**	**511,124**	**583,285**

Source: MAG 2007 Socioeconomic Projections
Note: Populations are for the portions of the MPA that falls in the Meridian Road Corridor study area only

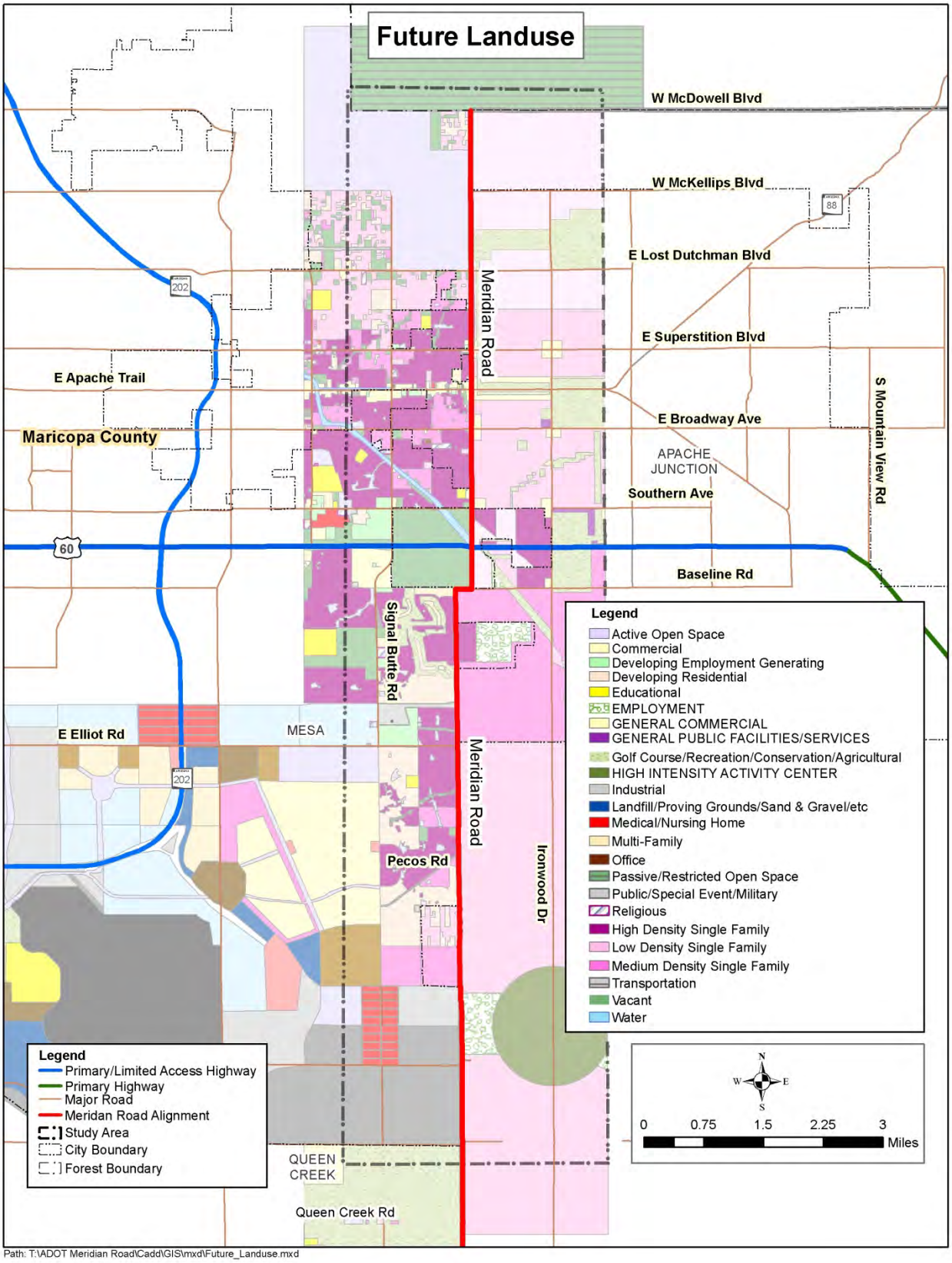


Figure 20: Future Land Use

X. Future Traffic Volumes

Characteristics of the future transportation network were developed after reviewing relevant plans and studies described in the section of this report titled ***Summary of Existing Plans and Studies***. The specific studies used to determine practical 2025 and 2035 traffic volumes were the *MCDOT Meridian Road Access Control and Corridor Improvement Study* and the *Apache Junction Comprehensive Transportation Study*. MAG's 2025 and 2035 travel demand forecasts were also reviewed to determine 2025 and 2035 future traffic volumes.

After review of the *MCDOT Meridian Road Access Control and Corridor Improvement Study* it was determined that the roadway network south of the US 60 was not consistent with more current plans and studies. 2025 and 2035 traffic volumes on the major streets crossing Meridian Road were significantly different between the MCDOT study and the MAG models. These differences are likely due to the planned changes in roadway network since the MCDOT study was completed. Therefore the MAG models for 2025 and 2035 traffic volumes were used for this study for traffic volumes south of the US 60. After review of the MAG 2025 travel demand model north of the US 60, it was noted that the traffic volumes decreased from 2025 to 2035 and did not show good agreement with the traffic volume in the *Apache Junction Comprehensive Transportation Study*. Between the MAG 2025 model and the MAG 2035 model, two miles of McKellips Boulevard between Meridian Road and Crismon Road was opened thus changing the dynamics of the traffic flow in that area. Under the MAG 2025 model roadway network, traffic heading from the northwest and desiring to go to the southeast (or vice versa) is forced onto Brown Road/Lost Dutchman Boulevard due to McKellips Boulevard not extending west past Meridian Road. With the opening of this segment of McKellips Boulevard under the MAG 2035 model, this route became the shortest path for the model to send the traffic along. A significant amount of the demand was shifted from Brown Road/Lost Dutchman Boulevard to McKellips Boulevard thus reducing the estimated volumes along Brown Road/Lost Dutchman Boulevard from 2025 to 2035. After review of the relevant studies and plans collected, it did not appear that McKellips Boulevard will extend west of Meridian Road; therefore, the traffic volumes from the *Apache Junction Comprehensive Transportation Study* were utilized for this study north of US 60. This information led to the development of the assumed future year 2025 and 2035 roadway network and the 2025 and 2035 daily traffic volumes shown in **Table 19** and graphically in **Figure 21** and **Figure 22**, respectively. Turning movement volume forecasts are shown in **Figure 23** and **Figure 24**, respectively for 2025 and 2035.

.

Table 19: 2025 and 2035 Daily Traffic Volumes

Meridian Road Segment	Direction	2025 ADT	2035 ADT
McDowell Road to McKellips Boulevard	NB	0-5,000*	0-5,000*
	SB		
McKellips Boulevard to Brown Road/Lost Dutchman Boulevard	NB	0-5,000*	0-5,000*
	SB		
Brown Road/Lost Dutchman Boulevard to University Drive/Superstition Boulevard	NB	0-5,000*	5,001-10,000*
	SB		
University Drive/Superstitions Boulevard to Apache Trail	NB	5,001-10,000*	10,001-20,000*
	SB		
Apache Trail to Broadway Road	NB	5,001-10,000*	10,001-20,000*
	SB		
Broadway Road to Southern Avenue	NB	5,001-10,000*	10,001-20,000*
	SB		
Southern Avenue to US 60	NB	10,001-20,000*	20,001-30,000*
	SB		
US 60 to Baseline Road	NB	14,315	14,761
	SB	14,709	15,129
Baseline Road to Guadalupe Road	NB	12,087	12,445
	SB	12,070	12,434
Guadalupe Road to Elliot Road	NB	6,664	5,878
	SB	6,618	5,994
Elliot Road to Warner Road	NB	14,945	13,251
	SB	14,621	13,376
Warner Road to Ray Road	NB	9,647	8,312
	SB	8,666	8,339
Ray Road to Williams Field Road	NB	8,835	9,355
	SB	7,775	9,473
Williams Field Road to SR 24	NB	12,846	4,413
	SB	12,516	5,347
SR 24 to Pecos Road	NB	10,556	15,484
	SB	10,226	16,181
Pecos Road to Germann Road	NB	6,516	10,751
	SB	6,076	11,586

* ADT range as shown in the Apache Junction Comprehensive Transportation Study for population levels 2 & 3

The 2025 and 2035 average daily traffic level of service was determined using the same methodologies as discussed in the section of this report titled ***Existing 2012 Level-of-Service***. The number of lanes depicted in the MAG models were used to determine the LOS. MAG

indicated a three lane section for Meridian Road in 2025 and 2035 within the study area. The LOS thresholds used for a two lane undivided roadway were adjusted by 5% to account for the center lane or exclusive left turn lanes as shown in **Appendix B**.

The 2025 and 2035 average daily traffic LOS within the study area are shown in **Figure 25** and **Figure 26**, respectively.

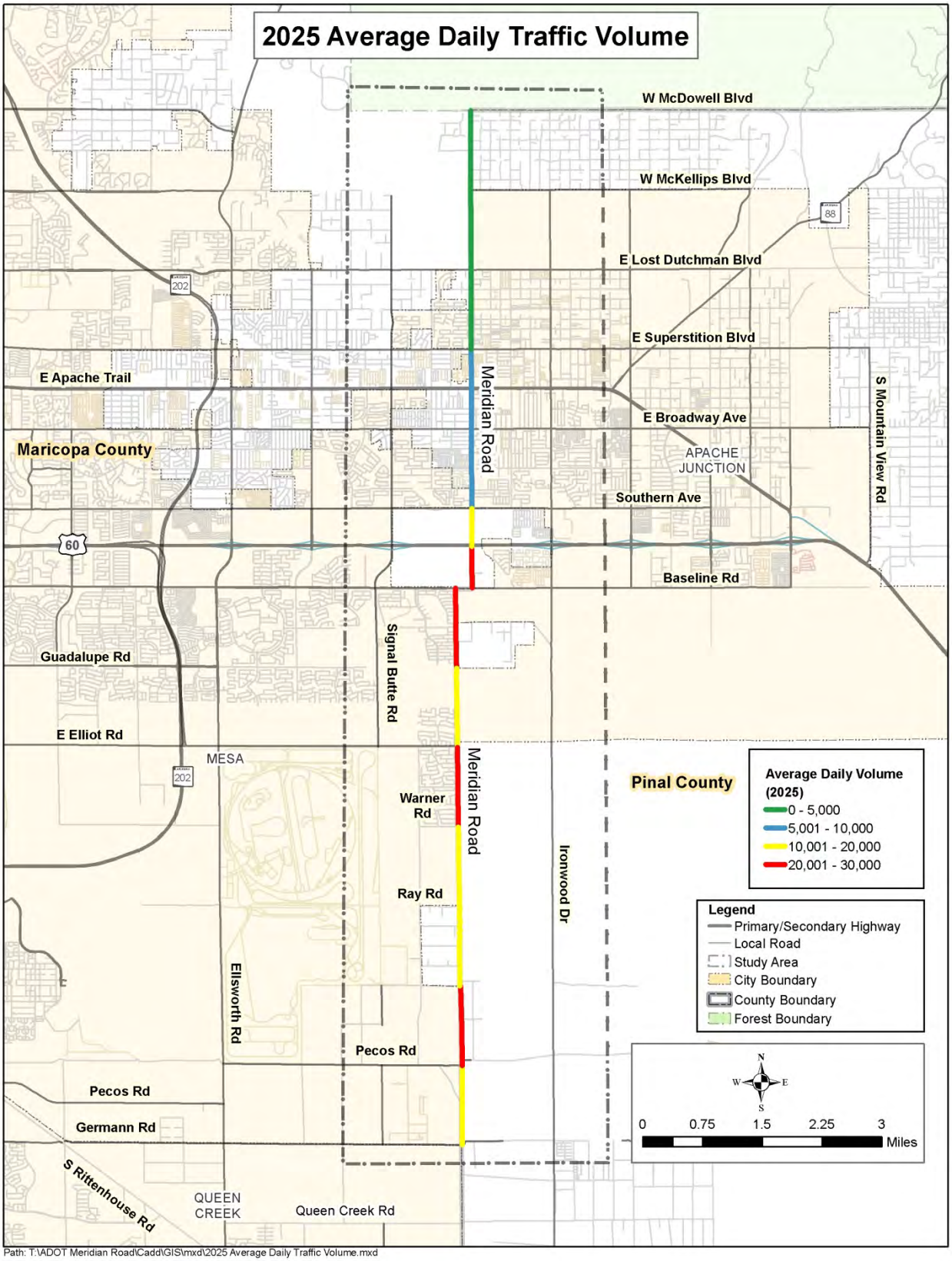


Figure 21: 2025 Daily Traffic Volumes

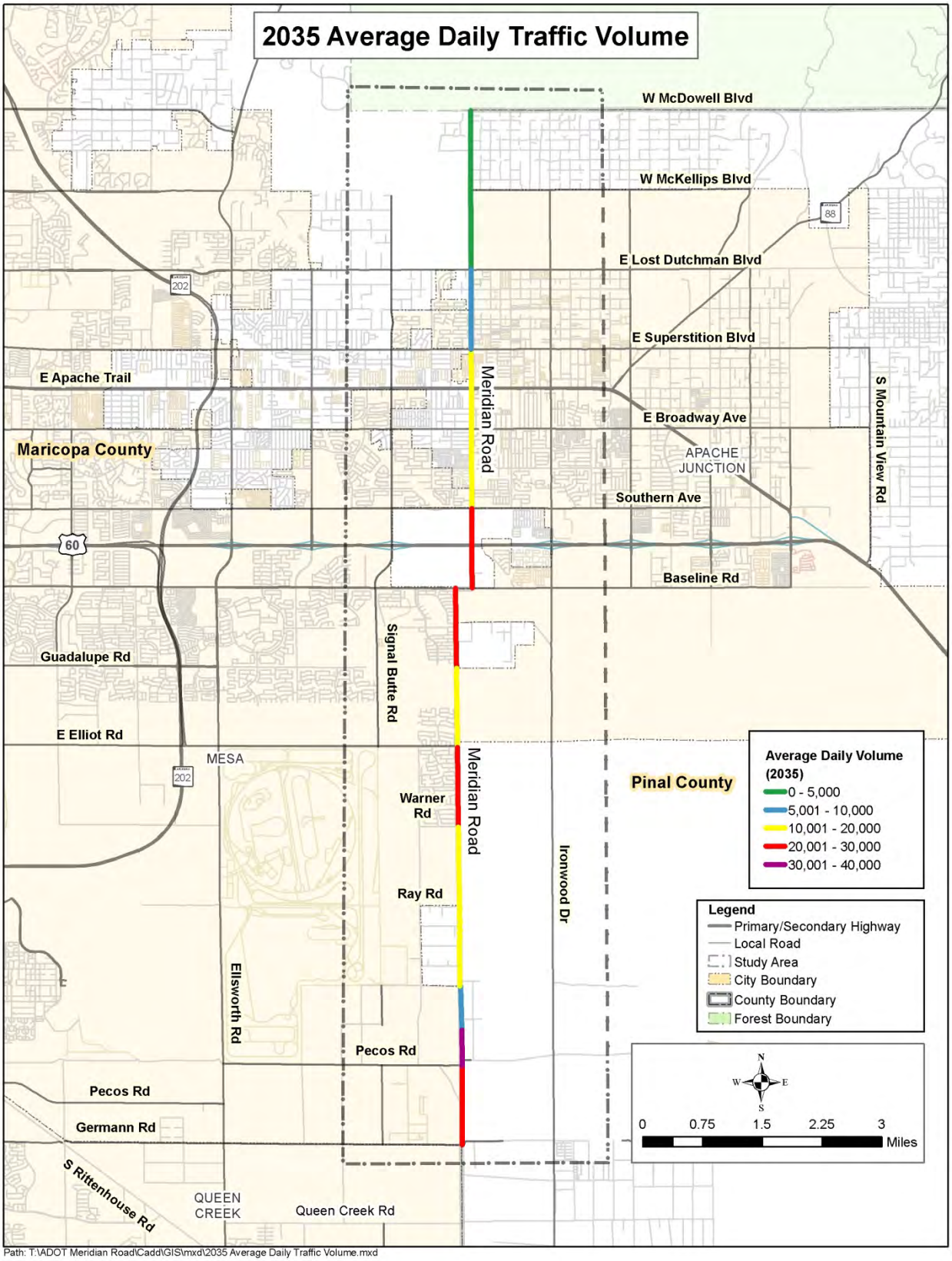
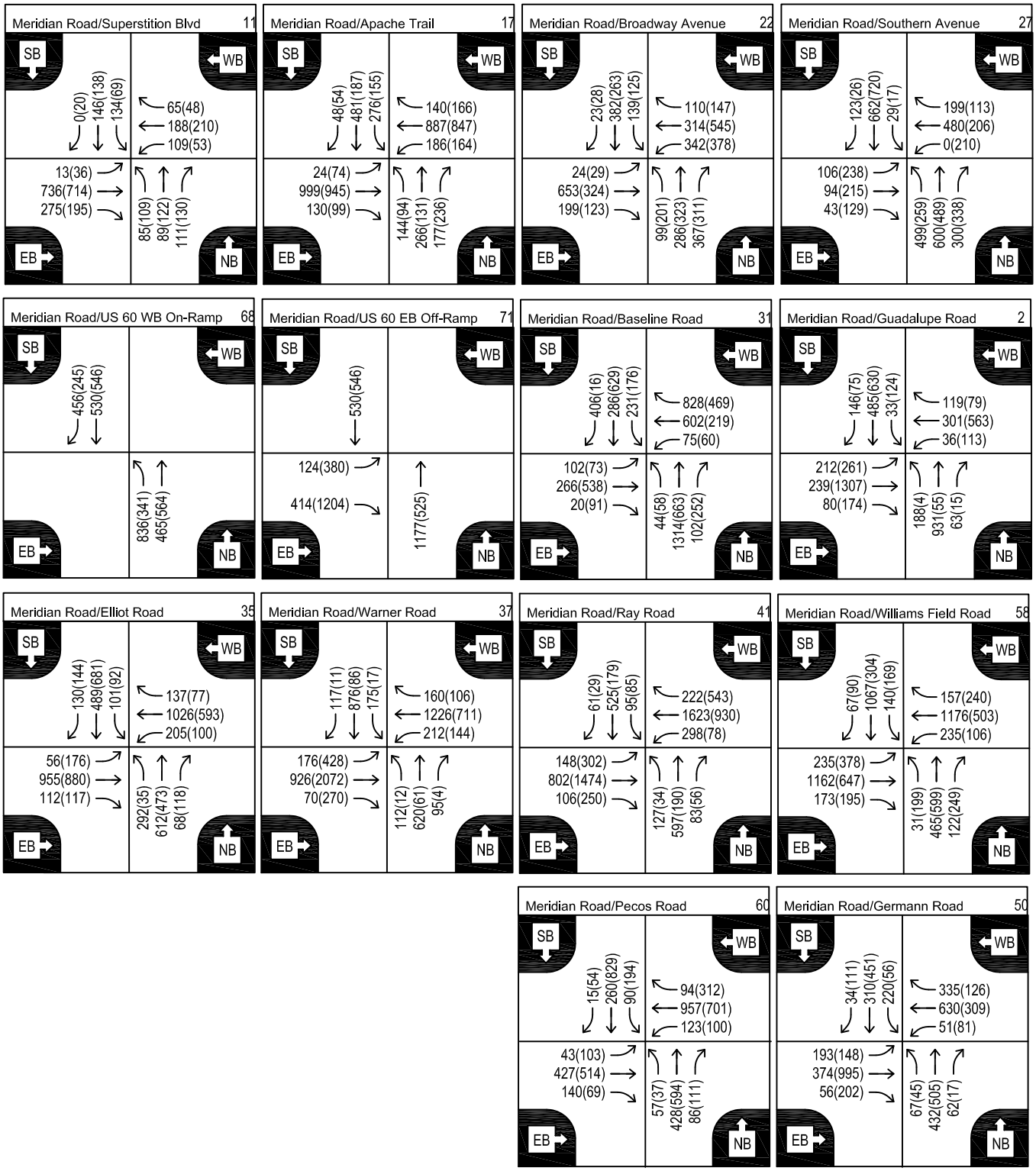


