SUNPORT BOULEVARD EXTENSION

Broadway to I-25

Alignment Study

NMDOT Combined Phase A/B Report

NMDOT Control No. A300160

Bernalillo County Project No. TS 09-06

Prepared For:

Bernalillo County, New Mexico
Public Works Division
2400 South Broadway, Bldg. N
Albuquerque, New Mexico 87102

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NMDOT

U.S. Department of Transportation
Federal Highway Administration

November 2010

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URS Project Number: 24343112

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1. EXECUTIVE SUMMARY

This Study has been undertaken to identify and analyze roadway alignment alternatives for an extension of Sunport Boulevard from Interstate 25 to Broadway Boulevard (NM State Highway 47), and to select a preferred alternative for this alignment. A location and roadway cross section(s) have been selected for a four lane urban arterial roadway that will directly connect Broadway and I-25 between Gibson Boulevard and Rio Bravo Boulevard. This project is included in the Mid Region Council of Government's (MRCOG) FY 2010 – FY 2015 Transportation Improvement Program (TIP) with construction funding programmed for 2013 and 2014, and in the 2030 Metropolitan Transportation Plan (MTP) by MRCOG.

1.1. BACKGROUND AND STUDY PROCESS

Previous studies addressing Sunport Boulevard between 2nd Street and the Albuquerque International Airport (AIA) were prepared in the early 1990's. At that time, the decision was made to move forward and construct Sunport Boulevard between I-25 and the AIA only, and to not advance the segment of Sunport Boulevard west of I-25, primarily because of the lack of traffic demand and the presence of an EPA designated superfund site within the study corridor. Now, almost 20 years later, traffic demand has increased and the superfund cleanup has progressed to the point of making the extension of Sunport Boulevard feasible.

This Study has been prepared in accordance with New Mexico Department of Transportation's *Location Study Procedures, a Guidebook for Alignment and Corridor Studies,* August 2000. With the short distance to be covered between Broadway and I-25 (approximately 0.5 miles), and the limited number of feasible alternatives, the Study has followed an alignment study process combining Phase A (Initial Evaluation of Alternatives) and Phase B (Detailed Evaluation of Alternatives).

1.2. FUTURE CONDITIONS

The extension of Sunport Boulevard between Broadway and I-25 has been included in the 2030 Metropolitan Transportation Plan (MTP) by MRCOG. A key component of the MTP is the preparation of a travel demand model that provides future traffic forecasts for MTP area roadways. That model indicates that the traffic volume using Sunport Boulevard by 2030 will be almost 21,000 vehicles per day.

1.3. PURPOSE AND NEED

A Comparison of the No-Build and Build scenarios has been made using the traffic volume forecasts for 2030. A significant volume of traffic will either utilize a new Sunport Boulevard Extension if it is built, or will use other area roadways, primarily Gibson Boulevard and Rio Bravo Boulevard for east-west access to I-25, if Sunport Boulevard is not built. The comparison of these future scenarios and resulting traffic volumes is shown in Table 1-1 below. Both Gibson and Rio Bravo are, or will be, six lanes each within developed corridors, and with little additional space to expand and add roadway capacity. The addition of Sunport Boulevard therefore provides significant congestion relief to the area's primary arterial roadways. Extending Sunport Boulevard west from I-25 to Broadway is necessary to close a gap in the area's transportation system and provide improved roadway continuity.

Table 1-1 Comparison of Forecast 2030 Traffic—Build vs. No Build Scenarios

Roadway Segment	No-Build Scenario 2030 Forecast Average Daily Traffic (vehicles per day)	Build Scenario 2030 Forecast Average DailyTraffic (vehicles per day)	Comparative Difference in Volume Build vs. No Build	Comments
Sunport, Broadway to I-25	0	20,971	Increase by 20,971	New roadway attracts traffic
Gibson, Broadway to I-25	31,471	20,265	Decrease by 11,206	Traffic shifted from Gibson (36%)
Broadway, north of Sunport / Woodward	24,804	12,474	Decrease by 12,330	Traffic bound for Gibson shifted (50%)
Broadway, south Sunport / Woodward	15,029	19,736	Increase by 4,707	Traffic bound for new Sunport Blvd. (31%)
Rio Bravo, Broadway to I-25	42,065	37,135	Decrease by 4,930	Traffic shifted from Rio Bravo (12%)

1.4. IDENTIFICATION OF ALTERNATIVES

Three alignment alternatives and the No Build alternative have been proposed and analyzed in this Study. All the alignment alternatives begin with a connection to existing Sunport Boulevard at I-25 and extend west to Broadway. They have been identified as follows (refer to Figure 6-3 in the report for location): Alternative A, intersecting with Broadway at the existing Woodward Road intersection; Alternative D, intersecting with Broadway approximately 1600 feet south of Woodward Road just north of a railroad spur track crossing; and Alternative H, intersecting with Broadway approximately 2900 feet south of Woodward Road just north of a NMDOT maintenance yard. The No Build alternative consists of no action at all.

1.5. EVALUATION OF ALTERNATIVES AND SELECTION OF A PREFERRED ALTERNATIVE

The alternatives have been analyzed and evaluated with consideration of the following criteria: traffic operations, network connectivity, roadway geometrics, complexity / feasibility, environmental impacts, construction cost and right of way requirements. **Alternative A, consisting of a four lane urban arterial roadway, on an alignment that intersects Broadway Boulevard at Woodward Road, is the clearly preferred alternative**, with positive findings for all criteria. The No Build alternative, and Alternatives D and H, have many negative aspects related to each of them, in fact, both of these alternatives can be considered fatally flawed.

1.6. RECOMMENDATIONS

Completion of an environmental assessment and preliminary engineering is recommended, to detail the project "footprint" and to also address design options for the provision of local access, as introduced in this Study. Following those phases of project development, final design and construction of Alignment Alternative A is recommended.

2. PROJECT BACKGROUND AND STUDY PROCESS

2.1. PROJECT DESCRIPTION

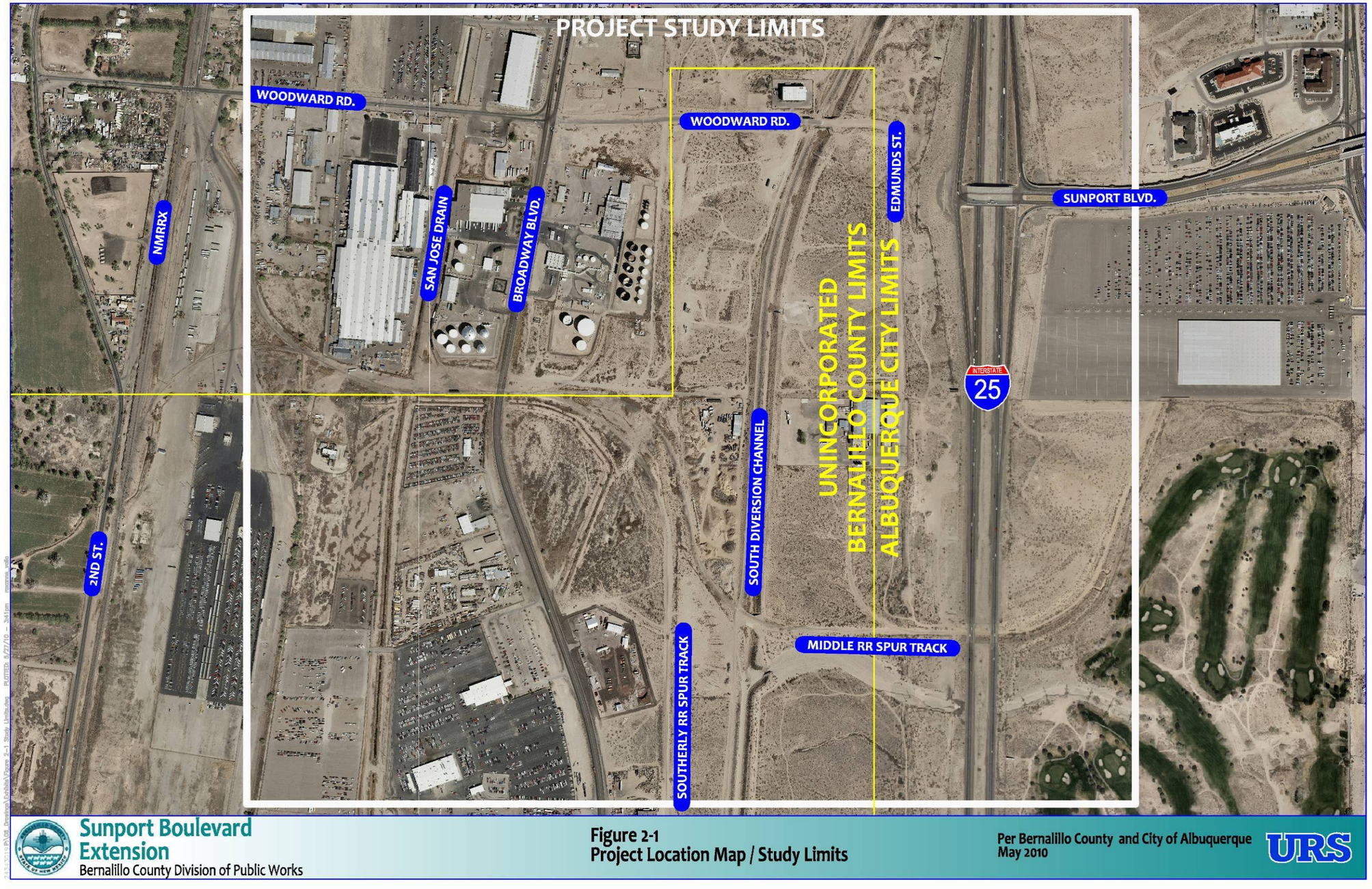
This Project consists of a Study of a proposed extension of Sunport Boulevard from Interstate Highway I-25 west to Broadway Boulevard (NM 47) located in the southeast portion of Albuquerque, New Mexico. Sunport Boulevard presently exists with a westerly terminus at an interchange with I-25 and an easterly terminus at the Albuquerque International Airport—the *Sunport*. The Sunport Boulevard Interchange at I-25 was constructed in 1997, following location and environmental studies that were performed between 1989 and 1991. (Another project constructed Sunport Boulevard from the east side of the Interchange into the Sunport Terminal area.) Direct access to and from I-25 is presently provided with a full movement diamond configuration interchange at the present western terminus of Sunport Boulevard at I-25. The present traffic volume (based on 2008 traffic count) on Sunport Boulevard between I-25 and University Boulevard to the east of I-25 is 24,564 vehicles per day. Original planning of Sunport Boulevard in the late 1980's anticipated a westerly segment of Sunport Boulevard that would extend to Broadway Boulevard, thus providing an additional access to I-25 from the west. This is described further in the following Section 2.3, Project History. The present location and configuration of Sunport Boulevard, terminating at I-25 and the Sunport, effectively establishes Sunport Boulevard as an access road to the airport and does not provide for a significantly greater use of the present interchange. As seen from traffic analyses provided later in this document, the westerly extension of Sunport Boulevard will provide a significant alternative access to I-25 from the west, diverting and relieving traffic on the adjacent east-west cross roads that interchange with I-25, Rio Bravo Boulevard and Gibson Boulevard.