Figure 22: 2035 Daily Traffic Volumes



Legend

← AM (PM) Peak Hour Volume

Figure 23
2025 Turning Movement Volumes

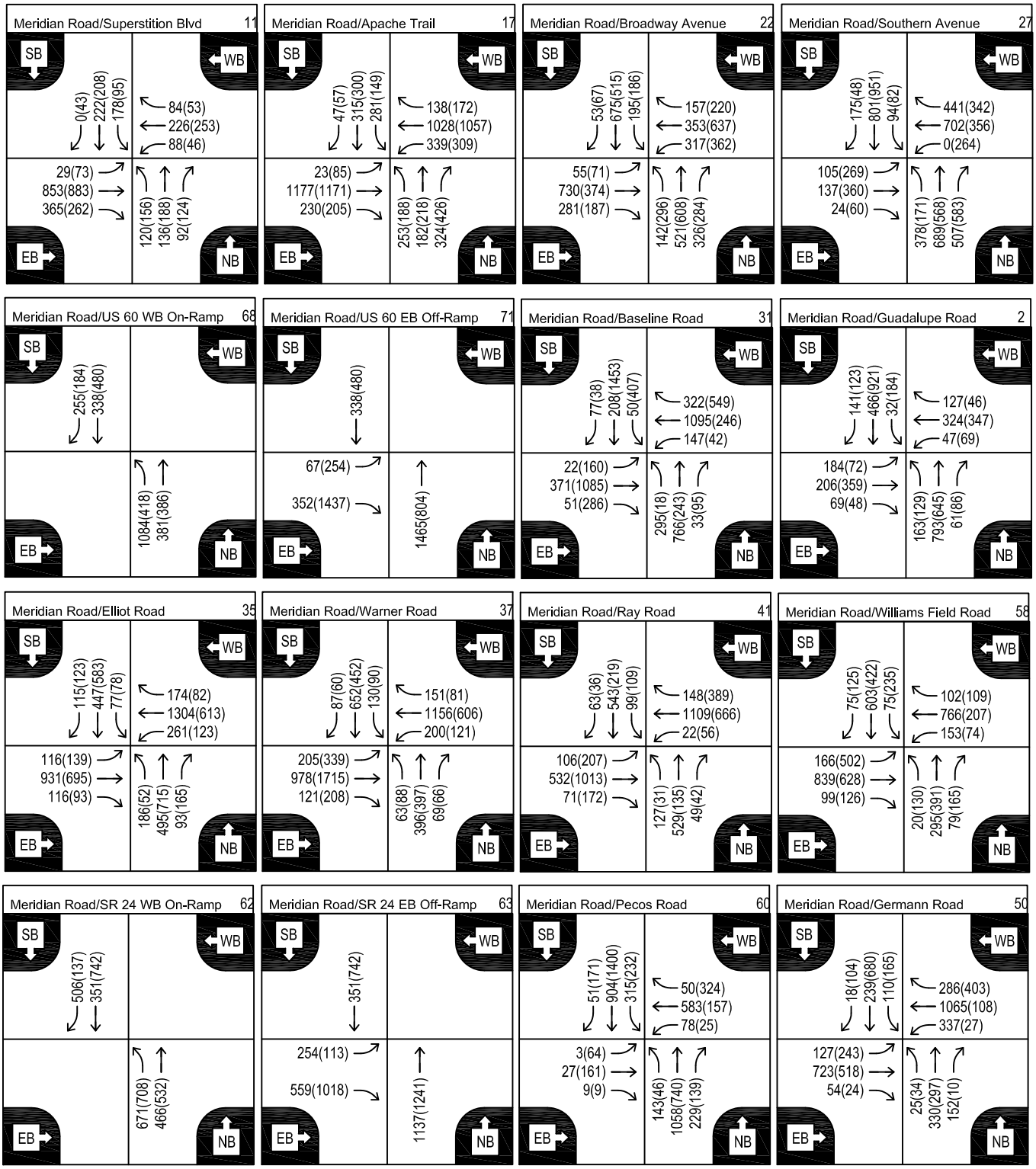


Figure 24
2035 Turning Movement Volumes

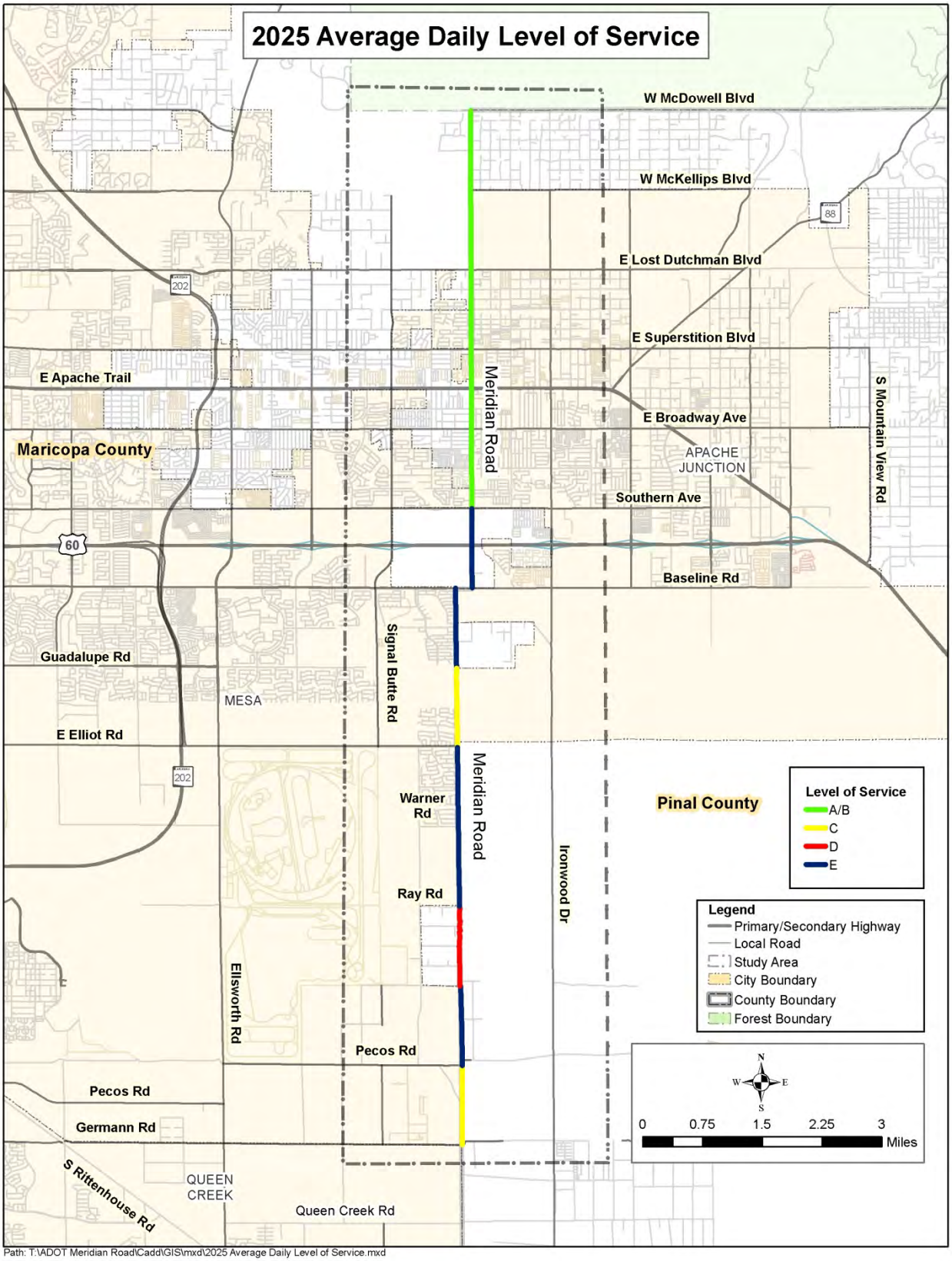


Figure 25: 2025 Average Daily Traffic Level of Service

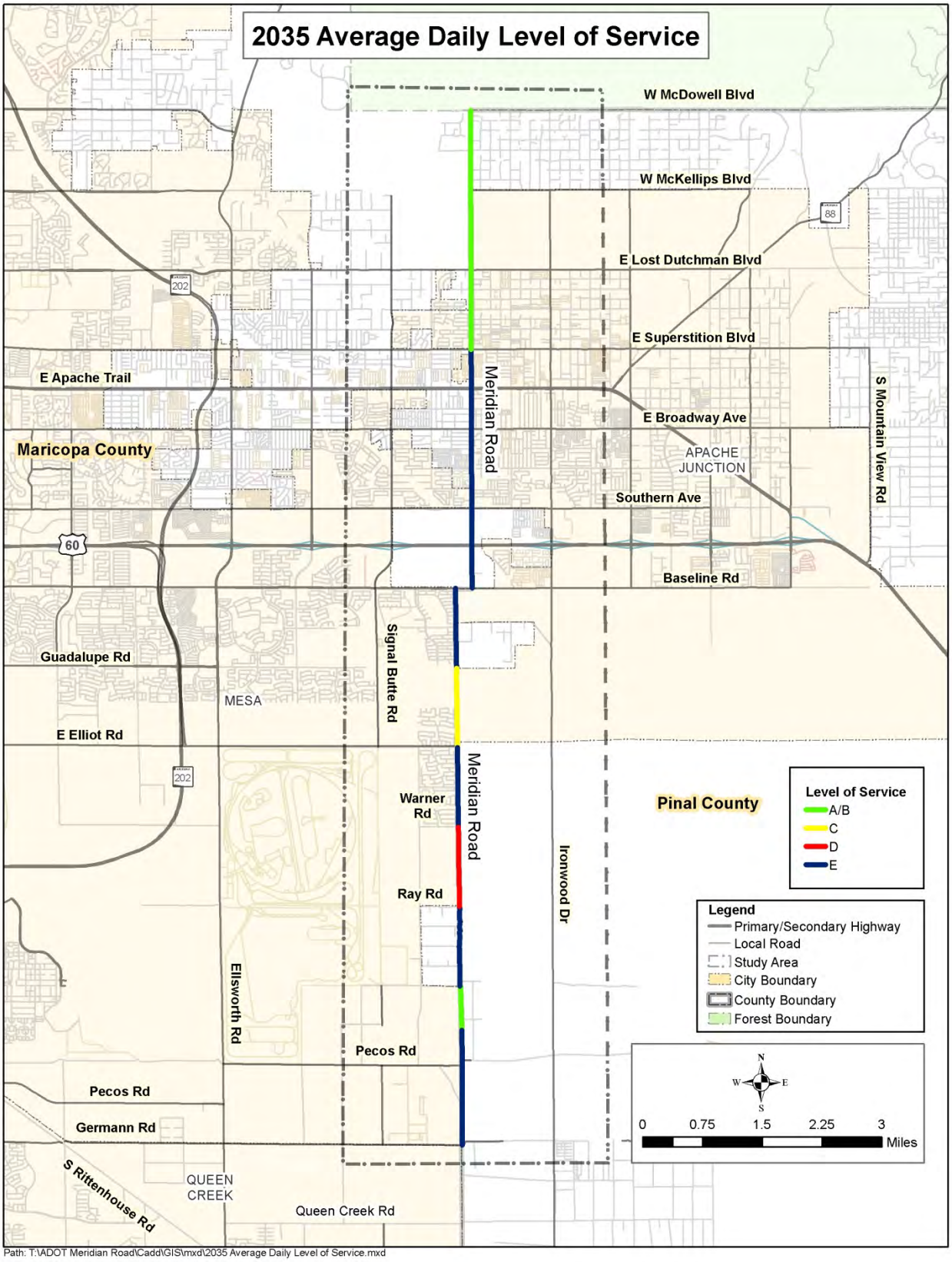


Figure 26: 2035 Average Daily Traffic Level of Service

XI. Roadway Network Deficiencies

2025 Lane Deficiencies

Meridian Road between McDowell Boulevard and Southern Avenue is anticipated to operate at an acceptable LOS as a three-lane roadway in 2025. South of Southern Avenue, Meridian Road is expected to operate with poor LOS in 2025 as a three-lane roadway to Pecos Road. The segment of Meridian Road between Guadalupe Road and Elliot Road and the segment between Pecos Road and Germann Road operate with acceptable LOS in 2025 as a three-lane roadway.

2035 Lane Deficiencies

Meridian Road between McDowell Boulevard and Superstition Boulevard is anticipated to operate at an acceptable LOS as a three-lane roadway in 2035. South of Superstition Boulevard, Meridian Road is expected to operate with poor LOS in 2035 as a three-lane roadway to Germann Road with the exception of the segment between Guadalupe Road and Elliot Road and the half mile segment just south of Williams Field Road which are expected to operate with acceptable LOS in 2035 as a three-lane roadway.

Pavement Deficiencies

MCDOT's evaluation of the existing pavement has indicated that the roadway conditions range from good to poor. Furthermore, significant crack sealing has taken place along most of Meridian Road between Baseline Road and McDowell Road/Boulevard leading to an international roughness rating of over 220 which is categorized as 'very rough'. Some of these deficiencies will be addressed with the completion of pavement preservation project programmed in FY13.

Transportation Deficiencies

The development of the Meridian Road Corridor will be impacted by the following structures and features:

US 60 Overpass: The existing overpass structure at the US 60 presently carries traffic on Meridian Road across the US 60. The structure is approximately 60 feet wide and 425 feet long.

US 60 Traffic Interchange at Meridian Road: An interchange is planned for Meridian Road at US 60 with construction scheduled for a start in summer 2013. Initially ADOT is proposing to construct an interim, partial interchange. The design will consist of on and off ramps to the west of Meridian Road. In the interim condition no improvements will be made to the existing structure over the US 60. The bridge will accommodate one 11foot and one 14 foot lane in each direction along with a 5 foot sidewalk. Meridian Road will be widened to the north of US 60 to accommodate four through lanes plus two left turn lanes. Similarly to the south the road will be widened to four through lanes and will be tapered back to the existing road width as soon as possible.

A full traffic interchange to accommodate a six-lane divided Meridian Road will necessitate the construction of a new structure which will have to provide for a new 14ft clearance requirements over the CAP canal.

Central Arizona Project Canal: The CAP canal crosses US 60 and Meridian Road diagonally at the overpass. The CAP canal and appurtenant facilities are important considerations in constructing an interchange at this location.

Powerline Floodway: The Powerline Floodway crosses the Meridian Road alignment diagonally just south of the Warner Road alignment. The floodway is operated and maintained by the FCDMC and is an earthen-lined channel flowing northeast to southwest across the Meridian Road alignment.

Diversion Dike: An old, existing diversion dike exists between Pecos Road and Germann Road in the vicinity of the Meridian Road alignment. The dike diverts surface water flow from a defined wash east of the Meridian Road alignment to provide flooding protection for a manufacturing facility west of the Meridian Road alignment and just north of Germann Road.

US 60 Widening: Crismon Road to Meridian Road – US 60 is planned to be widened from four lanes to six lanes from Crismon Road to Meridian Road in Phase 3 of the MAG Regional Transportation Plan (2015-2020).

Gateway Freeway (SR 24): The SR 24 corridor is located in southeast Mesa and northwest Pinal County. The freeway would begin at Loop 202 near the Hawes Road interchange and extend southeasterly into Pinal County and connect to US 60 or SR 79 north of the Florence Junction. The SR 24 study area lies within or adjacent to the jurisdictional boundaries of the cities of Mesa and Apache Junction, the Towns of Queen Creek and Gilbert, and unincorporated portions of Maricopa and Pinal Counties. The section from Loop 202 to Meridian Road is in Phase 3 of the MAG Regional Transportation Plan (2015-2020). The proposed route crosses Meridian Road ½ mile south of Williams Field Road with a full grade separated traffic interchange.

North-South Corridor: The North-South Corridor (US 60 to I-10) is planned to extend 45 miles in the north-south direction along an alignment east of Meridian Road in Pinal County. The concept is to provide a controlled access facility between US 60 in Apache Junction and I-10 near Eloy and Picacho. A current study by ADOT is underway to identify a preferred corridor.

Intercity Rail: The Intercity Rail Study is looking at both high speed and commuter rail services between Phoenix and Tucson. Currently there are a number of alternatives being analyzed which will provide the back bone for a transit service along the 'Sun Corridor'. One potential route crosses Meridian Road adjacent to the proposed SR 24 heading east to make use of transit corridors identified in the Superstition Vistas strategic plan.

APPENDIX A

2012 TRAFFIC COUNTS

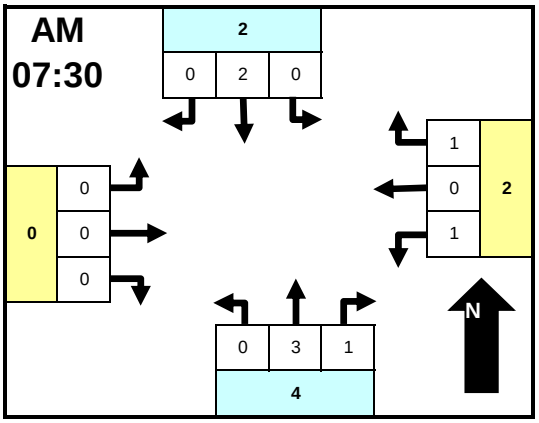
Michael Baker Jr., Inc.
Phoenix, Arizona

TRAFFIC RESEARCH & ANALYSIS, INC.
Specializing in Traffic Data Collection

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

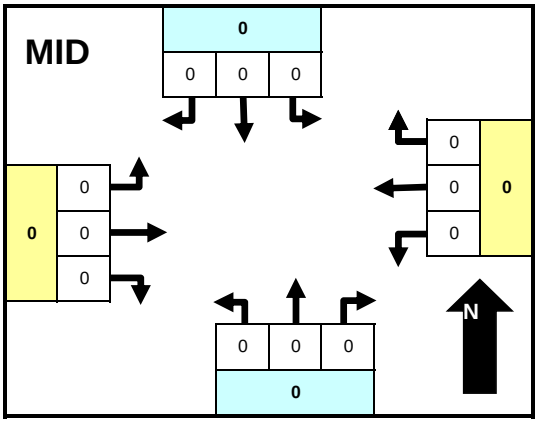
Intersection TMC: 1200161
Count Date: 5/22/2012

AM 07:30



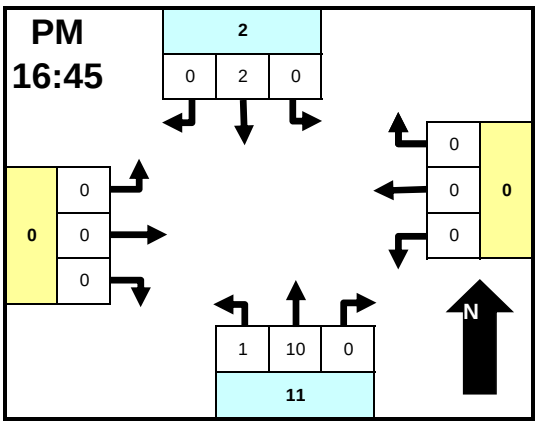
Time	From North: DIRT RD DRWY LT	Thru	RT	Ped	From East: MCDOWELL RD LT	Thru	RT	Ped	From South: MERIDIAN RD LT	Thru	RT	Ped	From West: MCDOWELL RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	1	0	0	1	0	1	0	0	1	1	0	0	0	0	0	5
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	1	0	1	0	0	4	1	0	0	0	1	0	11
Peak	0	2	0	0	1	0	1	0	0	3	1	0	0	0	0	0	8

MID



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 16:45



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
15:45	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
16:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
16:45	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
17:00	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
17:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	7
17:45	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	3
18:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	1	0	1	0	1	15	1	0	0	1	1	0	24
Peak	0	2	0	0	0	0	0	0	1	10	0	0	0	0	0	0	13

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:30 AM	8	8:15 AM	5
MID				
PM	4:45 PM	13	5:30 PM	7

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:30 AM	2	7:30 AM	2	7:30 AM	4	6:00 AM	1
MID								
PM	4:15 PM	2	3:30 PM	1	4:45 PM	11	3:30 PM	2

Comments

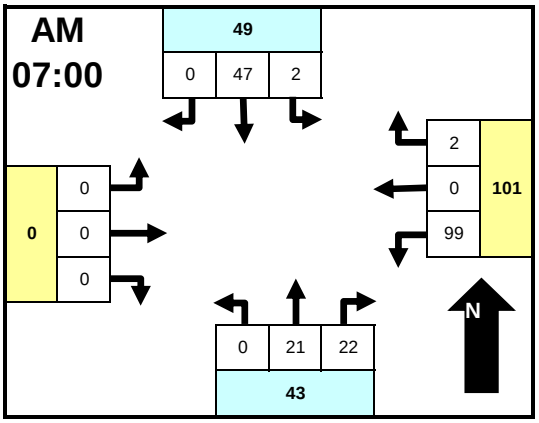
Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	3	5	2	1	5	5	1	0
MID	0	0	0	0	0	0	0	0
PM	3	16	2	2	17	5	2	1

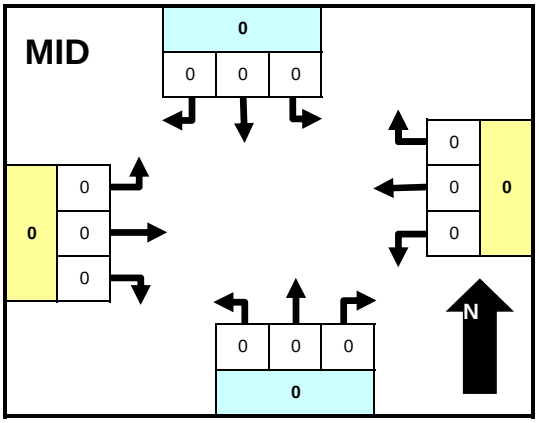
TRAFFIC RESEARCH & ANALYSIS, INC.
Specializing in Traffic Data Collection

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

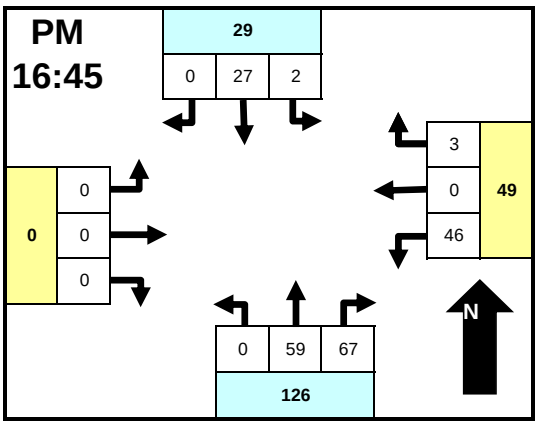
Intersection TMC: 1200162
Count Date: 5/22/2012



Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East MCKELLIPS RD LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West NONE LT	Thru	RT	Ped	INTSEC TOTAL
6:00	0	9	0	0	11	0	0	0	0	4	1	0	0	0	0	0	25
6:15	0	6	0	0	22	0	1	0	0	0	1	0	0	0	0	0	30
6:30	1	7	0	0	23	0	1	0	0	3	9	0	0	0	0	0	44
6:45	1	14	0	0	21	0	0	0	0	3	2	0	0	0	0	0	41
7:00	0	16	0	0	24	0	1	0	0	5	1	0	0	0	0	0	47
7:15	0	12	0	0	20	0	1	0	0	3	4	0	0	0	0	0	40
7:30	1	15	0	0	34	0	0	0	0	5	7	0	0	0	0	0	62
7:45	1	4	0	0	21	0	0	0	0	8	10	0	0	0	0	0	44
8:00	0	9	0	0	16	0	1	0	0	1	8	0	0	0	0	0	35
8:15	0	8	0	0	11	0	2	0	0	4	3	0	0	0	0	0	28
8:30	0	9	0	0	19	0	1	0	0	4	7	0	0	0	0	0	40
8:45	0	5	0	0	11	0	0	0	0	4	6	0	0	0	0	0	26
Total	4	114	0	0	233	0	8	0	0	44	59	0	0	0	0	0	462
Peak	2	47	0	0	99	0	2	0	0	21	22	0	0	0	0	0	193



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	2	6	0	0	11	0	1	0	0	4	23	0	0	0	0	0	47
15:45	0	9	0	0	11	0	2	0	0	8	20	0	0	0	0	0	50
16:00	0	8	0	0	16	0	0	0	0	9	26	0	0	0	0	0	59
16:15	0	6	0	0	6	0	0	0	0	10	16	0	0	0	0	0	38
16:30	0	7	0	0	9	0	2	0	0	12	19	0	0	0	0	0	49
16:45	0	8	0	0	11	0	1	0	0	14	10	0	0	0	0	0	44
17:00	0	7	0	0	16	0	0	0	0	13	22	0	0	0	0	0	58
17:15	0	5	0	0	10	0	1	0	0	11	19	0	0	0	0	0	46
17:30	2	7	0	0	9	0	1	0	0	21	16	0	0	0	0	0	56
17:45	2	7	0	0	9	0	3	0	0	9	14	0	0	0	0	0	44
18:00	4	8	0	0	7	0	7	0	0	5	13	0	0	0	0	0	44
18:15	0	4	0	0	9	0	1	0	0	7	19	0	0	0	0	0	40
Total	10	82	0	0	124	0	19	0	0	123	217	0	0	0	0	0	575
Peak	2	27	0	0	46	0	3	0	0	59	67	0	0	0	0	0	204

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:00 AM	193	7:30 AM	62
MID				
PM	4:45 PM	204	4:00 PM	59

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	6:45 AM	59	6:45 AM	101	7:15 AM	46		
MID								
PM	5:15 PM	35	4:30 PM	50	4:45 PM	126		

Comments

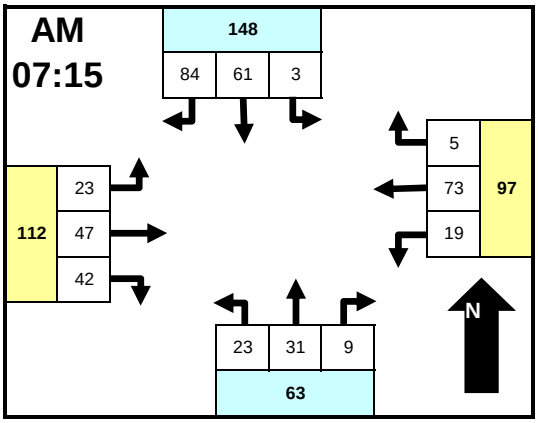
Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	118	52	241	63	103	347	0	0
MID	0	0	0	0	0	0	0	0
PM	92	142	143	227	340	206	0	0

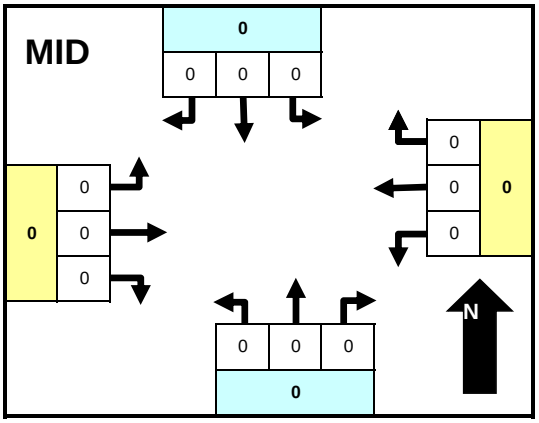
TRAFFIC RESEARCH & ANALYSIS, INC.
Specializing in Traffic Data Collection

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

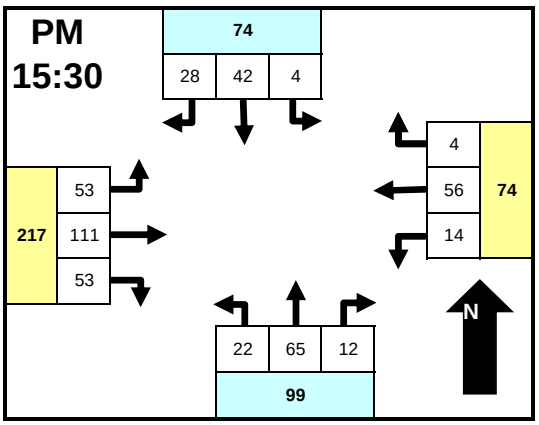
Intersection TMC: 1200163
Count Date: 5/22/2012



Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East LOST DUTCHMAN BLVD LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West BROWN RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	0	8	1	0	2	21	0	0	9	4	4	0	2	4	2	0	57
6:15	0	10	18	0	0	19	1	0	5	1	2	0	1	10	2	0	69
6:30	0	5	22	0	1	24	3	0	4	7	3	0	7	8	4	0	88
6:45	2	11	23	0	3	14	1	0	6	5	1	0	3	6	11	0	86
7:00	0	14	27	0	2	15	2	0	2	5	1	0	3	7	11	0	89
7:15	0	17	20	0	10	23	3	0	3	4	2	0	4	9	6	0	101
7:30	1	19	32	0	3	23	1	0	14	9	4	0	4	8	15	0	133
7:45	1	15	14	0	2	14	1	0	5	9	1	0	11	10	7	0	90
8:00	1	10	18	0	4	13	0	0	1	9	2	0	4	20	14	0	96
8:15	0	12	12	0	5	10	0	0	2	5	2	0	1	16	9	0	74
8:30	1	8	15	0	1	19	1	0	4	9	0	0	3	11	7	0	79
8:45	3	7	10	0	4	20	1	0	4	6	5	0	2	17	10	0	89
Total	9	136	212	0	37	215	14	0	59	73	27	0	45	126	98	0	1051
Peak	3	61	84	0	19	73	5	0	23	31	9	0	23	47	42	0	420



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	4	8	9	0	5	21	0	0	1	20	5	0	12	23	16	0	124
15:45	0	11	8	0	3	16	1	0	9	18	3	0	11	32	8	0	120
16:00	0	14	9	0	4	13	2	0	6	11	2	0	17	26	19	0	123
16:15	0	9	2	0	2	6	1	0	6	16	2	0	13	30	10	0	97
16:30	0	12	7	0	2	11	0	0	5	18	3	0	12	37	8	0	115
16:45	0	10	4	0	2	13	1	0	2	15	3	0	15	27	7	0	99
17:00	0	11	9	0	1	15	0	0	5	11	1	0	21	29	11	0	114
17:15	1	8	8	0	2	15	1	0	7	20	1	0	11	22	15	0	111
17:30	0	11	9	0	3	10	2	0	4	18	0	0	26	32	4	0	119
17:45	1	7	5	0	0	10	0	0	4	8	2	0	15	22	3	0	77
18:00	1	11	6	0	4	9	2	0	9	8	1	0	25	34	7	0	117
18:15	0	8	3	0	2	12	2	0	3	17	2	0	15	24	5	0	93
Total	7	120	79	0	30	151	12	0	61	180	25	0	193	338	113	0	1309
Peak	4	42	28	0	14	56	4	0	22	65	12	0	53	111	53	0	464

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:15 AM	420	7:30 AM	133
MID				
PM	3:30 PM	464	3:30 PM	124

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	6:45 AM	166	6:30 AM	101	7:15 AM	63	7:30 AM	119
MID								
PM	3:30 PM	74	3:30 PM	74	3:30 PM	99	3:45 PM	223

Comments

Approach & Departure Volumes (No Peds)

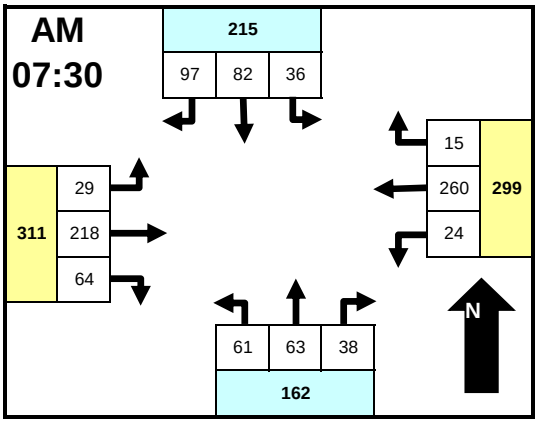
Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	357	132	266	162	159	271	269	486
MID	0	0	0	0	0	0	0	0
PM	206	385	193	370	266	263	644	291

TRAFFIC RESEARCH & ANALYSIS, INC.
Specializing in Traffic Data Collection

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

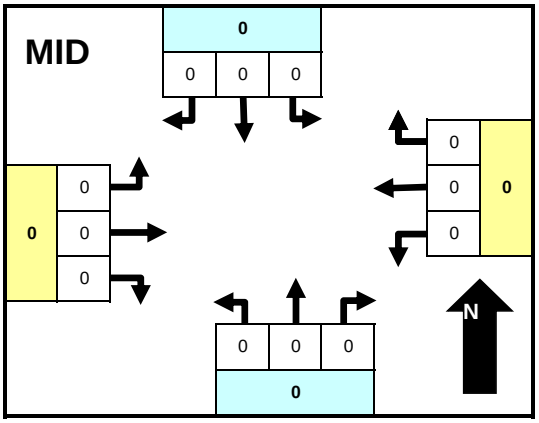
Intersection TMC: 1200164
Count Date: 5/22/2012

AM 07:30



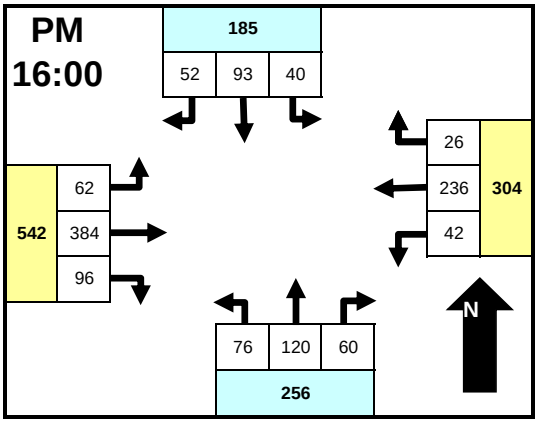
Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East SUPERSTITION BLVD LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West UNIVERSITY DR LT	Thru	RT	Ped	INTSEC TOTAL
6:00	3	7	16	0	0	52	2	0	6	7	2	0	3	16	4	0	118
6:15	6	10	14	0	3	47	1	0	12	4	4	0	3	19	5	0	128
6:30	5	10	11	0	5	46	1	0	7	9	3	0	6	28	8	0	139
6:45	11	9	16	0	3	62	2	0	11	10	1	0	3	49	7	0	184
7:00	8	17	21	0	2	68	4	0	17	9	6	0	5	36	12	0	205
7:15	12	19	27	0	12	65	3	0	15	8	5	0	5	44	11	0	226
7:30	11	30	33	0	6	75	4	0	11	14	9	0	10	59	14	0	276
7:45	4	22	25	0	6	68	2	0	10	15	9	0	6	53	14	0	234
8:00	10	14	20	0	6	59	3	0	23	18	10	0	8	49	19	0	239
8:15	11	16	19	0	6	58	6	0	17	16	10	0	5	57	17	0	238
8:30	3	20	14	0	7	47	3	0	16	19	10	0	9	64	17	0	229
8:45	3	19	12	0	8	71	3	0	17	16	15	0	3	51	12	0	230
Total	87	193	228	0	64	718	34	0	162	145	84	0	66	525	140	0	2446
Peak	36	82	97	0	24	260	15	0	61	63	38	0	29	218	64	0	987

MID



Time	From North LT	Thru	RT	Ped	From East LT	Thru	RT	Ped	From South LT	Thru	RT	Ped	From West LT	Thru	RT	Ped	INTSEC TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 16:00



Time	From North LT	Thru	RT	Ped	From East LT	Thru	RT	Ped	From South LT	Thru	RT	Ped	From West LT	Thru	RT	Ped	INTSEC TOTAL
15:30	10	22	16	0	15	57	4	0	15	28	20	0	16	93	12	0	308
15:45	13	26	12	0	10	44	3	0	15	33	18	0	22	88	19	0	303
16:00	15	23	12	0	9	58	9	0	20	20	15	0	14	88	27	0	310
16:15	9	24	15	0	15	68	4	0	24	32	15	0	15	108	20	0	349
16:30	7	25	12	0	10	50	6	0	18	36	15	0	22	90	22	0	313
16:45	9	21	13	0	8	60	7	0	14	32	15	0	11	98	27	0	315
17:00	11	21	10	0	8	60	7	0	14	30	13	0	17	87	17	0	295
17:15	17	20	16	0	4	47	9	0	15	33	6	0	22	91	15	0	295
17:30	8	14	8	0	4	49	5	0	24	24	7	0	20	77	20	0	260
17:45	4	13	7	0	0	47	5	0	14	16	15	0	16	75	16	0	228
18:00	8	12	9	0	7	36	6	0	15	24	10	0	13	62	20	0	222
18:15	7	16	6	0	6	48	4	0	8	20	7	0	16	61	14	0	213
Total	118	237	136	0	96	624	69	0	196	328	156	0	204	1018	229	0	3411
Peak	40	93	52	0	42	236	26	0	76	120	60	0	62	384	96	0	1287

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:30 AM	987	7:30 AM	276
MID				
PM	4:00 PM	1287	4:15 PM	349

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:00 AM	229	7:00 AM	315	8:00 AM	187	7:45 AM	318
MID								
PM	3:30 PM	197	4:00 PM	304	3:45 PM	261	4:00 PM	542

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	508	245	816	696	391	397	731	1108
MID	0	0	0	0	0	0	0	0
PM	491	601	789	1292	680	562	1451	956

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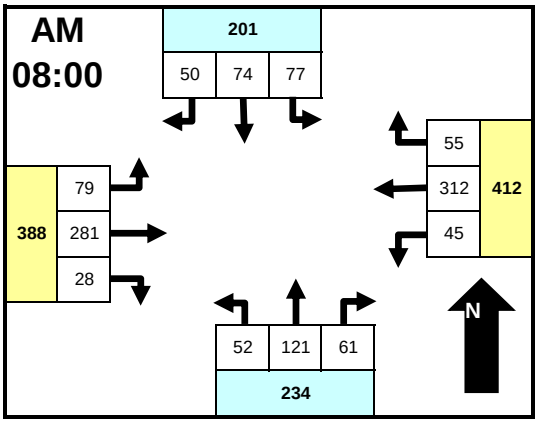
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

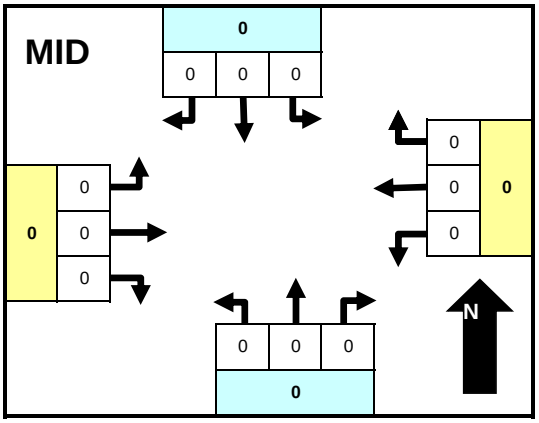
Intersection TMC: 1200165
Count Date: 5/22/2012