2.2. STUDY LIMITS

The limits of this Study are defined by the feasible alignment alternatives that will be considered in making a direct connection between Broadway and I-25. Thus, the Study area generally extends from just west of Broadway to just east of I-25, and is roughly centered on an alignment that is formed by the direct extension of Sunport Boulevard due west from I-25 to Woodward Road. Refer to Figure 2-1 on the following page for a map of the Study Limits.

The possible connection of Sunport Boulevard west to 2nd Street (refer to Figure 3-1 for location) was initially addressed in the early project planning performed between 1989 and 1991. At that time, the Sunport Boulevard study corridor extended from 2nd Street to Yale Boulevard. The segment of Sunport Boulevard from 2nd Street to Broadway was later dropped from further consideration during these previous studies because of low traffic volume projections and due to the potential impacts to this developed area that would result from constructing this segment of the roadway. Current plans for the Sunport Boulevard corridor, as shown on various regional transportation planning documents, and as discussed in more detail in Section 2.10 Consistency with Regional Plans, indicate the westerly terminus of Sunport Boulevard at Broadway. Consideration of a greater westerly extension of Sunport Boulevard could involve a crossing of the Rio Grande, and since *there are no plans nor concepts for any further continuation of Sunport Boulevard over the river,* the study limit is generally bordered on the west by the San Jose Drain, west of Broadway, which might be considered as a possible storm drainage outfall for surface water runoff from Sunport Boulevard (to be addressed and evaluated in a subsequent drainage study).

Figure 2.1 Study Limits



2.3. PROJECT HISTORY

In 1989, the Albuquerque International Airport (AIA) completed a $121 million passenger terminal expansion to accommodate increases in air passenger traffic. Following that expansion, in the early 1990's, the AIA added a new air cargo center, new rental car facilities and extensions and improvements to several major taxiways and runways. These improvements, being planned concurrently with improved access, warranted and necessitated improvements to access and ground transportation. During that period, various studies were undertaken to address major access to the AIA, connecting AIA with I-25. The *I-25 Interchange and Albuquerque International Airport Access Route Study* Corridor Analysis Report, Phase A was prepared for the New Mexico State Highway and Transportation Department. (NMSHTD) in September 1989, and an accompanying Change of Access Report was also prepared for the NMSHTD in November 1989. These reports were part of the process known as the "Airport Access Study", to address "…improved access to the AIA via a new I-25 interchange and arterial roadway referred to as "Sunport"." There were two primary study objectives defined at that time:

1. A feasibility study of a new Sunport traffic interchange on I-25 between Gibson Boulevard and Rio Bravo Boulevard; and
2. A feasibility study of a multi-lane, east/west arterial street (Sunport) connecting from the interchange west to 2nd Street and east to Yale Boulevard.

At the time of the 1989 studies: "The most critical factor that evolved from the socioeconomic / environmental analysis of the corridor locations was the presence of environmentally impaired properties, including the US Environmental Protection Agency (EPA) designated South Valley Superfund site.…the study area is littered with identified and potential environmentally impaired properties. Six sites, General Electric, Duke City, Texaco, Whitfield, Chevron, and Edmund Street Properties, make up the South Valley Superfund Site."

Following the completion of the Airport Access Study, an *Environmental Assessment for the Sunport Transportation Corridor Alternative D/H East*, from I-25 to the AIA, was developed and signed by the Federal Highway Administration (FHWA) on December 2, 1991. The Finding of No Significant Impact (FONSI) for this project stated that "The alternative selected and approved for implementation…was alternative D/H East. Alternatives D West and H West may be considered for implementation in the future when sufficient information regarding potentially impaired properties becomes available to adequately assess these alternatives." Alternatives D West and H West are the subject of further consideration, analysis, and evaluation in Section 6 of this Phase A/B report.

In addition to these early studies, the Sunport Interchange was included within the limits of the *Environmental Assessment for Interstate 25 NM 47/Broadway Interchange to Interstate 40*, which included the entire south I-25 corridor. This project was designated as Project Number IM-025-4(84)215, CN 1829, with the EA signed by the FHWA on November 16, 1995. The Build Alternative addressed in this EA included the addition of auxiliary lanes on I-25 between Rio Bravo Boulevard and Sunport Boulevard and between Sunport Boulevard and Gibson Boulevard. Graphic representations of Sunport Boulevard indicated the extension of Sunport Boulevard to the west, with a six lane roadway section shown west of the southbound I-25 ramps, including four through lanes and auxiliary turn lanes.

Two reports under project number NH-025-4(109)221, CN 1829 were completed for the NMSHTD in March and September, 1999. These reports were the *Alignment Study of Interstate 25 Rio Bravo Boulevard to Gibson Boulevard*, and the *Final Scoping Report Interstate 25 from Rio Bravo Boulevard to Gibson Boulevard*, respectively. The Sunport Boulevard interchange was not addressed in those studies as stated: "Because of the recent 1997 construction of the Sunport Boulevard, this interchange is not included in the analysis for improvements."

2.4. PROJECT CONTEXT

The Sunport Boulevard Extension project is included within the limits of another New Mexico Department of Transportation (NMDOT) project, "Interstate 25 South Corridor Study Isleta Boulevard to Interstate 40". That project is designated as Project No. NH-025-4(128)215, CN D3066. Documents completed on this study include the NMDOT Phase A report, with the final report labeled as *Revised Detailed Transportation Needs Analysis and Recommendations Report*, dated January 22, 2010. That study addressed traffic forecasts for 2030 within the study area, identified numerous roadway capacity deficiencies throughout the south I-25 corridor, and proposed three alternative scenarios, or sets of improvements, for the various major roadways within the study area. That study has not developed specific alignment alternatives for new roadways nor interchange configurations. The extension of Sunport Boulevard from Broadway to I-25 is addressed and prioritized in that study.

Findings of that study address Sunport Boulevard as found in the *Revised Detailed Transportation Needs Analysis and Recommendations Report*. Section 6.3.1, Projects Included in All Refined Scenarios, includes Sunport Boulevard as follows:

> "New Sunport Boulevard Extension – connect existing I-25 / Sunport Boulevard interchange to Woodward Road via a new four lane roadway. The creation of an additional access road to the airport was determined to be important as it provided, via Broadway Boulevard, an alternative route to the airport from west of I-25 that avoids the deficient segments of I-25 north and south of the interchange as well as Rio Bravo Boulevard between Broadway Boulevard and University Boulevard and Gibson Boulevard between Broadway Boulevard and University Boulevard. Both Rio Bravo Boulevard and Gibson Boulevard are currently 6-lane facilities, and portions of both are projected to operate deficiently in the No Action and many of the action scenarios. Widening of these parallel facilities to 8 lanes did not seem feasible given the land use constraints along these corridors and the amount of access they currently provide."

Recommendations contained in the *Revised Detailed Transportation Needs Analysis and Recommendations Report* Section 6.6, Recommended 2030 Improvements, include the following:

"Construct the New Sunport extension connecting the existing Sunport Boulevard to Woodward Avenue via a new four-lane roadway. The creation of an additional access road to the airport provides an alternative route to the airport via Broadway and relieves traffic on Rio Bravo and Gibson between Broadway and University."

In addition, the *Revised Detailed Transportation Needs Analysis and Recommendations Report* also prioritizes the recommended projects. Sunport Boulevard, from Broadway Boulevard to the SB I-25 ramps, is shown as the 4th ranked project (or set of projects per roadway) with the designated improvement a "new 4-lane roadway".

The NMDOT has recently completed another project, the I-25 Widening, Gibson to Rio Bravo project for the mainline widening of I-25 from its previous four lane section (two lanes in each direction), to a six lane section (three lanes in each direction). This project was labeled as Project No. IM-NH-025-4(123)221, CN D3017.

In addition, the City of Albuquerque has recently developed a project for improvements to the I-25 / Rio Bravo Boulevard Interchange, identified as City project number 7326.91, State project number CN G2S7490, and Federal Project No. ST-025-4(230)221. The design and construction documents for this project have been completed and construction of the project is expected to begin in the summer of 2010.

2.5. NMDOT LOCATION STUDY PROCESS

Detailed procedures and requirements for alignment studies on New Mexico state highways are documented in the NMDOT's *Location Study Procedures*, August 2000. Per these *Location Study Procedures*, "Alignment studies are prepared for less complex actions where the roadway *location* is already established. Changes to the roadway alignment are generally minor and limited to a shift in centerline due to lane and / or shoulder widening…" Under these procedures, alignment studies are typically conducted in three distinct phases, referred to as Phases A, B, and C. Phases A and B develop, evaluate, and refine the possible alternatives. Phase C involves the preparation of an environmental document and subsequent processing in accordance with the federal National Environmental Policy Act (NEPA) process. The *Location Study Procedures* also presents a compressed approach for the study(s), described in Section 3 of the *Location Study Procedures* as the "Phase A Optional Approach—Under some circumstances, a study may proceed into Phase B without the preparation of a Phase A report. This optional approach may be followed for studies where the improvement alternatives are limited in number and similar in design concept and scope, and the proposed improvements are not controversial." For this project, this Phase A Optional Approach has been utilized; the study described herein is referred to as a combined Phase A / B Alignment Study, performed to identify and analyze alternatives that are "limited in number and similar in design concept and scope".