AM 08:00



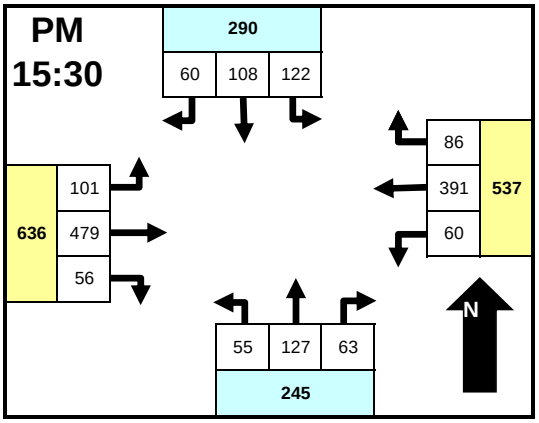
Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East APACHE TRAIL LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West APACHE TRAIL LT	Thru	RT	Ped	INTSEC TOTAL
6:00	5	7	2	0	1	34	5	0	2	9	6	0	0	13	2	0	86
6:15	5	13	8	0	0	25	4	0	4	9	6	0	9	14	6	0	103
6:30	6	20	9	0	4	37	8	0	3	10	3	0	5	27	2	0	134
6:45	11	12	6	0	3	53	12	0	3	17	4	0	5	30	4	0	160
7:00	15	26	11	0	5	36	11	0	9	14	4	0	5	40	2	0	178
7:15	12	31	8	0	9	62	17	0	8	15	11	0	12	44	6	0	235
7:30	16	28	15	0	8	71	12	0	9	16	5	0	21	52	4	0	257
7:45	28	21	7	0	8	62	13	0	13	20	8	0	16	61	6	0	263
8:00	14	18	10	0	9	68	16	0	10	30	17	0	18	67	7	0	284
8:15	19	22	11	0	12	75	16	0	15	31	18	0	20	63	4	0	306
8:30	23	24	17	0	8	91	13	0	16	33	18	0	21	75	6	0	345
8:45	21	10	12	0	16	78	10	0	11	27	8	0	20	76	11	0	300
Total	175	232	116	0	83	692	137	0	103	231	108	0	152	562	60	0	2651
Peak	77	74	50	0	45	312	55	0	52	121	61	0	79	281	28	0	1235

MID



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 15:30



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	27	23	14	0	17	104	20	0	18	24	12	0	32	118	14	0	423
15:45	30	23	23	0	13	101	21	0	11	37	19	0	19	123	12	0	432
16:00	36	32	10	0	12	82	22	0	14	26	18	0	22	106	12	0	392
16:15	29	30	13	0	18	104	23	0	12	40	14	0	28	132	18	0	461
16:30	22	24	12	0	14	77	27	0	18	32	14	0	41	93	9	0	383
16:45	34	31	14	0	15	88	23	0	17	22	14	0	28	120	7	0	413
17:00	34	25	15	0	15	82	20	0	7	24	13	0	27	96	10	0	368
17:15	22	30	11	0	19	76	13	0	11	33	20	0	15	111	10	0	371
17:30	22	23	7	0	11	72	25	0	9	23	17	0	17	120	10	0	356
17:45	20	30	8	0	20	72	19	0	9	25	6	0	22	76	14	0	321
18:00	12	24	7	0	20	64	24	0	7	20	10	0	22	88	5	0	303
18:15	22	22	7	0	14	59	16	0	15	19	16	0	14	75	8	0	287
Total	310	317	141	0	188	981	253	0	148	325	173	0	287	1258	129	0	4510
Peak	122	108	60	0	60	391	86	0	55	127	63	0	101	479	56	0	1708

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	8:00 AM	1235	8:30 AM	345
MID				
PM	3:30 PM	1708	4:15 PM	461

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:00 AM	218	8:00 AM	412	8:00 AM	234	8:00 AM	388
MID								
PM	3:30 PM	290	3:30 PM	537	3:45 PM	255	3:30 PM	636

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	523	520	912	845	442	375	774	911
MID	0	0	0	0	0	0	0	0
PM	768	865	1422	1741	646	634	1674	1270

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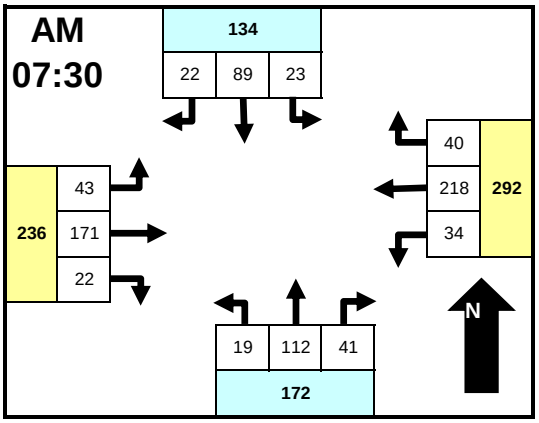
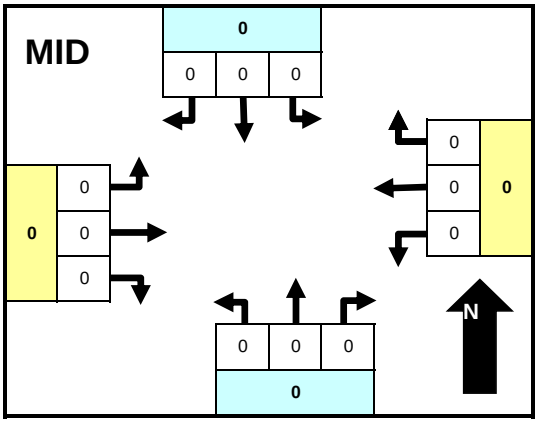
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

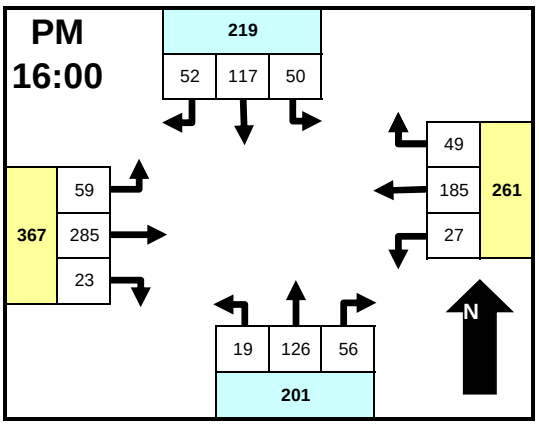
Intersection TMC: 1200166
Count Date: 5/22/2012



Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East BROADWAY RD LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West BROADWAY RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	1	7	1	0	3	39	1	0	1	7	4	0	5	17	1	0	87
6:15	2	14	4	0	1	40	2	0	2	10	2	0	5	11	1	0	94
6:30	5	11	3	0	3	46	2	0	3	11	6	0	1	23	6	0	120
6:45	2	12	2	0	7	54	5	0	3	12	2	0	6	34	3	0	142
7:00	4	18	7	0	6	51	7	0	2	14	3	0	4	32	5	0	153
7:15	10	31	4	0	10	56	6	0	5	22	6	0	2	38	4	0	194
7:30	5	27	5	0	8	61	7	0	6	31	10	0	5	35	6	0	206
7:45	7	19	5	0	7	58	13	0	3	30	9	0	9	50	3	0	213
8:00	6	19	6	0	10	61	13	0	3	22	9	0	14	48	5	0	216
8:15	5	24	6	0	9	38	7	0	7	29	13	0	15	38	8	0	199
8:30	7	18	7	0	6	39	3	0	6	39	13	0	13	41	4	0	196
8:45	8	22	7	0	8	39	12	0	7	27	6	0	16	40	5	0	197
Total	62	222	57	0	78	582	78	0	48	254	83	0	95	407	51	0	2017
Peak	23	89	22	0	34	218	40	0	19	112	41	0	43	171	22	0	834



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0



Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East BROADWAY RD LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West BROADWAY RD LT	Thru	RT	Ped	INTSEC TOTAL
15:30	14	30	8	0	4	54	9	0	3	19	19	0	12	73	4	0	249
15:45	14	28	10	0	10	43	11	0	4	26	20	0	20	56	4	0	246
16:00	16	24	15	0	6	42	12	0	2	34	9	0	18	66	9	0	253
16:15	12	35	17	0	8	45	16	0	7	26	16	0	10	74	8	0	274
16:30	7	30	13	0	5	46	7	0	5	31	14	0	13	77	3	0	251
16:45	15	28	7	0	8	52	14	0	5	35	17	0	18	68	3	0	270
17:00	11	36	12	0	10	33	11	0	1	24	9	0	11	63	9	0	230
17:15	14	32	6	0	5	55	11	0	3	24	2	0	12	75	5	0	244
17:30	11	33	9	0	6	49	9	0	1	25	4	0	10	62	3	0	222
17:45	10	22	16	0	7	32	4	0	4	14	11	0	10	56	3	0	189
18:00	6	31	8	0	10	52	7	0	3	22	16	0	6	60	3	0	224
18:15	9	15	9	0	5	30	10	0	4	18	13	0	11	48	1	0	173
Total	139	344	130	0	84	533	121	0	42	298	150	0	151	778	55	0	2825
Peak	50	117	52	0	27	185	49	0	19	126	56	0	59	285	23	0	1048

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:30 AM	834	8:00 AM	216
MID				
PM	4:00 PM	1048	4:15 PM	274

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:15 AM	144	7:15 AM	310	7:45 AM	183	7:45 AM	248
MID								
PM	3:30 PM	223	4:45 PM	263	4:00 PM	201	4:00 PM	367

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	341	427	738	552	385	351	553	687
MID	0	0	0	0	0	0	0	0
PM	613	570	738	1067	490	483	984	705

TRAFFIC RESEARCH & ANALYSIS, INC.
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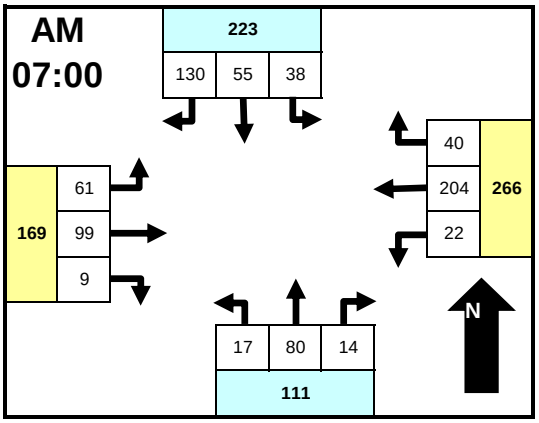
Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

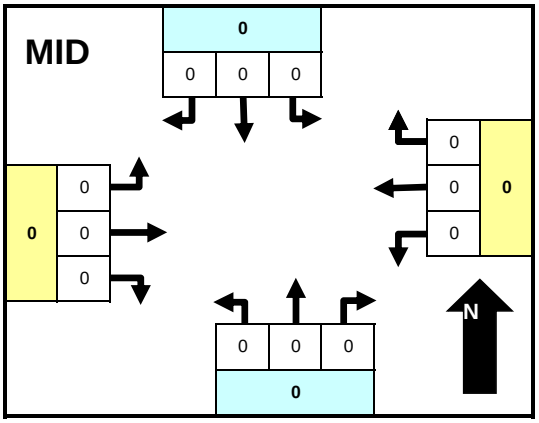
Intersection TMC: 1200167
Count Date: 5/22/2012

AM 07:00



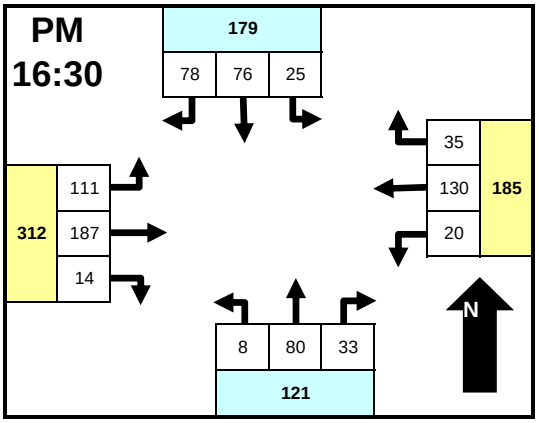
Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East SOUTHERN AVE LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West SOUTHERN AVE LT	Thru	RT	Ped	INTSEC TOTAL
6:00	2	8	9	0	3	29	5	0	0	3	4	0	5	10	1	0	79
6:15	6	9	12	0	3	22	3	0	1	8	1	0	5	9	0	0	79
6:30	5	15	17	0	5	32	4	0	3	5	4	0	8	14	0	0	112
6:45	9	9	11	0	3	30	3	0	8	17	4	0	12	29	6	0	141
7:00	10	10	27	0	5	55	9	0	3	14	3	0	17	21	2	0	176
7:15	10	13	41	0	5	52	14	0	6	19	3	0	17	17	4	0	201
7:30	7	24	40	0	5	53	11	0	2	19	5	0	16	34	2	0	218
7:45	11	8	22	0	7	44	6	0	6	28	3	0	11	27	1	0	174
8:00	2	10	20	0	6	33	9	0	3	15	6	0	10	18	2	0	134
8:15	5	11	19	0	5	23	15	0	3	18	3	0	12	21	6	0	141
8:30	6	6	19	0	2	42	19	0	0	29	6	0	14	18	6	0	167
8:45	7	10	17	0	4	28	2	0	4	10	5	0	19	12	0	0	118
Total	80	133	254	0	53	443	100	0	39	185	47	0	146	230	30	0	1740
Peak	38	55	130	0	22	204	40	0	17	80	14	0	61	99	9	0	769

MID



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 16:30



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	9	14	21	0	2	20	9	0	3	15	5	0	24	44	1	0	167
15:45	8	12	18	0	2	26	9	0	2	22	8	0	31	47	2	0	187
16:00	4	16	20	0	3	39	7	0	4	32	4	0	25	49	3	0	206
16:15	2	17	17	0	4	26	11	0	1	11	6	0	30	46	8	0	179
16:30	9	14	25	0	6	27	5	0	3	25	6	0	25	49	6	0	200
16:45	5	16	17	0	6	34	17	0	1	24	6	0	30	46	4	0	206
17:00	6	17	19	0	6	35	9	0	2	15	6	0	27	47	2	0	191
17:15	5	29	17	0	2	34	4	0	2	16	15	0	29	45	2	0	200
17:30	6	18	17	0	1	28	7	0	5	9	2	0	21	33	3	0	150
17:45	4	12	13	0	0	33	3	0	1	20	4	0	24	46	3	0	163
18:00	3	15	11	0	3	23	7	0	1	13	2	0	24	33	0	0	135
18:15	5	16	12	0	4	19	11	0	3	7	5	0	28	27	2	0	139
Total	66	196	207	0	39	344	99	0	28	209	69	0	318	512	36	0	2123
Peak	25	76	78	0	20	130	35	0	8	80	33	0	111	187	14	0	797

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:00 AM	769	7:30 AM	218
MID				
PM	4:30 PM	797	4:00 PM	206

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:00 AM	223	7:00 AM	266	7:45 AM	120	6:45 AM	177
MID								
PM	4:30 PM	179	4:15 PM	186	3:45 PM	124	3:45 PM	321

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	467	431	596	357	271	216	406	736
MID	0	0	0	0	0	0	0	0
PM	469	626	482	647	306	271	866	579

TRAFFIC RESEARCH & ANALYSIS, INC.
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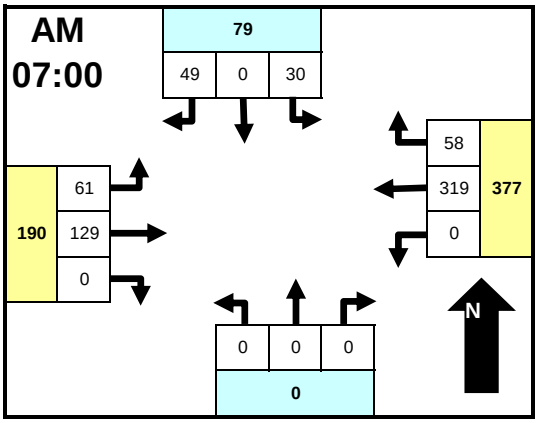
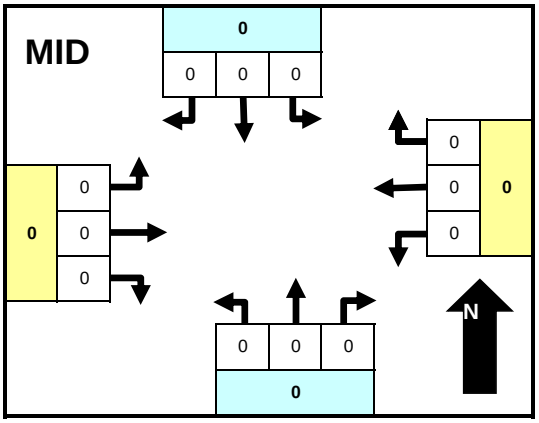
Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

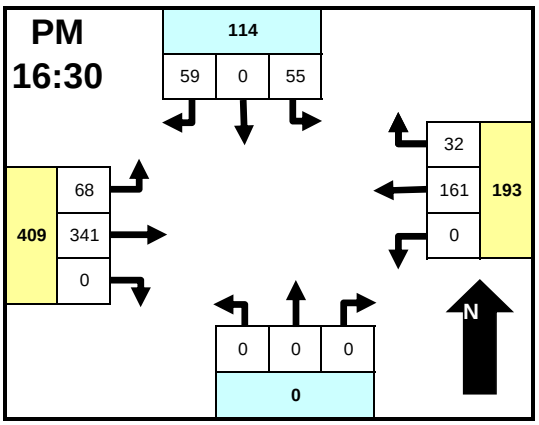
Intersection TMC: 1200168
Count Date: 5/22/2012



Time	From North: MERIDIAN RD LT	Thru	RT	Ped	From East: BASELINE RD LT	Thru	RT	Ped	From South: NONE LT	Thru	RT	Ped	From West: BASELINE RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	7	0	5	0	0	39	4	0	0	0	0	0	4	14	0	0	73
6:15	5	0	7	0	0	68	7	0	0	0	0	0	5	13	0	0	105
6:30	13	0	4	0	0	75	8	0	0	0	0	0	5	21	0	0	126
6:45	9	0	10	0	0	72	21	0	0	0	0	0	11	24	0	0	147
7:00	4	0	9	0	0	93	8	0	0	0	0	0	11	33	0	0	158
7:15	7	0	11	0	0	93	13	0	0	0	0	0	15	30	0	0	169
7:30	11	0	20	0	0	71	12	0	0	0	0	0	16	34	0	0	164
7:45	8	0	9	0	0	62	25	0	0	0	0	0	19	32	0	0	155
8:00	3	0	11	0	0	54	11	0	0	0	0	0	15	34	0	0	128
8:15	6	0	13	0	0	53	12	0	0	0	0	0	13	29	0	0	126
8:30	8	0	7	0	0	51	16	0	0	0	0	0	14	23	0	0	119
8:45	6	0	7	0	0	32	6	0	0	0	0	0	11	27	0	0	89
Total	87	0	113	0	0	763	143	0	0	0	0	0	139	314	0	0	1559
Peak	30	0	49	0	0	319	58	0	0	0	0	0	61	129	0	0	646



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0



Time	From North: MERIDIAN RD LT	Thru	RT	Ped	From East: BASELINE RD LT	Thru	RT	Ped	From South: NONE LT	Thru	RT	Ped	From West: BASELINE RD LT	Thru	RT	Ped	INTSEC TOTAL
15:30	8	0	12	0	0	44	4	0	0	0	0	0	19	56	0	0	143
15:45	6	0	9	0	0	30	8	0	0	0	0	0	22	60	0	0	135
16:00	9	0	13	0	0	44	12	0	0	0	0	0	21	71	0	0	170
16:15	15	0	9	0	0	37	7	0	0	0	0	0	14	69	0	0	151
16:30	16	0	13	0	0	26	10	0	0	0	0	0	19	71	0	0	155
16:45	12	0	13	0	0	53	8	0	0	0	0	0	21	84	0	0	191
17:00	10	0	18	0	0	39	8	0	0	0	0	0	13	83	0	0	171
17:15	17	0	15	0	0	43	6	0	0	0	0	0	15	103	0	0	199
17:30	9	0	14	0	0	31	8	0	0	0	0	0	8	80	0	0	150
17:45	10	0	8	0	0	24	4	0	0	0	0	0	15	66	0	0	127
18:00	6	0	7	0	0	32	4	0	0	0	0	0	10	82	0	0	141
18:15	10	0	13	0	0	20	2	0	0	0	0	0	12	52	0	0	109
Total	128	0	144	0	0	423	81	0	0	0	0	0	189	877	0	0	1842
Peak	55	0	59	0	0	161	32	0	0	0	0	0	68	341	0	0	716

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:00 AM	646	7:15 AM	169
MID				
PM	4:30 PM	716	5:15 PM	199

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	6:45 AM	81	6:30 AM	383			7:15 AM	195
MID								
PM	4:30 PM	114	4:00 PM	197			4:30 PM	409

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	200	282	906	401	0	0	453	876
MID	0	0	0	0	0	0	0	0
PM	272	270	504	1005	0	0	1066	567

TRAFFIC RESEARCH & ANALYSIS, INC.
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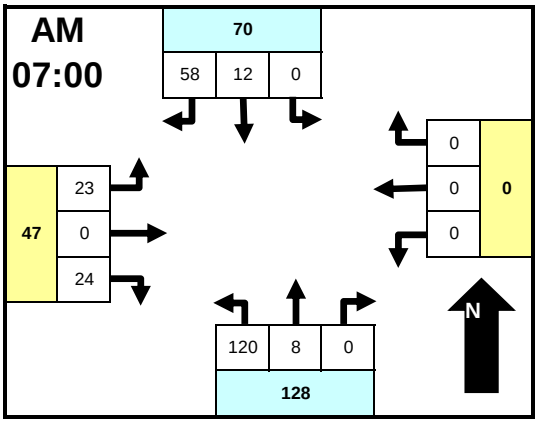
Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

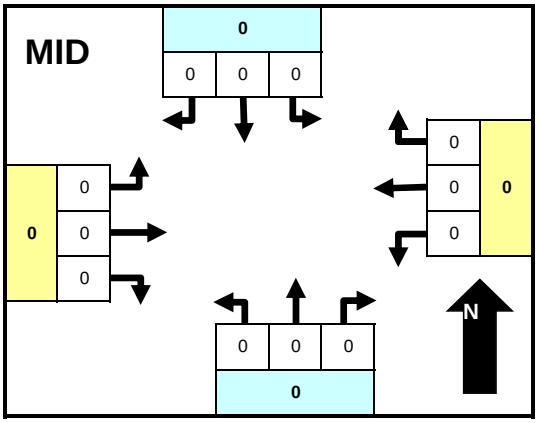
Intersection TMC: 1200169
Count Date: 5/22/2012

AM 07:00



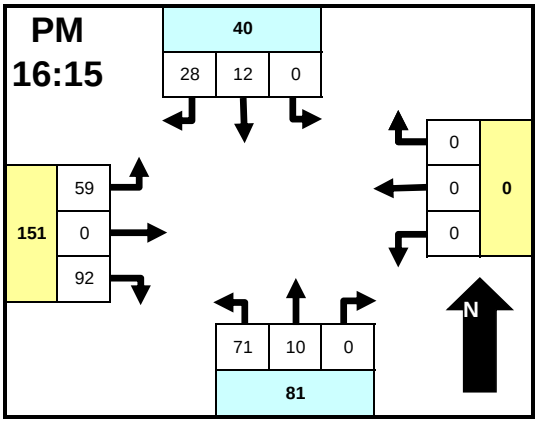
Time	From North: MERIDIAN RD LT	Thru	RT	Ped	From East: NONE LT	Thru	RT	Ped	From South: MERIDIAN RD LT	Thru	RT	Ped	From West: ELLIOT RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	0	0	8	0	0	0	0	0	13	2	0	0	1	0	4	0	28
6:15	0	1	13	0	0	0	0	0	26	1	0	0	3	0	1	0	45
6:30	0	0	16	0	0	0	0	0	18	0	0	0	4	0	5	0	43
6:45	0	2	17	0	0	0	0	0	28	1	0	0	6	0	6	0	60
7:00	0	3	12	0	0	0	0	0	39	1	0	0	5	0	2	0	62
7:15	0	0	16	0	0	0	0	0	22	1	0	0	5	0	2	0	46
7:30	0	1	17	0	0	0	0	0	34	1	0	0	7	0	14	0	74
7:45	0	8	13	0	0	0	0	0	25	5	0	0	6	0	6	0	63
8:00	0	4	17	0	0	0	0	0	25	7	0	0	2	0	6	0	61
8:15	0	1	13	0	0	0	0	0	11	1	0	0	3	0	6	0	35
8:30	0	0	6	0	0	0	0	0	23	0	0	0	3	0	11	0	43
8:45	0	1	8	0	0	0	0	0	10	3	0	0	4	0	7	0	33
Total	0	21	156	0	0	0	0	0	274	23	0	0	49	0	70	0	593
Peak	0	12	58	0	0	0	0	0	120	8	0	0	23	0	24	0	245

MID



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 16:15



Time	From North: MERIDIAN RD LT	Thru	RT	Ped	From East: NONE LT	Thru	RT	Ped	From South: MERIDIAN RD LT	Thru	RT	Ped	From West: ELLIOT RD LT	Thru	RT	Ped	INTSEC TOTAL
15:30	0	0	11	0	0	0	0	0	21	0	0	0	15	0	18	0	65
15:45	0	1	7	0	0	0	0	0	12	0	0	0	8	0	28	0	56
16:00	0	2	4	0	0	0	0	0	8	1	0	0	10	0	25	0	50
16:15	0	3	6	0	0	0	0	0	23	3	0	0	14	0	26	0	75
16:30	0	6	7	0	0	0	0	0	14	4	0	0	12	0	26	0	69
16:45	0	1	9	0	0	0	0	0	20	2	0	0	19	0	13	0	64
17:00	0	2	6	0	0	0	0	0	14	1	0	0	14	0	27	0	64
17:15	0	3	7	0	0	0	0	0	7	1	0	0	17	0	27	0	62
17:30	0	0	4	0	0	0	0	0	12	0	0	0	15	0	23	0	54
17:45	0	1	5	0	0	0	0	0	11	3	0	0	11	0	22	0	53
18:00	0	1	3	0	0	0	0	0	8	0	0	0	6	0	24	0	42
18:15	0	0	6	0	0	0	0	0	12	4	0	0	17	0	18	0	57
Total	0	20	75	0	0	0	0	0	162	19	0	0	158	0	277	0	711
Peak	0	12	28	0	0	0	0	0	71	10	0	0	59	0	92	0	272

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:00 AM	245	7:30 AM	74
MID				
PM	4:15 PM	272	4:15 PM	75

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:15 AM	76			7:00 AM	128	7:30 AM	50
MID								
PM	4:30 PM	41			4:15 PM	81	5:00 PM	156

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	177	72	0	0	297	91	119	430
MID	0	0	0	0	0	0	0	0
PM	95	177	0	0	181	297	435	237

TRAFFIC RESEARCH & ANALYSIS, INC.
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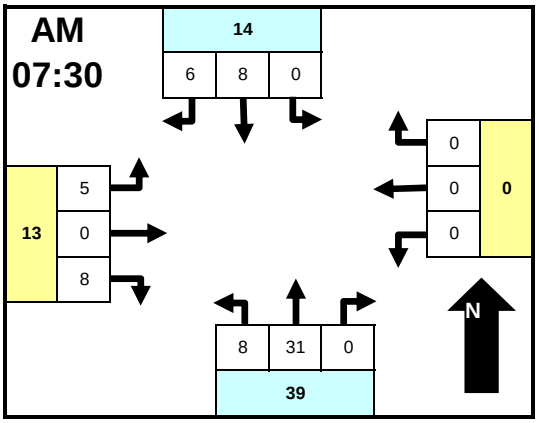
Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

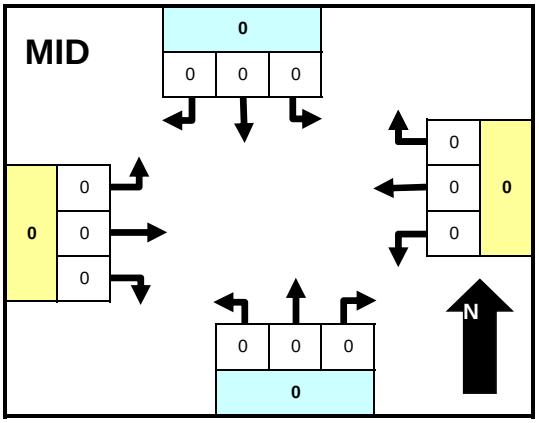
Intersection TMC: 1200170
Count Date: 5/22/2012

AM 07:30



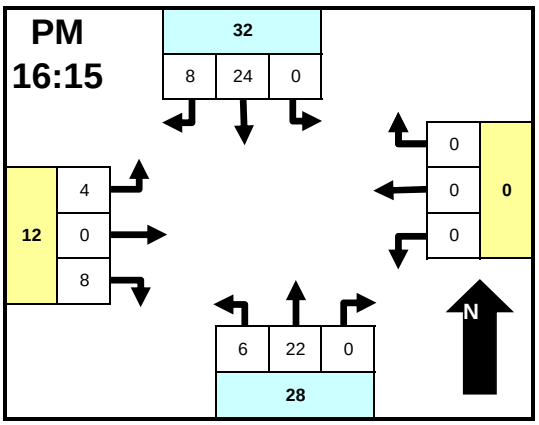
Time	From North MERIDIAN RD LT	Thru	RT	Ped	From East NONE LT	Thru	RT	Ped	From South MERIDIAN RD LT	Thru	RT	Ped	From West WARNER RD LT	Thru	RT	Ped	INTSEC TOTAL
6:00	0	0	1	0	0	0	0	0	1	3	0	0	2	0	1	0	8
6:15	0	0	1	0	0	0	0	0	1	7	0	0	2	0	0	0	11
6:30	0	1	1	0	0	0	0	0	0	8	0	0	0	0	1	0	11
6:45	0	1	4	0	0	0	0	0	0	6	0	0	1	0	1	0	13
7:00	0	1	2	0	0	0	0	0	0	14	0	0	0	0	2	0	19
7:15	0	0	2	0	0	0	0	0	0	6	0	0	1	0	0	0	9
7:30	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	9
7:45	0	3	3	0	0	0	0	0	3	10	0	0	3	0	1	0	23
8:00	0	3	2	0	0	0	0	0	3	8	0	0	1	0	6	0	23
8:15	0	2	1	0	0	0	0	0	2	4	0	0	1	0	1	0	11
8:30	0	2	0	0	0	0	0	0	0	6	0	0	0	0	0	0	8
8:45	0	1	0	0	0	0	0	0	0	3	0	0	2	0	0	0	6
Total	0	14	17	0	0	0	0	0	10	84	0	0	13	0	13	0	151
Peak	0	8	6	0	0	0	0	0	8	31	0	0	5	0	8	0	66

MID



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak																	0

PM 16:15



Time	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	LT	Thru	RT	Ped	TOTAL
15:30	0	4	4	0	0	0	0	0	3	4	0	0	1	0	3	0	19
15:45	0	6	2	0	0	0	0	0	0	5	0	0	1	0	2	0	16
16:00	0	4	2	0	0	0	0	0	0	4	0	0	5	0	0	0	15
16:15	0	7	1	0	0	0	0	0	1	7	0	0	2	0	2	0	20
16:30	0	4	4	0	0	0	0	0	2	4	0	0	0	0	2	0	16
16:45	0	5	2	0	0	0	0	0	1	9	0	0	0	0	1	0	18
17:00	0	8	1	0	0	0	0	0	2	2	0	0	2	0	3	0	18
17:15	0	8	3	0	0	0	0	0	0	5	0	0	1	0	0	0	17
17:30	0	4	2	0	0	1	0	0	0	4	0	0	0	0	4	0	15
17:45	0	6	2	0	0	0	0	0	0	2	0	0	2	0	3	0	15
18:00	0	6	1	0	0	0	0	0	1	2	0	0	1	0	2	0	13
18:15	0	5	2	0	0	0	0	0	1	2	0	0	1	0	3	0	14
Total	0	67	26	0	0	1	0	0	11	50	0	0	16	0	25	0	196
Peak	0	24	8	0	0	0	0	0	6	22	0	0	4	0	8	0	72

Intersection Statistics

Per	Peak Hour	Pk Hr Vol	Peak Intvl	Pk Intv Vol
AM	7:30 AM	66	7:45 AM	23
MID				
PM	4:15 PM	72	4:15 PM	20

Approach Statistics

Per	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol	Peak Hour	Pk Hr Vol
AM	7:45 AM	16			7:00 AM	42	7:30 AM	13
MID								
PM	4:30 PM	35	4:45 PM	1	4:00 PM	28	3:30 PM	16

Comments

Approach & Departure Volumes (No Peds)

Per	Approach	Depart	Approach	Depart	Approach	Depart	Approach	Depart
AM	31	97	0	0	94	27	26	27
MID	0	0	0	0	0	0	0	0
PM	93	66	1	0	61	92	41	38

Traffic Research and Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

File Name	Route	Location	Direction	Count Dur	Start Date	Avg Vol	AM PkHr	AM PkVol	AM PHF	PM PkHr	PM PkVol	PM PHF	Day Corr	Dir Split	Avg Spd	Latitude
1201307	MERIDIAN RD	Btwn MCDOWELL RD & MCKELLIPS RD	NB	48	5/22/2012	510	6:45	52	0.9375	13:00	33	0.8250	0.6323	48.3%	37.3	33.4529
1201308	MERIDIAN RD	Btwn MCDOWELL RD & MCKELLIPS RD	SB	48	5/22/2012	546	11:30	42	0.9130	16:45	56	0.7708	0.7418	51.7%	40.5	33.4529
1201309	MERIDIAN RD	Btwn MCKELLIPS RD & BROWN RD	NB	48	5/22/2012	1278	11:45	82	0.8913	16:45	142	0.9500	0.8790	48.4%	45.9	33.4415
1201310	MERIDIAN RD	Btwn MCKELLIPS RD & BROWN RD	SB	48	5/22/2012	1360	6:45	154	0.9029	17:00	80	0.8944	0.8470	51.6%	56.8	33.4415
1201311	MERIDIAN RD	Btwn BROWN RD & UNIVERSITY DR	NB	48	5/22/2012	2256	11:45	141	0.8598	16:30	212	0.8638	0.9304	48.2%	36.4	33.4249
1201312	MERIDIAN RD	Btwn BROWN RD & UNIVERSITY DR	SB	48	5/22/2012	2428	7:00	208	0.8476	15:45	174	0.8788	0.9157	51.8%	42.7	33.4249
1201319	MERIDIAN RD	Btwn UNIVERSITY DR & APACHE TRAIL	NB	48	5/22/2012	2912	11:15	212	0.8740	16:15	256	0.9143	0.9355	51.0%	39.2	33.4191
1201320	MERIDIAN RD	Btwn UNIVERSITY DR & APACHE TRAIL	SB	48	5/22/2012	2793	10:00	198	0.9706	15:45	224	0.9803	0.9304	49.0%	40.0	33.4191
1201321	MERIDIAN RD	Btwn APACHE TRAIL & BROADWAY RD	NB	48	5/22/2012	2792	11:15	210	0.9437	16:00	232	0.9260	0.9552	47.7%	34.9	33.4114
1201322	MERIDIAN RD	Btwn APACHE TRAIL & BROADWAY RD	SB	48	5/22/2012	3061	11:15	244	0.9173	16:00	258	0.9485	0.9395	52.3%	35.3	33.4114
1201315	MERIDIAN RD	Btwn BROADWAY RD & SOUTHERN AVE	NB	48	5/22/2012	2194	11:15	170	0.9341	13:45	198	0.8161	0.9260	51.6%	36.8	33.3990
1201316	MERIDIAN RD	Btwn BROADWAY RD & SOUTHERN AVE	SB	48	5/22/2012	2056	11:15	163	0.9261	16:30	156	0.8892	0.9101	48.4%	43.3	33.3990
1201317	MERIDIAN RD	Btwn SOUTHERN AVE & BASELINE RD	NB	48	5/22/2012	1308	7:00	121	0.8403	15:15	122	0.7500	0.9076	51.2%	49.9	33.3893
1201318	MERIDIAN RD	Btwn SOUTHERN AVE & BASELINE RD	SB	48	5/22/2012	1246	11:15	91	0.9100	16:30	102	0.9273	0.8582	48.8%	43.6	33.3893
1201325	MERIDIAN RD	N of ELLIOT RD	NB	48	5/22/2012	609	11:30	34	0.8947	16:15	63	0.9000	0.7747	51.2%	37.4	33.3515
1201326	MERIDIAN RD	N of ELLIOT RD	SB	48	5/22/2012	581	6:45	76	0.8138	14:30	40	0.8438	0.7961	48.8%	42.1	33.3515
1201323	MERIDIAN RD	Btwn ELLIOT RD & WARNER RD	NB	48	5/22/2012	651	7:00	80	0.7143	16:15	50	0.8250	0.8459	52.3%	47.0	33.3404
1201324	MERIDIAN RD	Btwn ELLIOT RD & WARNER RD	SB	48	5/22/2012	594	11:30	36	0.8068	16:30	67	0.9306	0.7919	47.7%	47.6	33.3404

Traffic Research and Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

File Name	Route	Location	Direction	Longitude	Comments
1201307	MERIDIAN RD	Btwn MCDOWELL RD & MCKELLIPS RD	NB	-111.5807	
1201308	MERIDIAN RD	Btwn MCDOWELL RD & MCKELLIPS RD	SB	-111.5807	
1201309	MERIDIAN RD	Btwn MCKELLIPS RD & BROWN RD	NB	-111.5806	
1201310	MERIDIAN RD	Btwn MCKELLIPS RD & BROWN RD	SB	-111.5806	
1201311	MERIDIAN RD	Btwn BROWN RD & UNIVERSITY DR	NB	-111.5806	
1201312	MERIDIAN RD	Btwn BROWN RD & UNIVERSITY DR	SB	-111.5806	
1201319	MERIDIAN RD	Btwn UNIVERSITY DR & APACHE TRAIL	NB	-111.5806	
1201320	MERIDIAN RD	Btwn UNIVERSITY DR & APACHE TRAIL	SB	-111.5806	
1201321	MERIDIAN RD	Btwn APACHE TRAIL & BROADWAY RD	NB	-111.5806	
1201322	MERIDIAN RD	Btwn APACHE TRAIL & BROADWAY RD	SB	-111.5806	
1201315	MERIDIAN RD	Btwn BROADWAY RD & SOUTHERN AVE	NB	-111.5805	
1201316	MERIDIAN RD	Btwn BROADWAY RD & SOUTHERN AVE	SB	-111.5805	
1201317	MERIDIAN RD	Btwn SOUTHERN AVE & BASELINE RD	NB	-111.5806	
1201318	MERIDIAN RD	Btwn SOUTHERN AVE & BASELINE RD	SB	-111.5806	
1201325	MERIDIAN RD	N of ELLIOT RD	NB	-111.5838	
1201326	MERIDIAN RD	N of ELLIOT RD	SB	-111.5838	
1201323	MERIDIAN RD	Btwn ELLIOT RD & WARNER RD	NB	-111.5837	
1201324	MERIDIAN RD	Btwn ELLIOT RD & WARNER RD	SB	-111.5837	

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	1	
Location 1:	MERIDIAN RD	
Location 2:	Btwn MCDOWELL RD & MCKELLIPS RD	
Latitude:	33.45288	33.45288
Longitude:	-111.58069	-111.58069