This study will include elements of both the Phase A and Phase B process. The primary objectives of Phase A, the "Initial Evaluation of Alternatives" will be addressed: (1) verification of the purpose and need for an action, (2) development of a range of potential alternatives that meet the purpose and need, (3) elimination of alternatives that are clearly not feasible, and (4) carrying forward those alternatives that warrant further engineering and environmental study. The primary objectives of Phase B, the "Detailed Evaluation of Alternatives" will also be addressed: (1) engineering analyses of traffic operations and safety, development of conceptual engineering plans, review of constructability, right-of-way needs, and construction cost; (2) environmental investigations and documentation of natural, cultural, community resources and impacts on these that would result from the proposed action, (3) determination of the preferred alternative and course of action proposed for implementation, and (4) documentation of all of the above in a report.

Phase C is the Environmental Documentation and Processing Phase. For this project, the level of environmental documentation is expected to be an Environmental Assessment (EA). This project is not expected to be controversial or involve significant environmental impacts, however, this will be investigated in greater detail in the subsequent EA process.

2.6. FHWA INTERSTATE ACCESS REQUEST POLICY

Since I-25 and the I-25 / Sunport Boulevard Interchange is under the jurisdiction of the FHWA, in addition to the Location Study requirements of the NMDOT, procedures for requesting a new or modified interchange are defined in the Federal Register and in FHWA New Mexico Division's *Guidance on Interstate Access Request Policy*. In addition to the guidance provided in the aforementioned document, more recent guidance has been provided by the FHWA via updates in the Federal Register, specifically in Volume 74, Number 165, dated August 27, 2009. This entry in the Federal Register contains the revised FHWA policy statement regarding new or modified access points to the Interstate System.

The FHWA interstate access policy defines eight policy points that must be addressed in any request for a new or modified access to the interstate system, and documented in an Interstate Justification Report (IJR). These policy points are designed to demonstrate the following (greatly condensed here):

- the proposed access is needed to serve regional traffic demand,
- all reasonable alternatives have been considered,
- the safety and operation of the interstate highway is not adversely impacted,
- all traffic movements to a public street are provided by the proposed interchange,
- the proposed interchange is consistent with local and regional plans,
- the interchange location is coordinated with other potential future interchange locations,
- the interchange is supported by other required improvements to the regional transportation system, and
- the proposed interchange studies include appropriate planning and environmental studies and clearances

A review of the FHWA New Mexico Division's *Guidance on Interstate Access Request Policy* was conducted as part of this project, and preliminary analyses of the project documented in a letter prepared by URS Corporation to Bernalillo County dated April 28, 2010. The conclusion in that letter was that no IJR is required for this project: "The following modifications do not require an IJR: Modifications involving improvements to the crossroads over or under the interstate at existing interchanges where the ramps are not affected." This is primarily the case with this project—the cross road is being modified, extended, without affect to the ramp junctions with I-25. As discussed later in this report, widening of the I-25 southbound on and off ramps will be necessary to accommodate acceptable intersection operations with future traffic volumes, however, all such widening will be transitioned within the ramps to avoid any impact to the I-25 ramp junctions or mainline.

2.7. STAKEHOLDER TEAM

A Project Stakeholder Team has been assembled to include stakeholders involved in various aspects of the project. This team includes the following governmental agencies, and the consultants performing the study and design. Individuals who represented these agencies and firms at the Study Team meetings are shown below. The Stakeholder Team met on February 10, 2010 and on July 1, 2010.

Bernalillo County

- Nolan Bennett
- Rodrigo Eichwald
- Richard Meadows

City of Albuquerque

- Charles Thompson
- John Hartmann
- John Niwa

New Mexico Department of Transportation

- Tony Abbo
- Elias Archuleta
- Robert Garcia
- Gwyneth Duncan
- Colleen Vaughn

Federal Highway Administration

- Kathy Walker

Mid-Region Council of Governments

- Terry Doyle
- Nathan Masek

Albuquerque-Bernalillo County Water & Utility Authority

- Robert Strong

Albuquerque Metropolitan Arroyo & Flood Control Authority

- Jerry Lovato

Consultants (URS)

- Peter Hinckley
- Roxanne Bebee Blatz
- Paula Schuh
- Julie Kutz
- Albert Ruiz

2.8. AGENCY COORDINATION

Agency coordination is being conducted as part of this Study process. A scoping letter with a project description and location map was mailed to several Federal, state and local agencies identified as having a potential interest in the project. These letters were mailed on April 6, 13 or on May 13. The scoping letter requested assistance from each agency in identifying any agency issues or concerns related to the project. Letters were sent to the following agencies in conjunction with the environmental and public involvement process:

Federal Agencies

- U.S. Fish and Wildlife Service, New Mexico Ecological Services Office
- U.S. Army Corps of Engineers, Albuquerque District, NM/TX Branch
- U.S. Department of Agriculture, Natural Resources Conservation Service, Albuquerque Service Center
- U.S. Bureau of Reclamation, Albuquerque Area
- U.S. Environmental Protection Agency, Superfund Program, Region 6 Compliance Assurance and Enforcement Division, Air Planning Section, EPA Region 6

Regional Agencies

- Mid-Region Council of Governments, Transportation and Planning Services

State Agencies

- N.M. Environmental Department, Air Quality Bureau, Surface Water Quality Bureau, Ground Water Quality Bureau, Superfund Oversite Section
- N.M. Department of Game and Fish, Conservation Services Division
- N.M. Energy, Minerals, and Natural Resources Department, Forestry Division
- N.M. Office of State Engineer
- N.M. Department of Homeland Security Emergency Management

Bernalillo County

- Bernalillo County Commission, District 2
- Bernalillo County Manager
- Bernalillo County Floodplain Administrator

City of Albuquerque

- Municipal Development Department, Transportation Division
- Aviation Department
- Environmental Health/Air Quality Division

Other Local Agencies

- Albuquerque Bernalillo County Water Utility Authority (ABCWUA)
- Albuquerque Metropolitan Arroyo Control Authority (AMAFCA)

2.9. CONSISTENCY WITH REGIONAL PLANS

This project is included in the Mid Region Council of Governments' (MRCOG) 2010 to 2015 Transportation Improvement Program (TIP). In the TIP, the project is labeled as the "Sunport Blvd Extension" from Broadway to I-25 Exit 221 at Sunport Boulevard and identified as CN A300160, Federal ID 09NM006, with Bernalillo County as the lead agency, and the project description as "Construct New 4 lane divided facility". The estimated project cost is shown as $11,115,873, with $114,000 programmed in 2010, $1,170,412 programmed in 2012, $4,918,695 programmed in 2013 and $4,912,766 programmed in 2014. Federal funds are shown as STP-U and TCSP. The Project Phases identified for use of these funds are the following: Environmental Document, Preliminary Engineering, Design, Right-of-Way, and Construction.

The TIP is defined as the short term (first six years) portion of the broader and long range Metropolitan Transportation Plan (MTP). Projects in the 2010 to 2015 TIP are also considered to be in the 2030 MTP, with more immediate plans for implementation than those scheduled for funding to be programmed beyond the six year horizon. This Sunport Boulevard Extension project is therefore also included in the MTP.

The Project is included in the *New Mexico Department of Transportation ARRA Statewide Transportation Improvement Program FY 2010*, approved by the New Mexico State Transportation Commission, FHWA and Federal Transit Administration on March 23, 2010. This document is known as the STIP. In the STIP, funding is shown the same as in the TIP referenced above, with the exception of the 2014 funds, since the STIP only addresses the funding program through 2013.

The Albuquerque International Sunport *Airport Master Plan*, 2001, was also reviewed to understand how roadway access to the airport via Sunport Boulevard was addressed in this planning document. Under *Parking, Access and Support Facilities* addressed in Chapter Seven of the Master Plan, Sunport Boulevard is mentioned with reference to Off-Airport Access: "The other locations experiencing lower LOS are the ramp intersections of the airport access routes with I-25. Intersection[s] improvements at Sunport Boulevard and I-25 will need upgrading as activity increases. Traffic signals have provided short term capacity improvements, additional turning lanes and ramp improvements may be necessary in the future." There is no mention of the extension or completion of Sunport Boulevard west of I-25, likely because this segment of Sunport Boulevard might be considered outside of the airport's primary area of concern.

The *Albuquerque / Bernalillo County Comprehensive Plan*, adopted by the Mayor and City Council of Albuquerque and the Board of County Commissioners of Bernalillo County in 1988, and amended through November 2003, contains adopted policies related to Transportation and Transit. These policies cover street design standards, transit planning and use, access and driveway spacing, provision of pedestrian opportunities, a bicycle and trail network and parallel paths along streets and highways, efficiency of arterial streets, consideration of environmental and cultural resources, peak hour demand, provision for all modes of transportation, and serving of the community's mobility needs. In general, the project is consistent with the policies set forth in the *Comprehensive Plan*. The project is outside of the planning area of the Southwest Area Plan.

3. EXISTING ENGINEERING, TRAFFIC, AND ENVIRONMENTAL CONDITIONS

3.1. ENGINEERING CONDITIONS

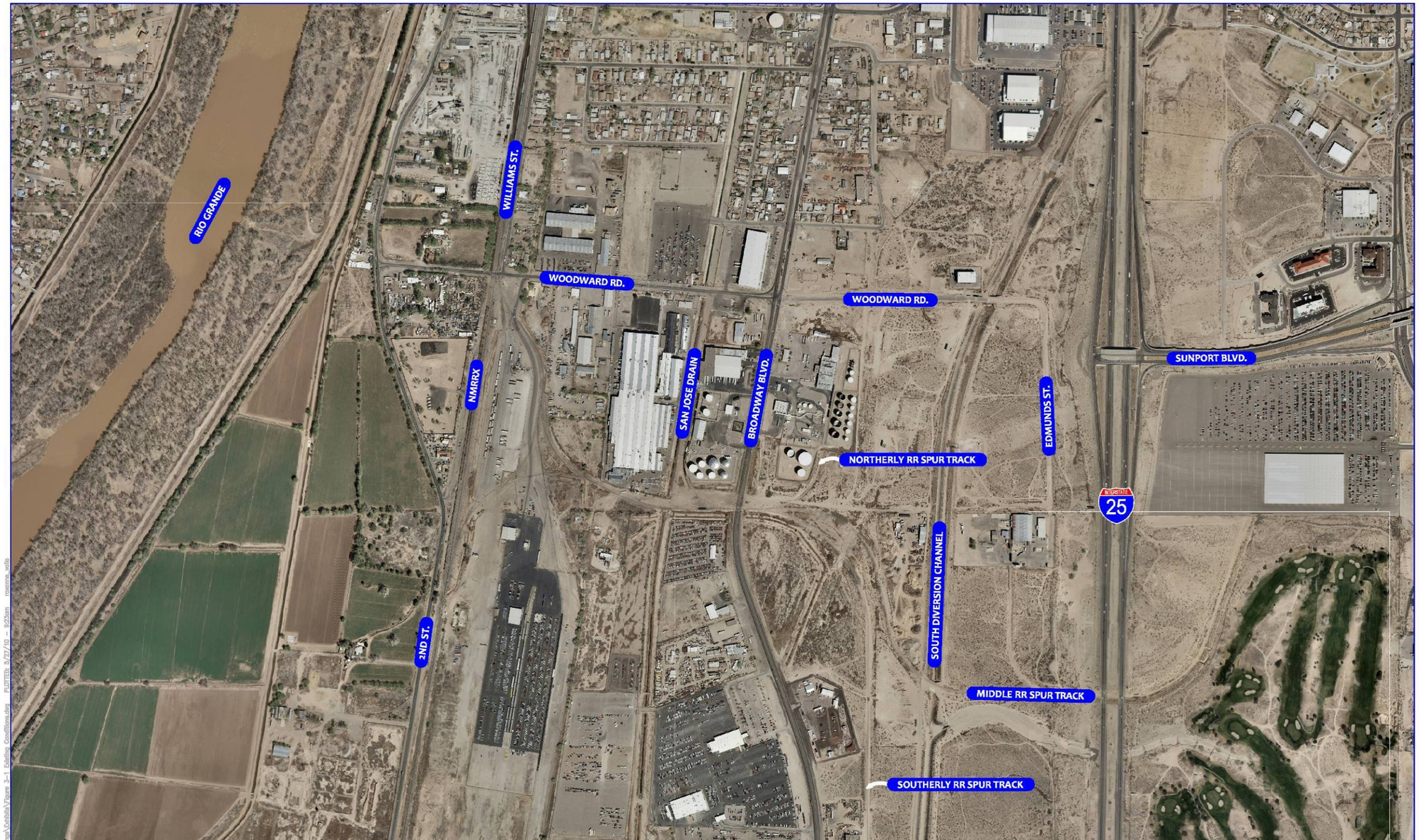
3.1.1. Terrain

Topography in the Study Area is classified as "Rolling", with generally high terrain on the east side, adjacent to I-25, dropping from east to west towards the Rio Grande. Natural terrain drops from elevations of approximately 5026 feet, west of the I-25 embankment, to 4940 feet at Woodward Road, a drop of 86 feet. The existing I-25 / Sunport Interchange is constructed on high fills with Sunport Boulevard over I-25, placing the existing west terminus of Sunport at an elevation of approximately 5073 feet. Thus, the existing west terminus of Sunport Boulevard is almost 50 feet higher than the adjacent natural terrain. A major man-made drainageway crosses the Study Area, the South Diversion channel, collecting storm water runoff from higher terrain and various waterways to the east. This channel is approximately 20 feet deep; the flowline elevation of this channel at the crossing of the northerly most proposed alternative (Alternative A) is 4986 feet, dropping to approximately 4982 feet at the crossing of the southerly most alternative (Alternative H). Refer to Figure 3-1 on the following page for an aerial photo overview of the existing terrain, roadways, and surrounding features.

3.1.2. Roadways

Sunport Boulevard currently exists as a multi-lane access controlled urban arterial, extending approximately 0.8 miles from its west terminus at the I-25 Interchange to its east terminus at Yale Boulevard. East of Yale Boulevard, Sunport Boulevard continues as the primary internal access road into the Sunport passenger terminal area. Sunport Boulevard consists of six 12 ft. lanes from east of I-25 to University Boulevard, where a conventional diamond interchange provides the connection with University Boulevard, with Sunport Boulevard crossing over University Boulevard. In the westbound direction as Sunport Boulevard approaches the I-25 interchange from the east, an additional 12 ft. lane is provided for left turning traffic for the westbound to southbound direction, however, the full available four lanes are not all utilized. The present westbound configuration is striped for two right turn lanes, for westbound to northbound traffic onto the northbound I-25 On-Ramp, a striped-out and unused buffer area separating the right turn lanes from the left turn lane, and a single left turn lane for westbound to southbound traffic onto the southbound I-25 On-Ramp. Sunport Boulevard has a raised six foot colored concrete median on the I-25 overpass bridge, and a raised landscaped median and 10 ft. shoulders east of I-25. Sunport Boulevard is on a tangent alignment through the I-25 interchange and between ramp termini, followed by an approximate 2100 ft. radius curve beginning approximately 400 feet east of the I-25 east side ramps. With 2.8% of superelevation, this curve would meet a 45 mph design speed; actual superelevation rate is unknown. In the eastbound direction east of University Boulevard, Sunport Boulevard is posted as 35 mph approaching the airport terminal; in the westbound direction approaching I-25, Sunport Boulevard is also posted as 35 mph.

Figure 3.1 Existing Conditions



The interchange of I-25 and Sunport Boulevard is a conventional diamond interchange configuration, with the cross road, Sunport Boulevard bridging over I-25. The more heavily traveled north side ramps leading from and to Albuquerque are two lane ramps, the south side ramps are one lane ramps. The interchange was constructed in the mid to late 1990's. More specific information on the ramps is shown below.

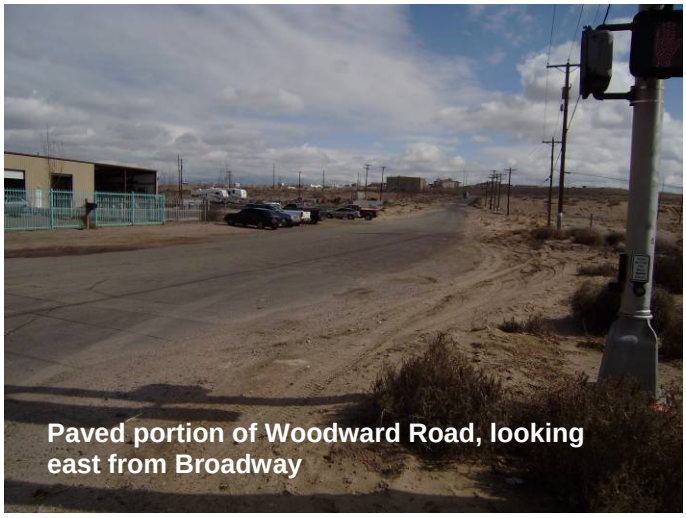
- I-25 Southbound (SB) Off-Ramp. The striped length (from the striped gore point to the stop bar) of the SB Off-Ramp is approximately 1400 feet; this taper type ramp begins at I-25 as one lane off, and then expands to two 12 ft. lanes, with an 8 ft. outside shoulder and a 4 ft. inside shoulder. The exit is posted as 45 mph; the ramp is on a tangent alignment, with no curves.
- I-25 SB On-Ramp. The striped length of the SB On-Ramp is approximately 1200 feet; this ramp consists of one 16 ft. lane, with an 8 ft. outside shoulder and a 4 ft. inside shoulder. No speed limit is posted; the ramp is on a tangent alignment, with no curves.
- I-25 Northbound (NB) Off-Ramp. The striped length of the NB Off-Ramp is approximately 1500 ft.; this taper type ramp consists of one 16 ft. lane, with an 8 ft. outside shoulder and a 4 ft. inside shoulder. This ramp expands to two lanes as it approaches Sunport Boulevard, with the addition of a dedicated right turn lane approximately 300 ft. long. The exit is posted as 45 mph; the ramp is on a tangent alignment, with no curves.
- I-25 NB On-Ramp. The striped length of the NB On-Ramp is approximately 1200 feet; this ramp consists of two 12 ft. lanes, with an 8 ft. outside shoulder and a 4 ft inside shoulder, with the two lanes tapering to one as the ramp approaches I-25, with the ramp entering I-25 via a parallel type acceleration lane and taper. No speed limit is posted; the ramp is on a tangent alignment, with no curves.

Broadway Boulevard at the west terminal to the extension of Sunport Boulevard, is a four lane rural type primary arterial highway, designated as NM 47. Broadway has been constructed as an urban street, with a raised and landscaped median defined with curb and gutter, north of the Study Area, beginning at Woodward Road and extending north into downtown Albuquerque. However, south of Woodward Road, and continuing south through the remainder of the Study Area, Broadway is rural, has four through lanes, two 12 ft. lanes in each direction, with minimal shoulders, no median or lane separation, no curb and gutter, and no formal drainage collection system. Shoulders consist of one foot of pavement and varying additional widths of gravel.

From the railroad spur track crossing south through a horizontal curve, guard rail is present on both sides of Broadway, and is typically offset from the thru lane by four feet. Within the four feet, there is typically a foot of full depth pavement, along with approximately three feet of pavement taper. South of the aforementioned curve and Study Area, the shoulders are wider, with widths 10 feet and over, paved with asphalt millings. Broadway is on tangent horizontal alignment through most of the Study Area, with the exception of an approximate 1100 ft. radius curve located between the Broadway termini of Alternatives D and H (refer to Section 6 of this report for location and configuration of the alternatives), with the curve's northerly point of tangency (PT) located just south of the Alternative D intersection. This 1100 ft. curve is adequate for a design speed of 40-45 mph, as a function of the degree of superelevation of the cross slope, with use of 4.6% to 5.2%, respectively per the American Association of State Highway and Transportation Officials (AASHTO) "Green Book" guidance. The existing

superelevated cross slope appears at least as steep as 4-5%, if not steeper. The posted speed limit is 40 mph through the Study Area. South of the Study Area, Broadway is posted as 55 mph.

Woodward Road, west of Broadway Boulevard, is a paved two lane rural collector, connecting 2nd Street to the west and Broadway on the east. Woodward Road is approximately 0.6 miles long between Broadway and 2nd Street. It consists of two 12 ft. lanes, and variable width shoulders, often paved as part of business frontages. A raised median island has been constructed on Woodward at it approaches Broadway from the west, channelizing traffic, otherwise there is no curb and gutter, median or formal storm drainage collection system on Woodward. Woodward is on tangent alignment within the Study Area. It is posted at 30 mph in the westbound direction just west of Broadway.