File Ref:	1201307	1201308		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	2	1	3	3
12:15 AM	2	2	4	4
12:30 AM	1	1	1	1
12:45 AM	1	2	3	3
1:00 AM	1	3	4	4
1:15 AM	2	3	5	5
1:30 AM	1	2	2	2
1:45 AM	2	1	3	3
2:00 AM	1	1	2	2
2:15 AM	0	0	0	0
2:30 AM	0	1	1	1
2:45 AM	0	0	0	0
3:00 AM	0	2	2	2
3:15 AM	2	0	2	2
3:30 AM	1	0	1	1
3:45 AM	2	1	2	2
4:00 AM	2	2	3	3
4:15 AM	4	0	4	4
4:30 AM	2	1	2	2
4:45 AM	4	1	5	5
5:00 AM	5	2	6	6
5:15 AM	7	3	9	9
5:30 AM	7	2	9	9
5:45 AM	4	0	4	4
6:00 AM	7	3	10	10
6:15 AM	7	2	9	9
6:30 AM	9	4	13	13
6:45 AM	14	3	17	17
7:00 AM	12	4	16	16
7:15 AM	14	4	18	18
7:30 AM	13	3	16	16
7:45 AM	10	9	19	19
8:00 AM	11	4	15	15
8:15 AM	9	4	12	12
8:30 AM	10	7	17	17
8:45 AM	9	5	14	14
9:00 AM	6	7	13	13
9:15 AM	8	5	12	12
9:30 AM	9	8	16	16
9:45 AM	7	6	13	13
10:00 AM	8	8	15	15
10:15 AM	9	6	15	15
10:30 AM	7	8	15	15
10:45 AM	7	7	14	14
11:00 AM	10	6	16	16
11:15 AM	10	9	18	18
11:30 AM	8	11	19	19
11:45 AM	6	9	14	14

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

File Ref:	1201307	1201308		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	11	11	22	22
12:15 PM	6	12	18	18
12:30 PM	8	11	19	19
12:45 PM	6	10	16	16
1:00 PM	9	7	16	16
1:15 PM	8	9	17	17
1:30 PM	7	9	16	16
1:45 PM	10	11	21	21
2:00 PM	8	9	17	17
2:15 PM	5	13	17	17
2:30 PM	6	12	18	18
2:45 PM	9	8	16	16
3:00 PM	6	14	20	20
3:15 PM	5	13	18	18
3:30 PM	7	7	13	13
3:45 PM	9	10	19	19
4:00 PM	7	7	14	14
4:15 PM	9	9	18	18
4:30 PM	7	12	18	18
4:45 PM	5	16	21	21
5:00 PM	6	11	16	16
5:15 PM	5	12	17	17
5:30 PM	7	18	25	25
5:45 PM	10	13	23	23
6:00 PM	9	8	16	16
6:15 PM	5	11	16	16
6:30 PM	3	9	11	11
6:45 PM	6	5	11	11
7:00 PM	4	10	14	14
7:15 PM	8	9	17	17
7:30 PM	6	9	15	15
7:45 PM	5	10	15	15
8:00 PM	6	9	15	15
8:15 PM	6	4	9	9
8:30 PM	2	5	7	7
8:45 PM	1	5	6	6
9:00 PM	2	7	9	9
9:15 PM	4	3	7	7
9:30 PM	3	2	5	5
9:45 PM	2	3	5	5
10:00 PM	3	3	6	6
10:15 PM	1	5	5	5
10:30 PM	2	4	6	6
10:45 PM	2	3	5	5
11:00 PM	1	4	5	5
11:15 PM	1	1	2	2
11:30 PM	0	3	3	3
11:45 PM	1	2	3	3
Total:	**511**	**546**	**1056**	**1056**
AM Peak Hr:	6:45 AM	11:30 AM	11:45 AM	11:45 AM
AM Peak Vol:	52.5	42	73	73
AM PHF:	0.9375	0.9130	0.8295	0.8295
PM Peak Hr:	1:00 PM	4:45 PM	5:00 PM	5:00 PM
PM Peak Vol:	33	55.5	80	80
PM PHF:	0.8250	0.7708	0.8000	0.8000

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	2	
Location 1:	MERIDIAN RD	
Location 2:	Btwn MCKELLIPS RD & BROWN RD	
Latitude:	33.44152	33.44152
Longitude:	-111.58058	-111.58058

File Ref:	1201309	1201310		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	2	2	4	4
12:15 AM	4	3	7	7
12:30 AM	1	1	2	2
12:45 AM	5	2	6	6
1:00 AM	4	3	6	6
1:15 AM	4	2	5	5
1:30 AM	3	1	4	4
1:45 AM	1	3	4	4
2:00 AM	2	1	3	3
2:15 AM	0	3	3	3
2:30 AM	1	1	1	1
2:45 AM	1	1	2	2
3:00 AM	2	3	5	5
3:15 AM	0	3	3	3
3:30 AM	1	3	3	3
3:45 AM	2	3	5	5
4:00 AM	2	7	9	9
4:15 AM	2	12	14	14
4:30 AM	1	10	11	11
4:45 AM	1	12	13	13
5:00 AM	5	15	20	20
5:15 AM	8	23	31	31
5:30 AM	9	22	31	31
5:45 AM	4	19	23	23
6:00 AM	6	17	22	22
6:15 AM	4	29	33	33
6:30 AM	13	29	42	42
6:45 AM	6	37	43	43
7:00 AM	7	38	45	45
7:15 AM	9	36	45	45
7:30 AM	11	43	53	53
7:45 AM	18	30	47	47
8:00 AM	12	30	41	41
8:15 AM	6	26	31	31
8:30 AM	11	23	34	34
8:45 AM	9	23	32	32
9:00 AM	16	21	37	37
9:15 AM	17	21	37	37
9:30 AM	14	20	34	34
9:45 AM	14	21	34	34
10:00 AM	14	20	33	33
10:15 AM	15	23	38	38
10:30 AM	14	20	34	34
10:45 AM	18	19	37	37
11:00 AM	11	20	31	31
11:15 AM	18	18	36	36
11:30 AM	18	15	33	33
11:45 AM	22	17	38	38

Traffic Research & Analysis, Inc.
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Phoenix, AZ 85018
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File Ref:	1201309	1201310		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	20	22	42	42
12:15 PM	18	19	36	36
12:30 PM	23	17	40	40
12:45 PM	16	20	36	36
1:00 PM	19	16	35	35
1:15 PM	17	18	35	35
1:30 PM	17	18	35	35
1:45 PM	24	20	44	44
2:00 PM	21	16	37	37
2:15 PM	28	13	41	41
2:30 PM	26	19	45	45
2:45 PM	25	18	43	43
3:00 PM	32	13	45	45
3:15 PM	29	16	44	44
3:30 PM	24	21	45	45
3:45 PM	28	22	49	49
4:00 PM	29	21	50	50
4:15 PM	28	17	45	45
4:30 PM	30	17	47	47
4:45 PM	31	17	48	48
5:00 PM	38	23	60	60
5:15 PM	37	21	58	58
5:30 PM	37	17	54	54
5:45 PM	25	20	45	45
6:00 PM	25	16	41	41
6:15 PM	25	12	36	36
6:30 PM	18	14	32	32
6:45 PM	16	11	27	27
7:00 PM	21	11	32	32
7:15 PM	22	13	35	35
7:30 PM	17	14	30	30
7:45 PM	22	11	33	33
8:00 PM	15	11	26	26
8:15 PM	14	10	24	24
8:30 PM	10	10	20	20
8:45 PM	9	8	17	17
9:00 PM	17	8	25	25
9:15 PM	13	7	20	20
9:30 PM	6	8	14	14
9:45 PM	8	5	13	13
10:00 PM	7	7	14	14
10:15 PM	6	3	9	9
10:30 PM	10	2	12	12
10:45 PM	8	3	11	11
11:00 PM	9	3	11	11
11:15 PM	5	2	7	7
11:30 PM	4	1	5	5
11:45 PM	4	1	4	4
Total:	**1278**	**1360**	**2638**	**2638**
AM Peak Hr:	11:45 AM	6:45 AM	7:00 AM	7:00 AM
AM Peak Vol:	82	153.5	188	188
AM PHF:	0.8913	0.9029	0.8868	0.8868
PM Peak Hr:	4:45 PM	5:00 PM	4:45 PM	4:45 PM
PM Peak Vol:	142.5	80.5	220	220
PM PHF:	0.9500	0.8944	0.9167	0.9167

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	3	
Location 1:	MERIDIAN RD	
Location 2:	Btwn BROWN RD & UNIVERSITY DR	
Latitude:	33.42492	33.42492
Longitude:	-111.58058	-111.58058

File Ref:	1201311	1201312		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	4	5	9	9
12:15 AM	4	3	7	7
12:30 AM	2	2	3	3
12:45 AM	4	3	6	6
1:00 AM	5	1	6	6
1:15 AM	3	4	7	7
1:30 AM	4	3	7	7
1:45 AM	3	2	5	5
2:00 AM	4	5	8	8
2:15 AM	2	4	5	5
2:30 AM	2	2	4	4
2:45 AM	4	3	7	7
3:00 AM	1	3	4	4
3:15 AM	1	1	2	2
3:30 AM	2	5	6	6
3:45 AM	2	5	7	7
4:00 AM	2	11	13	13
4:15 AM	2	11	13	13
4:30 AM	2	10	12	12
4:45 AM	3	10	13	13
5:00 AM	6	17	22	22
5:15 AM	7	24	31	31
5:30 AM	9	24	33	33
5:45 AM	6	12	18	18
6:00 AM	14	24	38	38
6:15 AM	10	27	37	37
6:30 AM	14	29	42	42
6:45 AM	13	31	43	43
7:00 AM	19	45	64	64
7:15 AM	14	57	71	71
7:30 AM	24	62	86	86
7:45 AM	21	46	67	67
8:00 AM	28	41	69	69
8:15 AM	25	47	72	72
8:30 AM	22	39	60	60
8:45 AM	26	41	67	67
9:00 AM	23	44	66	66
9:15 AM	33	37	70	70
9:30 AM	21	36	57	57
9:45 AM	26	32	57	57
10:00 AM	29	42	71	71
10:15 AM	27	41	67	67
10:30 AM	27	45	72	72
10:45 AM	27	38	64	64
11:00 AM	29	41	70	70
11:15 AM	42	33	75	75
11:30 AM	37	33	69	69
11:45 AM	34	38	72	72

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File Ref:	1201311	1201312		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	29	33	61	61
12:15 PM	41	36	77	77
12:30 PM	38	35	72	72
12:45 PM	33	40	73	73
1:00 PM	32	37	68	68
1:15 PM	43	37	79	79
1:30 PM	36	35	71	71
1:45 PM	40	38	78	78
2:00 PM	32	37	69	69
2:15 PM	39	31	70	70
2:30 PM	42	33	75	75
2:45 PM	50	35	85	85
3:00 PM	49	36	85	85
3:15 PM	52	37	88	88
3:30 PM	43	37	80	80
3:45 PM	51	44	95	95
4:00 PM	45	50	95	95
4:15 PM	49	43	91	91
4:30 PM	57	39	95	95
4:45 PM	50	41	90	90
5:00 PM	45	43	88	88
5:15 PM	62	52	113	113
5:30 PM	49	29	78	78
5:45 PM	44	33	77	77
6:00 PM	41	30	71	71
6:15 PM	39	29	68	68
6:30 PM	41	27	67	67
6:45 PM	32	25	56	56
7:00 PM	37	22	58	58
7:15 PM	36	28	64	64
7:30 PM	29	27	55	55
7:45 PM	32	30	61	61
8:00 PM	30	30	60	60
8:15 PM	29	24	53	53
8:30 PM	21	21	42	42
8:45 PM	26	18	44	44
9:00 PM	27	15	42	42
9:15 PM	18	18	36	36
9:30 PM	16	13	29	29
9:45 PM	19	14	33	33
10:00 PM	15	11	26	26
10:15 PM	16	10	25	25
10:30 PM	13	9	22	22
10:45 PM	12	6	18	18
11:00 PM	11	8	19	19
11:15 PM	7	6	12	12
11:30 PM	9	5	14	14
11:45 PM	4	3	6	6
Total:	**2256**	**2429**	**4684**	**4684**
AM Peak Hr:	11:45 AM	7:00 AM	7:30 AM	7:30 AM
AM Peak Vol:	141	208.5	292	292
AM PHF:	0.8598	0.8476	0.8488	0.8488
PM Peak Hr:	4:30 PM	3:45 PM	4:30 PM	4:30 PM
PM Peak Vol:	212.5	174	386	386
PM PHF:	0.8638	0.8788	0.8540	0.8540

Traffic Research & Analysis, Inc.
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Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	4	
Location 1:	MERIDIAN RD	
Location 2:	Btwn UNIVERSITY DR & APACHE TRAIL	
Latitude:	33.41909	33.41909
Longitude:	-111.58056	-111.58056

File Ref:	1201319	1201320		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	5	5	10	10
12:15 AM	6	4	9	9
12:30 AM	2	3	5	5
12:45 AM	3	2	5	5
1:00 AM	1	2	2	2
1:15 AM	3	2	4	4
1:30 AM	4	2	6	6
1:45 AM	3	5	8	8
2:00 AM	1	3	3	3
2:15 AM	1	1	2	2
2:30 AM	2	0	2	2
2:45 AM	2	2	3	3
3:00 AM	1	1	2	2
3:15 AM	1	1	2	2
3:30 AM	2	3	5	5
3:45 AM	2	4	5	5
4:00 AM	6	3	8	8
4:15 AM	2	5	6	6
4:30 AM	5	6	11	11
4:45 AM	7	8	14	14
5:00 AM	9	11	20	20
5:15 AM	9	8	17	17
5:30 AM	10	15	24	24
5:45 AM	11	15	25	25
6:00 AM	13	14	27	27
6:15 AM	17	23	40	40
6:30 AM	18	25	43	43
6:45 AM	18	22	39	39
7:00 AM	27	35	61	61
7:15 AM	30	43	73	73
7:30 AM	34	47	81	81
7:45 AM	27	47	74	74
8:00 AM	54	43	97	97
8:15 AM	37	49	86	86
8:30 AM	43	45	88	88
8:45 AM	48	47	95	95
9:00 AM	39	43	81	81
9:15 AM	43	43	85	85
9:30 AM	33	39	72	72
9:45 AM	43	45	87	87
10:00 AM	49	51	100	100
10:15 AM	42	50	91	91
10:30 AM	39	48	87	87
10:45 AM	39	50	89	89
11:00 AM	42	48	90	90
11:15 AM	61	46	107	107
11:30 AM	53	46	99	99
11:45 AM	45	55	100	100

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File Ref:	1201319	1201320		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	54	49	103	103
12:15 PM	55	44	99	99
12:30 PM	47	49	96	96
12:45 PM	51	55	105	105
1:00 PM	51	49	100	100
1:15 PM	56	51	107	107
1:30 PM	58	47	104	104
1:45 PM	57	56	113	113
2:00 PM	53	41	93	93
2:15 PM	49	46	95	95
2:30 PM	58	52	110	110
2:45 PM	54	54	108	108
3:00 PM	56	56	112	112
3:15 PM	56	52	108	108
3:30 PM	59	54	112	112
3:45 PM	59	57	115	115
4:00 PM	51	57	108	108
4:15 PM	70	56	126	126
4:30 PM	66	54	120	120
4:45 PM	59	51	110	110
5:00 PM	62	53	115	115
5:15 PM	61	49	110	110
5:30 PM	55	43	98	98
5:45 PM	46	46	91	91
6:00 PM	51	45	95	95
6:15 PM	46	43	89	89
6:30 PM	47	37	84	84
6:45 PM	40	31	70	70
7:00 PM	41	28	69	69
7:15 PM	36	26	62	62
7:30 PM	31	31	62	62
7:45 PM	37	30	67	67
8:00 PM	40	27	66	66
8:15 PM	25	25	49	49
8:30 PM	30	26	56	56
8:45 PM	22	17	39	39
9:00 PM	24	17	40	40
9:15 PM	16	17	33	33
9:30 PM	14	13	26	26
9:45 PM	17	15	32	32
10:00 PM	18	16	34	34
10:15 PM	15	7	22	22
10:30 PM	8	6	14	14
10:45 PM	10	6	16	16
11:00 PM	14	7	21	21
11:15 PM	7	4	11	11
11:30 PM	9	4	13	13
11:45 PM	4	5	9	9
Total:	**2912**	**2793**	**5704**	**5704**
AM Peak Hr:	11:15 AM	10:00 AM	11:15 AM	11:15 AM
AM Peak Vol:	211.5	198	406	406
AM PHF:	0.8740	0.9706	0.9575	0.9575
PM Peak Hr:	4:15 PM	3:45 PM	4:15 PM	4:15 PM
PM Peak Vol:	256	223.5	471	471
PM PHF:	0.9143	0.9803	0.9345	0.9345

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	5	
Location 1:	MERIDIAN RD	
Location 2:	Btwn APACHE TRAIL & BROADWAY RD	
Latitude:	33.41137	33.41137
Longitude:	-111.58061	-111.58061

File Ref:	1201321	1201322		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	3	4	7	7
12:15 AM	5	3	8	8
12:30 AM	3	3	6	6
12:45 AM	4	4	8	8
1:00 AM	2	1	2	2
1:15 AM	2	1	3	3
1:30 AM	2	4	6	6
1:45 AM	2	3	5	5
2:00 AM	2	2	4	4
2:15 AM	1	0	1	1
2:30 AM	2	2	3	3
2:45 AM	2	1	2	2
3:00 AM	0	1	1	1
3:15 AM	2	1	2	2
3:30 AM	4	2	6	6
3:45 AM	3	2	5	5
4:00 AM	4	2	6	6
4:15 AM	6	2	8	8
4:30 AM	6	4	10	10
4:45 AM	10	9	18	18
5:00 AM	12	9	21	21
5:15 AM	10	9	19	19
5:30 AM	9	9	18	18
5:45 AM	11	12	22	22
6:00 AM	12	14	26	26
6:15 AM	21	21	42	42
6:30 AM	19	17	35	35
6:45 AM	20	26	45	45
7:00 AM	31	28	59	59
7:15 AM	39	31	70	70
7:30 AM	33	39	71	71
7:45 AM	36	53	89	89
8:00 AM	28	46	73	73
8:15 AM	36	50	86	86
8:30 AM	33	58	90	90
8:45 AM	38	65	103	103
9:00 AM	41	54	95	95
9:15 AM	45	54	99	99
9:30 AM	44	55	99	99
9:45 AM	45	51	96	96
10:00 AM	39	60	99	99
10:15 AM	53	50	103	103
10:30 AM	48	57	105	105
10:45 AM	53	48	100	100
11:00 AM	48	52	100	100
11:15 AM	56	61	117	117
11:30 AM	51	62	113	113
11:45 AM	50	55	105	105

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File Ref:	1201321	1201322		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	54	67	120	120
12:15 PM	49	51	100	100
12:30 PM	47	64	111	111
12:45 PM	47	57	104	104
1:00 PM	55	54	109	109
1:15 PM	46	50	96	96
1:30 PM	47	64	111	111
1:45 PM	53	60	112	112
2:00 PM	50	58	108	108
2:15 PM	49	65	114	114
2:30 PM	55	64	119	119
2:45 PM	59	52	111	111
3:00 PM	53	64	117	117
3:15 PM	45	58	103	103
3:30 PM	53	44	96	96
3:45 PM	51	64	114	114
4:00 PM	58	63	121	121
4:15 PM	63	65	127	127
4:30 PM	60	63	122	122
4:45 PM	52	68	120	120
5:00 PM	56	51	107	107
5:15 PM	62	56	118	118
5:30 PM	48	44	92	92
5:45 PM	49	35	84	84
6:00 PM	50	40	90	90
6:15 PM	50	45	95	95
6:30 PM	33	40	72	72
6:45 PM	46	37	83	83
7:00 PM	39	35	74	74
7:15 PM	34	31	65	65
7:30 PM	23	35	58	58
7:45 PM	32	34	66	66
8:00 PM	29	26	55	55
8:15 PM	35	21	56	56
8:30 PM	24	24	48	48
8:45 PM	14	17	31	31
9:00 PM	17	19	36	36
9:15 PM	16	16	32	32
9:30 PM	16	14	30	30
9:45 PM	18	12	30	30
10:00 PM	10	14	24	24
10:15 PM	9	13	22	22
10:30 PM	10	6	15	15
10:45 PM	6	6	12	12
11:00 PM	5	8	13	13
11:15 PM	5	5	10	10
11:30 PM	2	4	6	6
11:45 PM	4	3	7	7
Total:	**2792**	**3061**	**5853**	**5853**
AM Peak Hr:	11:15 AM	11:15 AM	11:15 AM	11:15 AM
AM Peak Vol:	209.5	244	452	452
AM PHF:	0.9437	0.9173	0.9417	0.9417
PM Peak Hr:	4:00 PM	4:00 PM	4:00 PM	4:00 PM
PM Peak Vol:	231.5	258	489	489
PM PHF:	0.9260	0.9485	0.9626	0.9626