Paved portion of Woodward Road, looking east from Broadway

Woodward Road, east of Broadway Boulevard, is a paved road (although with an apparent thin and deteriorated asphalt pavement), approximately 30 feet wide, extending approximately 2000 ft. east of Broadway, to a 90 degree intersection with a dirt road, Edmund Street. The paved portion of Woodward Road ends at the crossing of the South Diversion Channel, where Woodward Road crosses the channel on the top concrete slab of a three cell concrete box culvert carrying the South Diversion Channel under Woodward Road. The road is gravel east of the South Diversion Channel, with the same width continuing, approximately 30 feet wide. The concrete box culvert is described in more detail in Subsection 3.1.6. There is no regulatory or advisory signage on Woodward Road east of Broadway, however, the intersection of Woodward Road and Edmunds Street is signed with street signs for both streets on one pole.

Edmund Street, a gravel road, begins at Woodward Road on its north end, and extends approximately 1500 ft. south providing local property access. The width of traveled way is approximately 22-24 feet; a gravel ditch also is present along the west side of the road. Edmund Street appears to provide access to a few properties otherwise unserved by other means of access, east of Broadway. There is no regulatory or advisory signage on Edmund Street.

3.1.3. Multi-Modal Facilities

The multi-modal facilities within the Study Area consist of bus routes and stops for ABQ Ride bus service. Bus Route 16/18, called the Broadway / University / Gibson route, runs through the west side of the Study Area, in a loop involving Broadway Boulevard, Woodward Road, and 2nd Street. Other segments of this route exist east of the Study Area as well. There is a bus stop for this route located on Woodward Road just west of the Broadway intersection. In addition to this route, there are also two airport express bus routes that traverse or are adjacent to the Study Area. Bus Route 350 originates in downtown Albuquerque at Alvarado Station and utilizes I-25 through the I-25 / Sunport Boulevard Interchange to access the airport. Bus Route 222 provides a connection between the New Mexico Rail Runner Express (NMRRX) Sunport station and the

airport. This route utilizes Rio Bravo Boulevard and University Boulevard, crossing Sunport Boulevard through the Sunport / University Interchange, en route to Yale Boulevard and the airport. These transit routes provide the only alternative means to passenger car travel through the Study Area; there are no sidewalks, pedestrian or ADA facilities on any of the roadways described in the previous section.

The NMRRX commuter train runs to the west of the Study Area, approximately a half mile west of Broadway, and east of 2nd Street. The nearest NMRRX Station is located to the south of the Study Area, accessed from 2nd Street and Rio Bravo Boulevard. A multi-modal trail is also in place outside of the Study Area, along Rio Bravo Boulevard and the South Diversion Channel south of Rio Bravo. No trail or paved path exists along the South Diversion Channel within the Study Area. Broadway Boulevard, with the more urban typical section north of Woodward Road, has an approximate 8 ft. paved shoulder on the west side, with only a 1 ft. shoulder on the east side, until north of San Jose Avenue. From this point north, Broadway has wide shoulders both sides, adequate for bicycle use, although not designated as such. From Woodward Road south, the shoulders along Broadway are minimal, generally 1 ft of paved width, not adequate for bike use. The Study Area contains no bicycle facilities that are included on the *Albuquerque Bike Map 2010.*

A transit connection report will be prepared for this project under the subsequent preliminary engineering phase of work. Refer to this report for greater detail on existing transit service and facilities in the vicinity of the Study Area.

3.1.4. Railroads

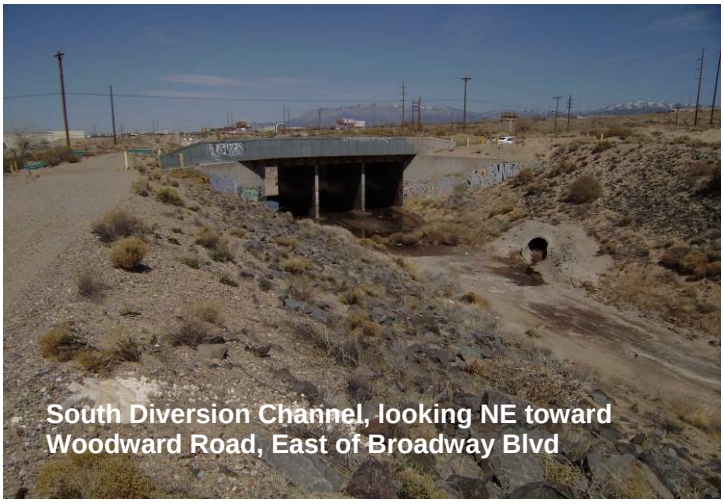
The mainline track of the NMRRX exists to the west of the Study Area as discussed in Subsection 3.1.3 above. The previous owner of this line was the Burlington Northern Santa Fe (BNSF) Railroad, and prior to that, the Atchison Topeka and Santa Fe (AT&SF) Railway. As part of the earlier freight and industrial nature of these rail lines, various short spur tracks departed from the mainline track, serving Kirtland Air Force Base and industries located in the South Valley and vicinity of the Study Area. Three such railroad spur lines depart from the mainline track on a single track junction west of Broadway, crossing Broadway south of the Woodward Road crossing. All of these spur lines extend into the Study Area and cross Broadway from west to east approximately 1,600 feet south of Woodward Road. The spur track crosses Broadway at a signalized, but non-gated crossing. The three spur tracks quickly change grade as they divert from each other just east of Broadway.

The first, most northerly spur track, serves the Chevron complex, located east of Broadway and south of Woodward Road. This is a short industrial spur track that would be crossed by Alignment Alternative D only. It is not known how often this track is used, or even if it remains in service, but railroad cars were parked along a portion of it at the time of this report.

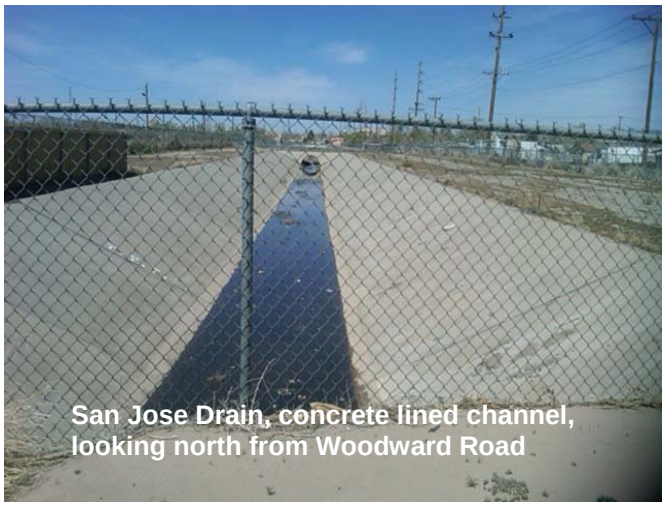
The second, ‘middle spur’ track runs southeasterly from the Broadway crossing, then turns easterly, crossing under twin bridges that were recently widened carrying I-25 over the railroad, and ultimately ends with a ‘dead end’ at a privately operated off-site parking lot associated with the Albuquerque International Sunport. This spur track appears to be infrequently used (it does serve the Van Waters & Rogers, or Univar, industrial parcel) and would be crossed by Alignment Alternative H only. The track is parallel to and just south of the westerly portion of Alignment Alternative D where Alternative D intersects with Broadway. This track has been referred to as the “Kirtland track” in previous documents.

The third, southerly spur track also runs southeasterly from the Broadway crossing, roughly parallel and south of the middle spur for a short segment, and then extends due south to a crossing of Rio Bravo Boulevard. This track is an active track that serves industrial users south of the Study Area. This spur track would be crossed by Alignment Alternative H only. This track has been referred to as the "Sandia track" in previous documents.

3.1.5. Drainage Facilities


South Diversion Channel, looking NE toward Woodward Road, East of Broadway Blvd

There is one primary storm drainage facility traversing the Study Area, the South Diversion Channel, and one irrigation overflow facility also traversing the Study Area, the San Jose Drain. The South Diversion Channel, owned by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), crosses the Study Area from northeast to south. The channel is trapezoidal in shape with a top width of approximately 40-50 feet wide. The South Diversion Channel appears to be unlined, but per AMAFCA, has a riprap base; this channel is shown in the photo. Also per AMAFCA, the channel is designed to convey the 500 year storm flow. Woodward Road, east of Broadway as depicted in the photo, is carried over the South Diversion Channel on a three cell, 14 ft. wide by 16 ft. high concrete box culvert, as discussed in Subsection 3.1.6 below. There is an approximate 12 ft. wide gravel service road located on the west side of the South Diversion Channel, and a less formal 10-12 ft. wide gravel road, located on the east side of the channel, south of Woodward Road only.


San Jose Drain, concrete lined channel, looking north from Woodward Road

The San Jose Drain also traverses the Study Area west of Broadway. This drain is an irrigation overflow canal, owned and operated by the Middle Rio Grande Conservancy District. It is contained in a 12 ft bottom width trapezoidal channel, lined with concrete north of Woodward Road, with concrete lining extending to approximately 30 ft south of Woodward Road, and then within a trapezoidal dirt channel south of Woodward Road (see photos below). Under Woodward Road itself, the drain is carried in a 12 ft. diameter multi-plate culvert, with concrete headwalls at both ends.

There are two drainage inlets covered with traffic grates present in the Broadway / Woodward intersection. One inlet is located on the east side of Broadway, apparently intercepting some

storm water flows that drain from east to west along Woodward Road. The other inlet is on the northwest portion of the intersection, along the return carrying southbound to westbound traffic onto Woodward Road. Based on site inspection, this inlet may also be connected with one in a private parking lot located in the northwest quadrant of the intersection. Thus, there appears to be some minimal level of underground storm drainage collection system in the vicinity of the intersection. It is not known where this system outfalls, but an outfall pipe entering the San Jose Drain is apparent in the photo below.


San Jose Drain, dirt channel, looking south from Woodward Road

A drainage report will be prepared for this project under the subsequent preliminary engineering phase of work. Refer to this report for greater detail on existing drainage structures, flow patterns and outfall facilities in the Study Area.

3.1.6. Major Structures

There are three major structures that currently exist in the Study Area. There is the overpass bridge carrying Sunport Boulevard over I-25, the concrete box culvert carrying flows from the South Diversion Channel under Woodward Road, between Broadway and I-25, and the structure carrying Woodward Road over the San Jose Drain. These structures are described in more detail below.

Sunport Boulevard Bridge over I-25—This highway bridge was constructed in 1995 as part of the new (at that time) Sunport Interchange providing primary access to the Albuquerque International Sunport. NMDOT designates this bridge as BR 8936. The structure is a continuous two span bridge with span lengths of 117 feet each. The bridge width 'out to out' is 113 feet, 'in to in' is 110 feet. This bridge consists of 12 prestressed concrete bulb-tee girders spaced at eight foot intervals. The bridge has a cast-in-place concrete deck with stay in place forms, concrete stub abutments, and concrete pier caps on concrete pier walls.

The most recent inspection of Bridge 8936 was performed on June 11, 2008. The sufficiency rating for the bridge at that time was 98.1 out of 100 (thus very good). The 2008 inspection noted the following:

- Minor transverse, longitudinal, and map cracking of the concrete deck including cracking of the deck edges. The underside of the deck stay-in-place forms have isolated minor corrosion and moderate leaching.
- Longitudinal, and map cracking up to ¼" of the mountable median, some of which have been sealed.
- Prestressed concrete girders at the piers have isolated spalling. The outside girders have vertical and map cracks.
- Concrete abutments and piers have vertical and horizontal cracks with light water stains and leaching.
- Strip seal joints are filled with dirt and debris. The joints do not appear to be leaking.

- Elastomeric bearings appear to be in good condition, although excessive movement may be responsible for diagonal cracks on the diaphragms.
- Concrete approach slabs have longitudinal, transverse, and map cracks, some of which have been sealed.
- Concrete bridge railing has transverse and vertical cracks with minor leaching and traffic scratches. Chain link fencing mounted on top is in good condition.
- Reinforced earth retaining walls have vertical, longitudinal, and transverse cracks up to ¾". Minor settling and undermining has caused spalling and separation at the northeast, southeast, and northwest corners.

The recommendations given in the report were to monitor the cracks and spalls on the diaphragms over the piers and the settlement of the wingwalls. A site visit was performed as part of this Study on March 22, 2010 and similar conditions as described in the 2008 report were observed.

Woodward Road over South Diversion Channel—This structure is a three cell concrete box culvert approximately 70 feet in length. As-built plans are not available for this structure. The structure consists of three equal cells, approximately 14 feet wide by 16 feet high. The concrete walls of the culvert are approximately 1 foot wide and support a concrete deck approximately 2 feet thick. Four splayed concrete wingwalls approximately 30 feet long are present at each corner of the box culvert. There is no guard rail mounted at the edges of the roadway, although wooden posts spaced approximately 6-8 feet apart have been placed along the edge of Woodward Road. On the south side of the structure a utility box has been mounted along the upper portion of the culvert, which carries water pipelines and the electrical conduit for the GE / Axis facility to the east. The concrete elements of the culvert appear to be in fair to moderate condition. In the site visit performed on March 22, 2010 for this study, it was noted that the culvert appears to be in fair to moderate condition with some cracking of the concrete elements; some of these cracks have been sealed. Minor spalling has occurred on some of the walls. Extensive graffiti was present on concrete surfaces and on the utility chase.

Woodward Road over San Jose Drain—Based on as-built plans provided by the Middle Rio Grande Conservancy District, this structure was designed in 1971; construction apparently took place shortly thereafter. The structure is a 12 gage multi-plate arch culvert. It is a 12 ft. span with a 6 ft.-3 in. vertical rise. Two to three feet of backfill has been placed on top of the multi-plate arch with the roadway carried on this backfill. The 'out to out' span length of the multi-plate arch is 116 feet. Woodward Road over the culvert is 36 feet 'out to out' width, and (at the time of the original design drawings) was comprised of 6 inches of cement treated base course with a 1 inch asphaltic concrete surface. Metal beam guard rails have been placed 20.5 feet from centerline on each side. The multi-plate arch is seated on a concrete slab which is 1 ft.-10 in. where the arch is anchored and 10 inches for the floor of the channel. This arch appeared to be in good condition at the time of this Study.

3.1.7. Right of Way

Right of way was acquired for the I-25 / Sunport Interchange prior to construction of the interchange in 1995. In general, the right of way configuration for the interchange is a diamond shape, parallel to the overall diamond configuration of the interchange ramps. For the future (at that time) extension of Sunport Boulevard to the west of I-25, a 400 ft. wide and approximately 150-175 ft. long "stub-out" portion of right of way was acquired, with that right of way generally

centered over the planned roadway extension. The access control line is the same line as that of the right of way line. On the east side of the interchange, a stub-out was also established for that portion of Sunport Boulevard, with this stub being approximately 196 ft. wide, and with an adjacent and approximate 40 ft. wide "Easement for Future Rail Transit System" located along the south side of the right of way.

Further investigation and research into existing rights of way, easements and property ownerships will be performed during the subsequent preliminary engineering phase of this project. In this next phase, on-site property surveys will be performed, as well as title searches of all affected properties, in order to assemble more specific information on existing rights of way available for use, and the parcels that would be affected by new right of way acquisitions. Refer to Figure 3-2 on the following page for the Existing Property Map, which depicts currently available information on property lines and rights of way in the Study Area as depicted in the Bernalillo County GIS database.

3.1.8. Utilities

Many major utilities exist in the Project Study Area. Detailed information on existing utilities will be researched and obtained from utility owners and from field exploration during the upcoming preliminary engineering phase of this project; this will include preparation of mapping depicting the existing utilities. Based on cursory site reviews and preliminary research with utility companies at this time, utilities located within the Study Area include the following:

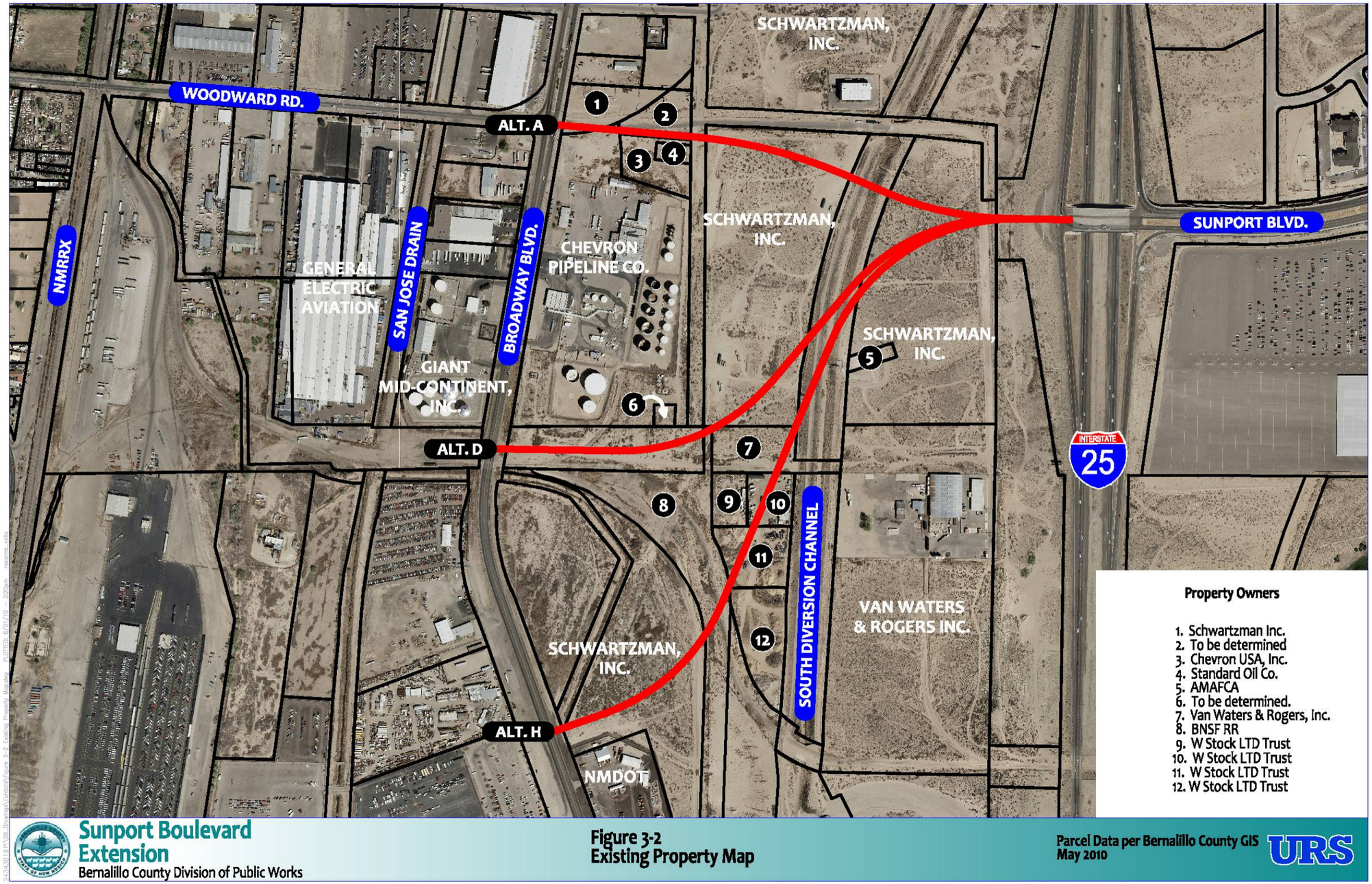
Water—Water lines are present along Broadway Boulevard and Woodward Road, both west and east of Broadway. To the east of Broadway, there is a 10 inch polyvinyl chloride (PVC) water line that initially runs along the south side of Woodward Road and at some point crosses over to the north side. This water line reportedly terminates at the South Diversion Channel. A 10 inch cast iron (CI) water main line also is present along Woodward Road west of Broadway, extending past the San Jose Drain on the south side of the road. Based on plans provided by the Albuquerque Bernalillo County Water Utility Authority (ABCWUA), two waterlines, one on each side of the road, extend along Broadway south of Woodward Road. The water line on the west side of the road is a 24 inch concrete cylinder (CCYL) pipe and the line on the east side of Broadway is a 6 inch CI line. A 16 inch CI water main line runs on the east side of Broadway north of Woodward Road.