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

TRAFFIC COUNT SUMMARY

Site ID:	6	
Location 1:	MERIDIAN RD	
Location 2:	Btwn BROADWAY RD & SOUTHERN AVE	
Latitude:	33.39895	33.39895
Longitude:	-111.58054	-111.58054

File Ref:	1201315	1201316		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	2	3	5	5
12:15 AM	3	1	3	3
12:30 AM	2	0	2	2
12:45 AM	2	2	4	4
1:00 AM	0	0	0	0
1:15 AM	0	1	1	1
1:30 AM	1	1	1	1
1:45 AM	3	1	4	4
2:00 AM	1	1	2	2
2:15 AM	1	1	1	1
2:30 AM	0	0	0	0
2:45 AM	1	1	1	1
3:00 AM	0	2	2	2
3:15 AM	1	2	3	3
3:30 AM	2	2	4	4
3:45 AM	2	3	5	5
4:00 AM	1	4	5	5
4:15 AM	2	4	6	6
4:30 AM	3	9	11	11
4:45 AM	5	13	18	18
5:00 AM	4	13	16	16
5:15 AM	3	17	20	20
5:30 AM	4	12	16	16
5:45 AM	8	15	23	23
6:00 AM	10	10	20	20
6:15 AM	10	15	25	25
6:30 AM	13	18	31	31
6:45 AM	19	29	48	48
7:00 AM	17	32	48	48
7:15 AM	32	46	78	78
7:30 AM	44	49	93	93
7:45 AM	39	31	70	70
8:00 AM	25	28	52	52
8:15 AM	34	26	60	60
8:30 AM	42	34	76	76
8:45 AM	44	32	76	76
9:00 AM	29	29	58	58
9:15 AM	31	41	72	72
9:30 AM	35	36	71	71
9:45 AM	38	29	67	67
10:00 AM	43	39	81	81
10:15 AM	36	39	75	75
10:30 AM	33	35	68	68
10:45 AM	31	37	68	68
11:00 AM	38	32	70	70
11:15 AM	45	44	89	89
11:30 AM	46	44	89	89
11:45 AM	40	36	75	75

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(602) 840-1500

File Ref:	1201315	1201316		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	41	40	81	81
12:15 PM	34	29	63	63
12:30 PM	51	34	84	84
12:45 PM	35	35	70	70
1:00 PM	37	35	72	72
1:15 PM	33	39	71	71
1:30 PM	43	39	82	82
1:45 PM	49	37	86	86
2:00 PM	43	41	83	83
2:15 PM	61	33	93	93
2:30 PM	46	36	81	81
2:45 PM	41	43	84	84
3:00 PM	45	35	80	80
3:15 PM	38	36	74	74
3:30 PM	36	39	75	75
3:45 PM	45	35	80	80
4:00 PM	53	33	86	86
4:15 PM	46	39	84	84
4:30 PM	48	44	92	92
4:45 PM	49	34	83	83
5:00 PM	35	39	74	74
5:15 PM	42	41	82	82
5:30 PM	29	31	60	60
5:45 PM	32	30	62	62
6:00 PM	39	33	71	71
6:15 PM	32	33	64	64
6:30 PM	27	20	46	46
6:45 PM	33	24	57	57
7:00 PM	27	21	48	48
7:15 PM	22	23	45	45
7:30 PM	29	11	40	40
7:45 PM	26	16	41	41
8:00 PM	16	17	32	32
8:15 PM	13	22	35	35
8:30 PM	13	14	27	27
8:45 PM	14	7	21	21
9:00 PM	12	7	19	19
9:15 PM	7	14	20	20
9:30 PM	11	8	19	19
9:45 PM	11	9	19	19
10:00 PM	10	7	17	17
10:15 PM	6	4	10	10
10:30 PM	10	5	15	15
10:45 PM	10	2	11	11
11:00 PM	7	3	10	10
11:15 PM	2	3	5	5
11:30 PM	3	0	3	3
11:45 PM	3	1	4	4
Total:	**2194**	**2057**	**4250**	**4250**
AM Peak Hr:	11:15 AM	11:15 AM	11:15 AM	11:15 AM
AM Peak Vol:	170	163	332	332
AM PHF:	0.9341	0.9261	0.9326	0.9326
PM Peak Hr:	1:45 PM	4:30 PM	1:30 PM	1:30 PM
PM Peak Vol:	197.5	156.5	344	344
PM PHF:	0.8161	0.8892	0.9247	0.9247

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TRAFFIC COUNT SUMMARY

Site ID:	7	
Location 1:	MERIDIAN RD	
Location 2:	Btwn SOUTHERN AVE & BASELINE RD	
Latitude:	33.38927	33.38927
Longitude:	-111.58058	-111.58058

File Ref:	1201317	1201318		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	1	1	1	1
12:15 AM	3	0	3	3
12:30 AM	0	0	0	0
12:45 AM	0	1	1	1
1:00 AM	0	1	1	1
1:15 AM	1	2	3	3
1:30 AM	0	0	0	0
1:45 AM	1	1	1	1
2:00 AM	1	1	1	1
2:15 AM	0	0	0	0
2:30 AM	1	0	1	1
2:45 AM	0	1	1	1
3:00 AM	0	2	2	2
3:15 AM	0	2	2	2
3:30 AM	0	4	4	4
3:45 AM	1	5	6	6
4:00 AM	1	0	1	1
4:15 AM	1	4	4	4
4:30 AM	3	8	11	11
4:45 AM	3	13	16	16
5:00 AM	4	11	15	15
5:15 AM	2	9	11	11
5:30 AM	7	9	15	15
5:45 AM	10	13	23	23
6:00 AM	8	11	18	18
6:15 AM	7	10	17	17
6:30 AM	12	15	26	26
6:45 AM	26	19	45	45
7:00 AM	22	17	39	39
7:15 AM	32	21	53	53
7:30 AM	32	22	53	53
7:45 AM	36	21	57	57
8:00 AM	21	20	40	40
8:15 AM	25	17	42	42
8:30 AM	33	18	51	51
8:45 AM	20	15	34	34
9:00 AM	21	21	41	41
9:15 AM	14	17	31	31
9:30 AM	25	21	46	46
9:45 AM	21	20	41	41
10:00 AM	24	22	45	45
10:15 AM	19	23	41	41
10:30 AM	22	19	40	40
10:45 AM	15	23	37	37
11:00 AM	17	14	31	31
11:15 AM	25	25	50	50
11:30 AM	20	24	43	43
11:45 AM	25	19	44	44

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File Ref:	1201317	1201318		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	24	24	48	48
12:15 PM	20	18	38	38
12:30 PM	27	21	48	48
12:45 PM	18	20	38	38
1:00 PM	18	24	41	41
1:15 PM	21	19	39	39
1:30 PM	23	21	43	43
1:45 PM	18	30	48	48
2:00 PM	22	22	44	44
2:15 PM	27	27	53	53
2:30 PM	27	22	49	49
2:45 PM	25	23	47	47
3:00 PM	28	28	55	55
3:15 PM	25	24	49	49
3:30 PM	29	21	50	50
3:45 PM	28	17	45	45
4:00 PM	41	21	61	61
4:15 PM	21	23	43	43
4:30 PM	32	28	60	60
4:45 PM	27	24	50	50
5:00 PM	24	26	50	50
5:15 PM	30	26	56	56
5:30 PM	14	19	33	33
5:45 PM	20	17	37	37
6:00 PM	13	20	33	33
6:15 PM	16	20	36	36
6:30 PM	21	15	35	35
6:45 PM	18	11	29	29
7:00 PM	17	13	30	30
7:15 PM	11	17	27	27
7:30 PM	8	9	17	17
7:45 PM	8	8	16	16
8:00 PM	9	9	18	18
8:15 PM	5	13	18	18
8:30 PM	5	11	15	15
8:45 PM	5	7	12	12
9:00 PM	7	3	10	10
9:15 PM	5	6	11	11
9:30 PM	5	5	10	10
9:45 PM	6	3	9	9
10:00 PM	6	3	9	9
10:15 PM	6	2	8	8
10:30 PM	2	2	4	4
10:45 PM	5	3	8	8
11:00 PM	2	2	3	3
11:15 PM	1	1	2	2
11:30 PM	0	1	1	1
11:45 PM	1	1	2	2
Total:	**1308**	**1247**	**2554**	**2554**
AM Peak Hr:	7:00 AM	11:15 AM	7:15 AM	7:15 AM
AM Peak Vol:	121	91	202	202
AM PHF:	0.8403	0.9100	0.9018	0.9018
PM Peak Hr:	3:15 PM	4:30 PM	4:30 PM	4:30 PM
PM Peak Vol:	121.5	102	216	216
PM PHF:	0.7500	0.9273	0.9000	0.9000

Traffic Research & Analysis, Inc.
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TRAFFIC COUNT SUMMARY

Site ID:	8	
Location 1:	MERIDIAN RD	
Location 2:	N of ELLIOT RD	
Latitude:	33.35148	33.35148
Longitude:	-111.58381	-111.58381

File Ref:	1201325	1201326		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	3	1	4	4
12:15 AM	1	2	2	2
12:30 AM	1	2	3	3
12:45 AM	0	0	0	0
1:00 AM	1	1	1	1
1:15 AM	0	1	1	1
1:30 AM	1	1	2	2
1:45 AM	1	2	2	2
2:00 AM	1	1	2	2
2:15 AM	0	1	1	1
2:30 AM	0	1	1	1
2:45 AM	0	0	0	0
3:00 AM	0	1	1	1
3:15 AM	0	1	1	1
3:30 AM	1	3	3	3
3:45 AM	0	0	0	0
4:00 AM	0	2	2	2
4:15 AM	0	2	2	2
4:30 AM	0	2	2	2
4:45 AM	1	1	1	1
5:00 AM	1	5	6	6
5:15 AM	1	7	8	8
5:30 AM	0	7	7	7
5:45 AM	3	8	10	10
6:00 AM	3	8	11	11
6:15 AM	4	12	16	16
6:30 AM	4	14	18	18
6:45 AM	8	24	31	31
7:00 AM	9	20	29	29
7:15 AM	7	16	22	22
7:30 AM	6	18	24	24
7:45 AM	8	21	29	29
8:00 AM	13	19	32	32
8:15 AM	6	15	21	21
8:30 AM	4	6	10	10
8:45 AM	7	10	17	17
9:00 AM	5	8	13	13
9:15 AM	6	11	16	16
9:30 AM	7	7	14	14
9:45 AM	6	6	12	12
10:00 AM	4	6	10	10
10:15 AM	3	5	8	8
10:30 AM	8	4	12	12
10:45 AM	5	7	12	12
11:00 AM	5	6	11	11
11:15 AM	7	4	11	11
11:30 AM	7	5	11	11
11:45 AM	10	7	17	17

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File Ref:	1201325	1201326		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	10	6	16	16
12:15 PM	9	6	14	14
12:30 PM	6	6	12	12
12:45 PM	8	5	13	13
1:00 PM	12	7	19	19
1:15 PM	4	6	10	10
1:30 PM	5	8	13	13
1:45 PM	6	8	14	14
2:00 PM	8	11	18	18
2:15 PM	9	8	17	17
2:30 PM	9	11	20	20
2:45 PM	12	9	21	21
3:00 PM	20	9	29	29
3:15 PM	16	12	28	28
3:30 PM	14	7	20	20
3:45 PM	8	10	18	18
4:00 PM	12	8	20	20
4:15 PM	16	7	23	23
4:30 PM	18	9	27	27
4:45 PM	16	10	25	25
5:00 PM	15	5	20	20
5:15 PM	13	12	24	24
5:30 PM	14	7	21	21
5:45 PM	16	8	23	23
6:00 PM	9	5	14	14
6:15 PM	15	5	20	20
6:30 PM	15	6	20	20
6:45 PM	16	7	23	23
7:00 PM	10	8	17	17
7:15 PM	10	6	16	16
7:30 PM	10	7	17	17
7:45 PM	9	5	13	13
8:00 PM	7	6	13	13
8:15 PM	13	3	16	16
8:30 PM	11	4	15	15
8:45 PM	8	5	13	13
9:00 PM	7	5	12	12
9:15 PM	9	4	13	13
9:30 PM	2	3	5	5
9:45 PM	4	4	8	8
10:00 PM	8	2	10	10
10:15 PM	5	1	6	6
10:30 PM	5	4	9	9
10:45 PM	4	2	5	5
11:00 PM	4	1	5	5
11:15 PM	3	2	5	5
11:30 PM	2	2	3	3
11:45 PM	3	2	4	4
Total:	**609**	**581**	**1190**	**1190**
AM Peak Hr:	11:30 AM	6:45 AM	6:45 AM	6:45 AM
AM Peak Vol:	34	76.5	106	106
AM PHF:	0.8947	0.8138	0.8548	0.8548
PM Peak Hr:	4:15 PM	2:30 PM	2:30 PM	2:30 PM
PM Peak Vol:	63	40.5	98	98
PM PHF:	0.9000	0.8438	0.8448	0.8448

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TRAFFIC COUNT SUMMARY

Site ID:	9	
Location 1:	MERIDIAN RD	
Location 2:	Btwn ELLIOT RD & WARNER RD	
Latitude:	33.34041	33.34041
Longitude:	-111.58371	-111.58371

File Ref:	1201323	1201324		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 AM	1	2	3	3
12:15 AM	1	0	1	1
12:30 AM	1	0	1	1
12:45 AM	1	2	2	2
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	1	1	1
1:45 AM	0	0	0	0
2:00 AM	0	1	1	1
2:15 AM	0	0	0	0
2:30 AM	1	0	1	1
2:45 AM	0	1	1	1
3:00 AM	2	0	2	2
3:15 AM	0	1	1	1
3:30 AM	3	0	3	3
3:45 AM	1	0	1	1
4:00 AM	3	0	3	3
4:15 AM	3	0	3	3
4:30 AM	5	0	5	5
4:45 AM	6	1	7	7
5:00 AM	12	0	12	12
5:15 AM	14	1	14	14
5:30 AM	10	1	10	10
5:45 AM	8	3	11	11
6:00 AM	12	2	14	14
6:15 AM	15	3	17	17
6:30 AM	15	3	18	18
6:45 AM	19	7	26	26
7:00 AM	28	4	32	32
7:15 AM	13	3	16	16
7:30 AM	17	5	22	22
7:45 AM	23	9	32	32
8:00 AM	18	8	26	26
8:15 AM	11	4	15	15
8:30 AM	11	4	14	14
8:45 AM	8	7	14	14
9:00 AM	5	9	14	14
9:15 AM	6	3	9	9
9:30 AM	6	7	13	13
9:45 AM	11	5	16	16
10:00 AM	4	5	9	9
10:15 AM	7	3	10	10
10:30 AM	5	4	9	9
10:45 AM	8	7	15	15
11:00 AM	10	7	17	17
11:15 AM	7	6	13	13
11:30 AM	4	8	12	12
11:45 AM	7	8	15	15

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

File Ref:	1201323	1201324		
Start Date:	Average	Average	**Combined Totals**	
Direction:	**NB**	**SB**	**NB/SB**	**Total**
12:00 PM	7	11	18	18
12:15 PM	9	9	18	18
12:30 PM	7	8	15	15
12:45 PM	11	8	19	19
1:00 PM	6	6	12	12
1:15 PM	9	7	16	16
1:30 PM	5	6	11	11
1:45 PM	6	8	13	13
2:00 PM	8	7	15	15
2:15 PM	7	7	13	13
2:30 PM	9	9	17	17
2:45 PM	13	12	25	25
3:00 PM	15	21	36	36
3:15 PM	9	11	20	20
3:30 PM	9	14	23	23
3:45 PM	10	15	24	24
4:00 PM	10	14	24	24
4:15 PM	14	18	31	31
4:30 PM	15	17	32	32
4:45 PM	10	17	27	27
5:00 PM	11	16	27	27
5:15 PM	7	18	25	25
5:30 PM	7	16	23	23
5:45 PM	12	14	26	26
6:00 PM	5	13	18	18
6:15 PM	11	12	22	22
6:30 PM	5	14	19	19
6:45 PM	11	13	23	23
7:00 PM	9	12	21	21
7:15 PM	5	10	15	15
7:30 PM	8	9	16	16
7:45 PM	9	6	14	14
8:00 PM	4	14	18	18
8:15 PM	5	9	14	14
8:30 PM	4	9	13	13
8:45 PM	4	5	9	9
9:00 PM	2	7	9	9
9:15 PM	4	7	10	10
9:30 PM	2	5	6	6
9:45 PM	2	9	11	11
10:00 PM	3	2	5	5
10:15 PM	3	7	9	9
10:30 PM	3	5	8	8
10:45 PM	2	4	6	6
11:00 PM	1	2	3	3
11:15 PM	1	2	2	2
11:30 PM	1	3	4	4
11:45 PM	1	3	4	4
Total:	**651**	**595**	**1246**	**1246**
AM Peak Hr:	7:00 AM	11:30 AM	7:00 AM	7:00 AM
AM Peak Vol:	80	35.5	102	102
AM PHF:	0.7143	0.8068	0.7969	0.7969
PM Peak Hr:	4:15 PM	4:30 PM	4:15 PM	4:15 PM
PM Peak Vol:	49.5	67	115	115
PM PHF:	0.8250	0.9306	0.8984	0.8984

APPENDIX B

EXCERPTS FROM 2009 QUALITY/LEVEL OF SERVICE HANDBOOK

Michael Baker Jr., Inc.
Phoenix, Arizona

2009 Quality/Level of Service

Handbook

2009
State of Florida
Department of Transportation

TABLE 1

Generalized **Annual Average Daily** Volumes for Florida's **Urbanized Areas**[1]

10/4/10

STATE SIGNALIZED ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	9,600	15,400	16,500	***
4	Divided	29,300	35,500	36,700	***
6	Divided	45,000	53,700	55,300	***
8	Divided	60,800	71,800	73,800	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	10,500	15,200	16,200
4	Divided	**	25,000	33,200	35,100
6	Divided	**	39,000	50,300	53,100
8	Divided	**	53,100	67,300	70,900

Class III/IV (more than 4.5 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	5,100	11,900	14,900
4	Divided	**	12,600	28,200	31,900
6	Divided	**	19,700	43,700	48,200
8	Divided	**	27,000	59,500	64,700

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Major City/County Roadways	- 10%
Other Signalized Roadways	- 35%

State & Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Divided/Undivided & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6.