Sanitary Sewer—Sanitary sewer (SAS) lines are also present within the project area. These include a 72 inch reinforced concrete pipe (RCP) main line that runs along the so-called Arno Street right of way (refer to Figure 8-1, A2) within the Project Study Area. There is also a 10 inch PVC SAS line which connects to the 72 inch main line in Arno and extends east along the north side of Woodward Road, crossing under I-25 north of the Sunport Boulevard Interchange. This line forms a tee with two other SAS lines which run north and south just east of the Sunport Boulevard Interchange.

There are two SAS lines running along the west side of Broadway north of Woodward Road, a 42 inch ductile iron pipe (DIP) and a 12 inch vitrified clay pipe (VCP). There is also a 21 inch VCP that runs west from Broadway along Woodward Road. This pipe connects with the 12 inch VCP in Broadway. Site visits have revealed existing SAS manholes near the crossing of the South Diversion Channel by the railroad spur in the southern portion of the Project Study Area. These manholes appear to be part of an abandoned line.

An existing 15 inch sanitary sewer is located at approximately 66 ft. from the southern end of the San Jose Drain multi-plate arch culvert. It is encased in a 24 inch steel pipe sleeve.

Figure 3.2 Existing Property Map



Fiber Optic Cable—It is unknown at this time if fiber optic cable exists within the Project Study Area.

Gas—A gas line is present running east-west that parallels the SAS line in Woodward Road to the east of Broadway. The gas line extends to the General Electric (GE) / Axis facility located at the northwest corner of the intersection of Woodward Road and the South Diversion Channel. The gas line is reportedly about 10 feet off of the edge of existing pavement.

Gas and Oil Transmission—There is evidence consisting of signage and risers of various gas and petroleum transmission lines crossing the southerly portion of the Study Area. These lines, or impacts to them, will be investigated in more detail in the next preliminary engineering phase of this project.

Communications—There are telephone lines running east-west along Woodward Road and north-south along Broadway throughout the entire Project Study Area mounted overhead on poles shared with electric lines.

Electricity—Numerous electric power lines run through the Project Study Area. These include the following: an east-west line along the south side of Woodward Road east of Broadway; an east-west line along both the north and south sides of Woodward Road west of Broadway; a north-south line along the east side of Edmund Street; a north-south along the east side of Arno Street; and a north-south line along both sides of Broadway. There are also two sets of electric power transmission lines running north-south throughout the entire Project Study Area adjacent to and west of I-25. (These lines will likely require vertical relocation with the extension of Sunport Boulevard) Other random utility poles and electrical service lines are located throughout the project area. Some of these poles and lines are feeding active businesses while others are not being utilized due to abandonment of facilities.

Street Lighting—Continuous overhead street lighting is present on both sides of Broadway from the intersection of Broadway and Woodward Road, north. Continuous street lighting also exists along both sides of Sunport Boulevard from the interchange with I-25 east to the Sunport International Airport. Random street lights are also located within the project area, primarily at intersections and at some business entrances.

Private Utilities—Due to the number of monitoring, extraction, and injection wells related to the Superfund Site located throughout much of the Study Area (refer to Section 3.3.4), there are numerous private utility service lines for these well and associated facilities, primarily water and electrical lines running throughout the Project Study Area. (The as-built locations of the wells and at least portions of the water pipeline system for the GE/Axis cleanup facility are shown on Figure 3-8.)

3.2. TRAFFIC AND OPERATIONAL CONDITIONS

3.2.1. Current Traffic Volumes

Current traffic volume information was provided by MRCOG, obtained through the MRCOG traffic counting program. Information was obtained as directional volumes collected by tube counters at fixed counting locations established by MRCOG. Data provided by MRCOG spanned a range of time through the 1990s and 2000s, with the latest *representative* count information for a particular counting location used herein. Many of these counts were obtained in 2008 or within a year or two of 2008, but in some cases, with no recent counting data

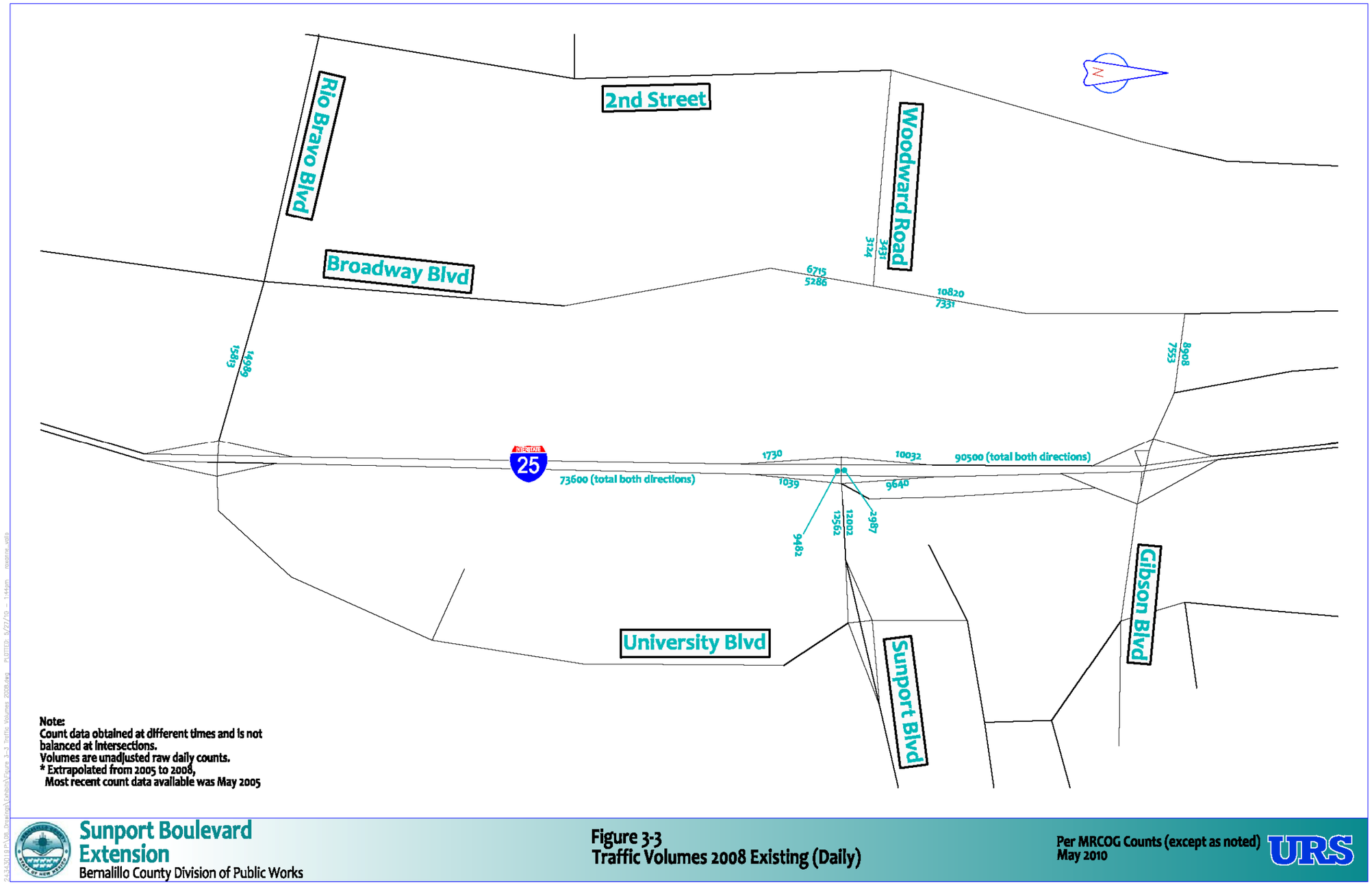
available, earlier counts were used and extrapolated to a 2008 base year. Extrapolations were done by use of the most representative growth rate for a roadway segment, based on consideration of the counting data and previous years available, and also with calibrated modeling data available from MRCOG for 2006. Current traffic volumes are shown in Table 3-1 below and on Figure 3-3 on the following page.

Table 3-1 Current Traffic Volumes (2008*)

Roadway Segment	Traffic Volume Avg Daily Traffic (vpd)		Traffic Volume AM Peak Hr (vph) Directional	Traffic Volume PM Peak Hr (vph) Directional
	Directional	Total		
Sunport Blvd. (East of I-25)	EB 12,562 WB 12,002	24,564	EB 1,191 WB 376	EB 531 WB 1,365
Sunport Blvd. (West of I-25)	0	0	0	0
Sunport / I-25 NB On Ramp	NB 9,640	9,640	NB 491	NB 1,049
Sunport / I-25 NB Off Ramp	NB 1,039	1,039	NB 127	NB 60
Sunport / I-25 SB On Ramp	SB 1,730	1,730	SB 68	SB 290
Sunport / I-25 SB Off Ramp	SB 10,032	10,032	SB 1,057	SB 519
Broadway North of Woodward	NB 7,331 SB 10,820	18,151	NB 888 SB 567	NB 510 SB 1,247
Broadway South of Woodward	NB 5,286 SB 6,715	12,001	NB 662 SB 270	NB 294 SB 837
Woodward West of Broadway	EB 3,124 WB 3,431	6,555	EB 296 WB 174	EB 151 WB 352
Gibson, Broadway to I-25	EB 7,553 WB 8,908	16,461	EB 633 WB 562	EB 656 WB 869
Rio Bravo, Broadway to I-25	EB 15,831 WB 14,989	30,820	EB 1,543 WB 795	EB 981 WB 1,472

Note: Volumes shown are from counts taken in 2008 by MRCOG, except for Broadway—North of Woodward (2009), Gibson—Broadway to I-25 (2006), and Rio Bravo—Broadway to I-25 (2005).

Figure 3.3 Traffic Volumes 2008



3.2.2. Traffic Operation in 2008

Intersection operational analyses were performed with base year traffic data (2008) using *Synchro 7.0* traffic simulation software for the key intersections within the Study area—Broadway / Woodward, Sunport / I-25 west side ramps, and Sunport / I-25 east side ramps. Results of these analyses are listed here in Table 3-2, and detailed output of these analyses are included in Appendix B. Figures 3-4 and 3-5 on the following pages depict the lane configurations, turning movement volumes, and resulting levels of service at the intersections of Sunport Boulevard and the I-25 ramps, with 2008 traffic in the AM and PM peak periods. Figures 3-6 and 3-7 following depict the lane configurations, turning movement volumes, and resulting levels of service at the intersection of Broadway Boulevard with Woodward Road, with 2008 traffic in the AM and PM peak periods.