FREEWAYS

Lanes	B	C	D	E
4	43,500	59,800	73,600	79,400
6	65,300	90,500	110,300	122,700
8	87,000	120,100	146,500	166,000
10	108,700	151,700	184,000	209,200
12	149,300	202,100	238,600	252,500

Freeway Adjustments

Auxiliary Lanes	Ramp Metering
+ 20,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	7,800	15,600	22,200	27,900
4	Divided	34,300	49,600	64,300	72,800
6	Divided	51,500	74,400	96,400	109,400

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/ Bicycle Lane Coverage	B	C	D	E
0-49%	**	3,200	12,100	>12,100
50-84%	2,400	3,700	>3,700	***
85-100%	6,300	>6,300	***	***

PEDESTRIAN MODE[2]

(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%	**	**	5,000	14,400
50-84%	**	**	11,300	18,800
85-100%	**	11,400	18,800	>18,800

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

[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. Although presented as daily volumes, they actually represent peak hour direction conditions with applicable K and D factors applied. 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, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

[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.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

** Cannot be achieved using table input value defaults.

*** 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.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

TABLE 1
(continued)

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

Urbanized Areas

9/4/09

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities			Interrupted Flow Facilities								
				State Arterials						Class II		
	Freeways	Highways		Class I		Class II		Class III		Bicycle	Pedestrian	Bus
ROADWAY CHARACTERISTICS												
Area type (l,o)	l	l	l	l	l	l	l	l	l	l	l	l
Number of through lanes	4-12	2	4-6	2	4-8	2	4-8	2	4-8	4	4	
Posted speed (mph)	65	50	50	45	50	45	45	35	35	45	45	
Free flow speed (mph)	70	55	55	50	55	50	50	40	40	50	50	
Aux, meter, or accel/decel ≥1500 (n,y)	n											
Median (n, nr, r)		n	r	n	r	n	r	n	r	r	r	
Terrain (l,r)	l	l	l									
% no passing zone		80										
Exclusive left turn lanes /[impact](n, y)		[n]	y	y	y	y	y	y	y	y	y	
Exclusive right turn lanes (n, y)				n	n	n	n	n	n	n	n	
Paved shoulder/bicycle lane (n, y)										n, 50%,y	n	
Outside lane width										t	t	
Pavement condition										t		
Sidewalk (n, y)											n, 50%,y	n,y
Sidewalk/roadway separation (a, t, w)											t	
Sidewalk protective barrier (n, y)											n	
Obstacle to bus stop (n, y)												n
Facility length (mi)	4	5	5	2	2	2	2	2	2	2	2	2
Number of segments	4											
TRAFFIC CHARACTERISTICS												
Planning analysis hour factor (K)	0.092	0.094	0.094	0.097	0.097	0.097	0.097	0.097	0.097	0.097	0.097	
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	
Peak hour factor (PHF)	0.95	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925	
Base saturation flow rate (pcphpl)		1700	2100	1950	1950	1950	1950	1950	1950	1950	1950	
Heavy vehicle percent	4.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0	
Local adjustment factor	0.98	1.0	0.98									
% left turns				12	12	12	12	12	12	12	12	
% right turns				12	12	12	12	12	12	12	12	
Bus span of service												15
CONTROL CHARACTERISTICS												
Number of signals				2	2	6	6	10	10	6	6	
Arrival type (1-6)				3	3	4	4	4	4	4	4	
Signal type (a, s, p)				a	a	s	s	s	s	s	s	
Cycle length (C)				120	120	120	120	120	120	120	120	
Effective green ratio (g/C)				0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways	Highway Segments		State & Non-State Signalized Arterials			Bicycle	Pedestrian	Bus
		Two-Lane	Multilane	Class I	Class II	Class III			
	Density	%ffs	Density	ats	ats	ats	Score	Score	Buses per hr.
B	≤17	≥0.833	≤18	> 34 mph	> 28 mph	> 24 mph	≤2.5	≤2.5	≥4
C	≤24	>0.750	≤26	> 27 mph	> 22 mph	> 18 mph	≤3.5	≤3.5	≥3
D	≤31	>0.667	≤35	> 21 mph	> 17 mph	> 14 mph	≤4.5	≤4.5	≥2
E	≤39	>0.583	≤41	> 16 mph	> 13 mph	> 10 mph	≤5.5	≤5.5	≥1

% ffs = Percent free flow speed ats = Average travel speed

APPENDIX C

EXISTING 2012 LOS REPORTS

Michael Baker Jr., Inc.
Phoenix, Arizona

HCM Unsignalized Intersection Capacity Analysis - AM Peak Hour
1: McDowell Road & Meridian Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	1	0	1	0	3	1	0	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	0	1	0	4	1	0	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	8	8	3	7	7	5	3			5		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8	8	3	7	7	5	3			5		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1009	887	1081	1012	888	1079	1620			1616		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	3	5	3
Volume Left	0	1	0	0
Volume Right	0	1	1	0
cSH	1700	1045	1620	1616
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	8.5	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	8.5	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	99	2	21	22	2	47
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	3	27	29	3	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	108	42			56	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	108	42			56	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	888	1029			1549	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	56	64
Volume Left	129	0	3
Volume Right	3	29	0
cSH	890	1700	1549
Volume to Capacity	0.15	0.03	0.00
Queue Length 95th (ft)	13	0	0
Control Delay (s)	9.7	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	23	47	42	19	73	5	23	31	9	3	61	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	61	55	25	95	7	30	40	12	4	80	110

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	146	127	82	193
Volume Left (vph)	30	25	30	4
Volume Right (vph)	55	7	12	110
Hadj (s)	-0.15	0.04	0.02	-0.30
Departure Headway (s)	4.6	4.8	4.8	4.4
Degree Utilization, x	0.19	0.17	0.11	0.23
Capacity (veh/h)	733	702	694	771
Control Delay (s)	8.6	8.7	8.4	8.7
Approach Delay (s)	8.6	8.7	8.4	8.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.6		
HCM Level of Service	A		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis - AM Peak Hour
11: University Drive & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	218	64	24	260	15	61	63	38	36	82	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3419		1770	3510		1770	3338		1770	3539	1583
Flt Permitted	0.54	1.00		0.53	1.00		0.68	1.00		0.67	1.00	1.00
Satd. Flow (perm)	1001	3419		993	3510		1275	3338		1245	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	38	284	83	31	339	20	80	82	50	47	107	127
RTOR Reduction (vph)	0	50	0	0	11	0	0	30	0	0	0	76
Lane Group Flow (vph)	38	317	0	31	348	0	80	102	0	47	107	51
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	400	1368		397	1404		510	1335		498	1416	633
v/s Ratio Prot		0.09			c0.10			0.03			0.03	
v/s Ratio Perm	0.04			0.03			c0.06			0.04		0.03
v/c Ratio	0.10	0.23		0.08	0.25		0.16	0.08		0.09	0.08	0.08
Uniform Delay, d1	7.5	7.9		7.4	8.0		7.7	7.4		7.5	7.4	7.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.4		0.4	0.4		0.7	0.1		0.4	0.1	0.2
Delay (s)	8.0	8.3		7.8	8.4		8.3	7.5		7.9	7.5	7.7
Level of Service	A	A		A	A		A	A		A	A	A
Approach Delay (s)		8.3			8.4			7.8			7.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis - AM Peak Hour
17: Apache Trail & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	281	28	45	312	55	52	121	61	77	74	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5015		1770	5085	1583	1770	3361		1770	3326	
Flt Permitted	0.50	1.00		0.51	1.00	1.00	0.65	1.00		0.60	1.00	
Satd. Flow (perm)	939	5015		942	5085	1583	1210	3361		1125	3326	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	103	367	37	59	407	72	68	158	80	100	97	65
RTOR Reduction (vph)	0	24	0	0	0	49	0	51	0	0	42	0
Lane Group Flow (vph)	103	380	0	59	407	23	68	187	0	100	120	0
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0	16.0	22.0	18.0		22.0	18.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0	16.0	22.0	18.0		22.0	18.0	
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.32	0.44	0.36		0.44	0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	300	1605		301	1627	507	577	1210		547	1197	
v/s Ratio Prot		0.08			0.08		0.01	0.06		c0.01	0.04	
v/s Ratio Perm	c0.11			0.06		0.01	0.04			c0.07		
v/c Ratio	0.34	0.24		0.20	0.25	0.05	0.12	0.15		0.18	0.10	
Uniform Delay, d1	13.0	12.5		12.3	12.6	11.7	8.2	10.8		8.3	10.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.3		1.5	0.4	0.2	0.4	0.3		0.7	0.2	
Delay (s)	16.1	12.9		13.8	12.9	11.9	8.6	11.1		9.0	10.8	
Level of Service	B	B		B	B	B	A	B		A	B	
Approach Delay (s)		13.5			12.9			10.5			10.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis - AM Peak Hour
22: Broadway Avenue & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	171	22	34	218	40	19	112	41	23	89	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3478		1770	3457		1770	3398		1770	3433	
Flt Permitted	0.55	1.00		0.60	1.00		0.66	1.00		0.63	1.00	
Satd. Flow (perm)	1023	3478		1110	3457		1229	3398		1167	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	56	223	29	44	284	52	25	146	53	30	116	29
RTOR Reduction (vph)	0	17	0	0	31	0	0	32	0	0	17	0
Lane Group Flow (vph)	56	235	0	44	305	0	25	167	0	30	128	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	409	1391		444	1383		492	1359		467	1373	
v/s Ratio Prot		0.07			c0.09			c0.05			0.04	
v/s Ratio Perm	0.05			0.04			0.02			0.03		
v/c Ratio	0.14	0.17		0.10	0.22		0.05	0.12		0.06	0.09	
Uniform Delay, d1	7.6	7.7		7.5	7.9		7.3	7.6		7.4	7.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3		0.4	0.4		0.2	0.2		0.3	0.1	
Delay (s)	8.3	8.0		7.9	8.3		7.5	7.8		7.7	7.6	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		8.0			8.2			7.7			7.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	61	99	9	22	204	40	17	80	14	38	55	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	129	12	29	266	52	22	104	18	50	72	170

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	209	12	347	145	291
Volume Left (vph)	80	0	29	22	50
Volume Right (vph)	0	12	52	18	170
Hadj (s)	0.22	-0.67	-0.04	-0.01	-0.28
Departure Headway (s)	6.6	5.7	5.7	6.2	5.6
Degree Utilization, x	0.38	0.02	0.55	0.25	0.45
Capacity (veh/h)	502	575	593	505	587
Control Delay (s)	12.4	7.6	15.5	11.2	13.2
Approach Delay (s)	12.1		15.5	11.2	13.2
Approach LOS	B		C	B	B

Intersection Summary			
Delay	13.5		
HCM Level of Service	B		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	61	129	319	58	30	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	168	416	76	39	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	492				781	454
vC1, stage 1 conf vol					454	
vC2, stage 2 conf vol					327	
vCu, unblocked vol	492				781	454
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				93	89
cM capacity (veh/h)	1072				537	606

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	80	168	492	103
Volume Left	80	0	0	39
Volume Right	0	0	76	64
cSH	1072	1700	1700	977
Volume to Capacity	0.07	0.10	0.29	0.11
Queue Length 95th (ft)	6	0	0	9
Control Delay (s)	8.6	0.0	0.0	11.9
Lane LOS	A			B
Approach Delay (s)	2.8		0.0	11.9
Approach LOS				B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	23	24	120	8	12	58
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	31	157	10	16	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377	53	91			
vC1, stage 1 conf vol	53					
vC2, stage 2 conf vol	323					
vCu, unblocked vol	377	53	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	97	90			
cM capacity (veh/h)	637	1014	1504			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	30	31	157	10	91
Volume Left	30	0	157	0	0
Volume Right	0	31	0	0	76
cSH	637	1014	1504	1700	1700
Volume to Capacity	0.05	0.03	0.10	0.01	0.05
Queue Length 95th (ft)	4	2	9	0	0
Control Delay (s)	10.9	8.7	7.7	0.0	0.0
Lane LOS	B	A	A		
Approach Delay (s)	9.8		7.2		0.0
Approach LOS	A				

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	8	8	31	8	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	10	10	40	10	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	76	14	18			
vC1, stage 1 conf vol	14					
vC2, stage 2 conf vol	61					
vCu, unblocked vol	76	14	18			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	929	1065	1598			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	51	18
Volume Left	7	10	0
Volume Right	10	0	8
cSH	1009	1598	1700
Volume to Capacity	0.02	0.01	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	1.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis - PM Peak Hour
1: McDowell Road & Meridian

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	1	10	0	0	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0	1	13	0	0	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	19	19	3	19	19	13	3			13		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	19	19	3	19	19	13	3			13		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	995	875	1081	995	875	1067	1619			1605		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	0	15	3
Volume Left	0	0	1	0
Volume Right	0	0	0	0
cSH	1700	1700	1619	1605
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.7	0.0
Lane LOS	A	A	A	
Approach Delay (s)	0.0	0.0	0.7	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	46	3	59	67	2	27
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	61	4	79	89	3	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	165	123			168	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	165	123			168	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	824	928			1410	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	65	168	39
Volume Left	61	0	3
Volume Right	4	89	0
cSH	830	1700	1410
Volume to Capacity	0.08	0.10	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.7	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	53	111	53	14	56	4	22	65	12	4	42	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	71	148	71	19	75	5	29	87	16	5	56	37

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	289	99	132	99
Volume Left (vph)	71	19	29	5
Volume Right (vph)	71	5	16	37
Hadj (s)	-0.06	0.04	0.01	-0.18
Departure Headway (s)	4.6	4.9	5.0	4.8
Degree Utilization, x	0.37	0.13	0.18	0.13
Capacity (veh/h)	749	684	666	674
Control Delay (s)	10.2	8.6	9.1	8.6
Approach Delay (s)	10.2	8.6	9.1	8.6
Approach LOS	B	A	A	A

Intersection Summary			
Delay	9.4		
HCM Level of Service	A		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis - PM Peak Hour
11: University Drive & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	384	96	42	236	26	76	120	60	40	93	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3433		1770	3486		1770	3362		1770	3539	1583
Flt Permitted	0.54	1.00		0.37	1.00		0.67	1.00		0.60	1.00	1.00
Satd. Flow (perm)	1010	3433		689	3486		1254	3362		1122	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	83	512	128	56	315	35	101	160	80	53	124	69
RTOR Reduction (vph)	0	55	0	0	21	0	0	48	0	0	0	41
Lane Group Flow (vph)	83	585	0	56	329	0	101	192	0	53	124	28
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	16.0
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	16.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	404	1373		276	1394		502	1345		449	1416	633
v/s Ratio Prot		c0.17			0.09			0.06			0.04	
v/s Ratio Perm	0.08			0.08			c0.08			0.05		0.02
v/c Ratio	0.21	0.43		0.20	0.24		0.20	0.14		0.12	0.09	0.04
Uniform Delay, d1	7.8	8.7		7.8	8.0		7.8	7.6		7.6	7.5	7.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.50	1.46	2.41
Incremental Delay, d2	1.1	1.0		1.7	0.4		0.9	0.2		0.5	0.1	0.1
Delay (s)	9.0	9.6		9.5	8.3		8.7	7.9		11.8	11.0	17.8
Level of Service	A	A		A	A		A	A		B	B	B
Approach Delay (s)		9.6			8.5			8.1			13.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis - PM Peak Hour
17: Apache Trail & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	479	56	60	391	86	55	127	63	122	108	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5005		1770	5085	1583	1770	3363		1770	3350	
Flt Permitted	0.45	1.00		0.34	1.00	1.00	0.61	1.00		0.60	1.00	
Satd. Flow (perm)	836	5005		625	5085	1583	1140	3363		1108	3350	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	135	639	75	80	521	115	73	169	84	163	144	80
RTOR Reduction (vph)	0	30	0	0	0	77	0	56	0	0	53	0
Lane Group Flow (vph)	135	684	0	80	521	38	73	197	0	163	171	0
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0	16.0	20.0	16.0		20.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0	16.0	20.0	16.0		20.0	16.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33	0.33	0.42	0.33		0.42	0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	279	1668		208	1695	528	528	1121		517	1117	
v/s Ratio Prot		0.14			0.10		0.01	0.06		c0.03	0.05	
v/s Ratio Perm	c0.16			0.13		0.02	0.05			c0.11		
v/c Ratio	0.48	0.41		0.38	0.31	0.07	0.14	0.18		0.32	0.15	
Uniform Delay, d1	12.7	12.4		12.2	11.9	10.9	8.5	11.3		9.0	11.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	0.7		5.3	0.5	0.3	0.5	0.3		1.6	0.3	
Delay (s)	18.6	13.1		17.5	12.4	11.2	9.1	11.7		10.6	11.5	
Level of Service	B	B		B	B	B	A	B		B	B	
Approach Delay (s)		14.0			12.7			11.1			11.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis - PM Peak Hour
22: Broadway Avenue & Meridain Road

9/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	285	23	27	185	49	19	126	56	50	117	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3499		1770	3429		1770	3375		1770	3376	
Flt Permitted	0.56	1.00		0.51	1.00		0.61	1.00		0.60	1.00	
Satd. Flow (perm)	1047	3499		952	3429		1139	3375		1119	3376	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (vph)	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
Adj. Flow (vph)	79	380	31	36	247	65	25	168	75	67	156	69
RTOR Reduction (vph)	0	15	0	0	39	0	0	45	0	0	41	0
Lane Group Flow (vph)	79	396	0	36	273	0	25	198	0	67	184	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	419	1400		381	1372		456	1350		448	1350	
v/s Ratio Prot		c0.11			0.08			0.06			0.05	
v/s Ratio Perm	0.08			0.04			0.02			c0.06		
v/c Ratio	0.19	0.28		0.09	0.20		0.05	0.15		0.15	0.14	
Uniform Delay, d1	7.8	8.1		7.5	7.8		7.4	7.6		7.7	7.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.5		0.5	0.3		0.2	0.2		0.7	0.2	
Delay (s)	8.8	8.6		8.0	8.1		7.6	7.9		8.4	7.8	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		8.7			8.1			7.9			7.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	111	187	14	20	130	35	8	80	33	25	76	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	148	249	19	27	173	47	11	107	44	33	101	104

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	397	19	247	161	239
Volume Left (vph)	148	0	27	11	33
Volume Right (vph)	0	19	47	44	104
Hadj (s)	0.22	-0.67	-0.06	-0.12	-0.20
Departure Headway (s)	6.4	5.5	6.1	6.4	6.1
Degree Utilization, x	0.71	0.03	0.42	0.29	0.41
Capacity (veh/h)	541	621	536	487	531
Control Delay (s)	22.4	7.5	13.4	11.9	13.2
Approach Delay (s)	21.7		13.4	11.9	13.2
Approach LOS	C		B	B	B

Intersection Summary			
Delay	16.4		
HCM Level of Service	C		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	68	341	161	32	55	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	91	455	215	43	73	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						5
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	257				872	236
vC1, stage 1 conf vol					236	
vC2, stage 2 conf vol					636	
vCu, unblocked vol	257				872	236
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				84	90
cM capacity (veh/h)	1307				461	803

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	91	455	257	152
Volume Left	91	0	0	73
Volume Right	0	0	43	79
cSH	1307	1700	1700	956
Volume to Capacity	0.07	0.27	0.15	0.16
Queue Length 95th (ft)	6	0	0	14
Control Delay (s)	8.0	0.0	0.0	12.0
Lane LOS	A			B
Approach Delay (s)	1.3		0.0	12.0
Approach LOS				B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	59	92	71	10	12	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	79	123	95	13	16	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	237	35	53			
vC1, stage 1 conf vol	35					
vC2, stage 2 conf vol	203					
vCu, unblocked vol	237	35	53			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	88	94			
cM capacity (veh/h)	758	1038	1552			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	79	123	95	13	53
Volume Left	79	0	95	0	0
Volume Right	0	123	0	0	37
cSH	758	1038	1552	1700	1700
Volume to Capacity	0.10	0.12	0.06	0.01	0.03
Queue Length 95th (ft)	9	10	5	0	0
Control Delay (s)	10.3	8.9	7.5	0.0	0.0
Lane LOS	B	A	A		
Approach Delay (s)	9.5		6.5		0.0
Approach LOS	A				

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	8	6	22	24	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	5	11	8	29	32	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	83	37	43			
vC1, stage 1 conf vol	37					
vC2, stage 2 conf vol	45					
vCu, unblocked vol	83	37	43			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	934	1035	1566			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	37	43
Volume Left	5	8	0
Volume Right	11	0	11
cSH	999	1566	1700
Volume to Capacity	0.02	0.01	0.03
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	1.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		