Table 3-2 Intersection Level of Service and Delay (2008)

Intersection	Approach Level of Service AM Peak Hour	Intersection Delay AM Peak Hour (seconds)	Approach Level of Service PM Peak Hour	Intersection Delay PM Peak Hour (seconds)
Sunport / I-25 East Ramp Terminal*	EB A NB C WB A	1.2	EB A NB B WB A	0.3
Sunport I-25 West Ramp Terminal*	WB A SB D	27.5	WB B SB B	13.7
Sunport / Broadway	NA	NA	NA	NA
Broadway / Woodward	B	14.4	A	9.5

** Intersections are unsignalized, STOP controlled only*

3.2.3. Safety

Crash History

As part of the review of existing conditions in the Project Study area, an understanding of roadway safety issues in the Study Area is necessary. The intent of this review is to research and identify any known safety concerns that might affect the selection or location of an alignment alternative for Sunport Boulevard, or that might otherwise need to be called to the attention of the appropriate governmental agencies for further action. For this review and analysis, the focus of attention is on the termini of the proposed new roadway segment of Sunport Boulevard, at Broadway and at the I-25 / Sunport Boulevard interchange.

For Broadway, the NMDOT was requested to provide crash history data on Broadway Boulevard / NM State Highway 47, from Milepost 47 to 48. (For reference purposes, the Broadway intersections of the alignment alternatives proposed and analyzed in this study are located as follows: Alternative H: approximate MP 47.1, Alternative D: approximate MP 47.4, and Alternative A: approximate MP 47.7.) The NMDOT provided crash history data from the Consolidated Highway Database in the form of an "Intersection Report for Accidents at the Intersection of Broadway Blvd NE and …" Information provided included crash data on Broadway from Rio Bravo Boulevard to Broadway's northerly terminus at Edith Boulevard, north of downtown Albuquerque, for the years 2006, 2007 and 2008. With the data provided for

Figure 3.4 I-25 & Sunport Blvd 2008 AM Peak No Build

Figure 3.5 I-25 & Sunport Blvd 2008 PM Peak No Build

Figure 3.6 Woodward Road and Broadway 2008 AM Peak No Build

Figure 3.7 Woodward Road and Broadway 2008 PM Peak No Build

this Broadway corridor extending well beyond the Study limits, 89 accidents were reported in 2006, 124 accidents were reported in 2007, and 34 accidents were reported in 2008. However, *only one accident was recorded in the Study area*, at the intersection of Broadway Boulevard with Woodward Road. This accident was reported to have occurred in 2007, 200 ft. north of the intersection with Woodward Road, was property damage only and involved two vehicles, both traveling north on a dry road, with no alcohol involved. One vehicle was reported to be a passenger vehicle, the other a truck / RV. No further details are available on the specific vehicle types. The accident was a rear-end crash, due to "driver inattention" and "other improper driving", not necessarily related to roadway geometry or configuration. No pedestrians or bicycles were involved in this one recorded crash on Broadway and no other crashes were reported to have involved pedestrians or bicycles in the project Study Area.

For I-25, the NMDOT was also requested to provide crash history data on I-25 through the Sunport Interchange area, from Milepost 221.8 to 222.5. (For reference purposes, the Sunport Blvd. overpass is located at approximate MP 222.) The NMDOT provided crash history data as a "Posted Route Accident Report" for I-25 from *Milepoint* 223.058 to 223.758 (*Milepost* 221.8—222.5), for the period between January 1, 2006 to December 31, 2008. Data provided includes information on 23 crashes during this time period. However, many of the crash reports included appear questionable relative to actual location; they are reported as grouped within the mileposts in question, but are often actually outside of this area based on interpretation of the details in the reports. Based on the data provided, no pedestrians or bicyclists appear to have been involved in these crashes. The vehicle types involved were mostly passenger vehicles and trucks / RVs, along with a few reports of trailer / freight trucks. Copies of these reports are included in Appendix C.

As part of the Hazardous Materials investigation referenced in Section 3.3.4, no spills of hazardous materials were recorded on the roadways in the project Study Area. One spill, or rather evidence of stained soil, was apparent in the vicinity of the 'middle spur' railroad tracks east of Broadway, near the path of Alignment Alternative D. Refer to the *Phase I Initial Site Assessment* for Sunport Boulevard Extension, by URS, dated June 9, 2010, for more information.

With the above data collected, crash history results are generally inconclusive for both Broadway and I-25. It is not clear if the database researched was incomplete, erroneously accessed, or other problems may have existed. However, in lieu of more crash history information and analysis of crash data, a site visit was conducted to review possible safety concerns in the field at both the Broadway and I-25 project termini. The following describes observations from the site visits.

Safety Review—Sunport Boulevard West Terminus at Broadway Boulevard

The segment of Broadway (NM 47) reviewed includes the proposed Alternative A terminus at the existing Woodward Road intersection, the proposed Alternative D intersection near the at-grade railroad crossing of the Kirtland AFB Spur, and the proposed Alternative H intersection approximately 1,500 feet south of the railroad crossing. (Refer to Section 6 of this study for definitions and descriptions of the alternatives considered.) North of Woodward Road, Broadway consists of four lanes with raised landscaped medians. South of Woodward Road, Broadway is undivided and consists of two twelve-foot wide lanes in each direction with graded dirt shoulders. The 600 feet of roadway immediately south of the spur railroad crossing has embankment slopes protected by metal beam guardrail on both sides. The guardrail is set back

about three feet from the edge of traveled way. The posted regulatory speed limit is 40 mph north of the railroad crossing. Between the railroad crossing and the Alternative H intersection location, the speed limit changes to 55 mph.

Access points to Broadway are mostly defined by private fences and gates, while some undeveloped parcels have full access along their entire frontage. The dirt shoulder area between the edge of traveled way and the property fences is typically more than 20 feet wide in some areas, and is frequently used for parking by large trucks and other vehicles.

The existing intersection of Broadway at Woodward Road is signalized with a two-phase traffic signal. Adjacent signalized intersections are at San Jose Avenue approximately 0.4 miles north of Woodward Road, and at Rio Bravo Boulevard approximately 1.6 miles south of Woodward Road. Broadway has continuous street lighting north of the Woodward Road intersection and street lighting south of the intersection extending approximately 300 feet south.

If Sunport Boulevard is extended to tie into Broadway at the existing intersection of Woodward Road with Alternative A, improvements on Broadway would enhance safety at the intersection, although there is no evidence of a safety concern at this location. Improvements would include constructing curb and gutter for access control within approximately 500 feet of the intersection, or as needed for full channelization of the intersection approach lanes. This would define and limit access points especially on the currently uncontrolled corner parcels, and will prevent large trucks from parking on the shoulders near the intersection. The raised median should be extended to the south of the intersection far enough to provide a northbound left turn lane with adequate storage length for the forecast traffic demand.

All quadrants of the intersection should be designed to provide adequate intersection sight distance per AASHTO guidelines. While the existing intersection includes a southbound right turn lane with a large radius adequate for the heavy volume of large trucks making this turn, it has been signed with a yield sign. This, along with the unclear pavement markings on this turn will need to be improved to provide a more conventional intersection design with clearly defined limit lines.

A wide shoulder accommodating bicycles on Broadway north of the Study Area currently begins in the vicinity of San Jose Avenue on the east side of Broadway, and extends north. A wide shoulder exists on the west side of Broadway extending to Woodward Road, where it becomes a right turn lane for southbound to westbound traffic onto Woodward. While it is not within the scope of this project to improve bicycle lanes through the 0.4 miles of Broadway north of Woodward Road where they do not yet exist, the inclusion of bicycle lanes in the proposed typical sections for Broadway and Sunport Boulevard would improve safety for bicyclists.

If Sunport Boulevard is extended to tie into Broadway at the Alternative D location at the existing intersection of Stock Drive near the spur railroad track crossing, there will be several additional safety concerns. This intersection would cross an industrial railroad spur track (called the northerly spur in Section 3.1.4), creating a new railroad crossing that would create its own safety concerns, and the alignment would also be in close proximity to the combined spur track crossing at Broadway which would require special attention to the signing and pavement marking at the intersection. While this combined spur track is only used by a few downstream customers, coordination of the crossing use with the traffic signal operation will require interconnection for pre-emption. The northbound approach to this crossing and intersection is located on a crest vertical curve and on a horizontal curve, limiting sight distance to an area

where a high level of driver attention and judgment will be required. This area of Broadway is an undivided four-lane section, so widening will be required to develop a median and turn lanes. Intersection lighting will also need to be added at this location. The transition from 40 mph to 55 mph should also be moved further south of the intersection.

If Sunport Boulevard is extended along the Alternative H alignment to the southernmost intersection location, this too would require widening of Broadway to develop a raised median and turn lanes. A new traffic signal would be required here, plus intersection lighting. The regulatory speed limit change from 40 mph to 55 mph can be made at the new intersection, provided that the northbound approach and signal operation are designed for 55 mph.

Safety Review—Sunport Boulevard East Terminus at I-25

The interchange of Sunport Boulevard and I-25 was previously constructed to accommodate the future extension of Sunport Boulevard to the west. The overpass bridge and the southbound ramps were constructed wide enough for the ultimate lane configuration, and currently unused lanes have been striped closed. Modification of the interchange for the westward extension will involve signing and striping changes, the construction of traffic signals at each of the ramp terminal intersections, and modifications to the ramp laneage (widening) to accommodate future forecast traffic volumes. Key areas affecting safety of the expanded interchange will be: (1) providing adequate queue storage for all turning movements so that queues do not spill into through lanes causing conflicts, (2) providing coordinated operation of the two traffic signals to effectively manage the queues, (3) assuring that the intersection and ramp geometry are adequate for large trucks, especially to and from the west, and (4) providing clear and consistent signage and markings especially for those drivers traveling to and from the Sunport who are more focused on navigating an unfamiliar location.

3.3. ENVIRONMENTAL CONDITIONS

The following section provides data on existing social, economic, and natural resource conditions in the Study Area. The purpose of this information is to help define sensitive environmental issues that may affect the selection of a preferred alternative, the project design, and the level of effort necessary for future environmental studies and the environmental document.

The National Environmental Policy Act of 1969 (NEPA) requires a systematic, interdisciplinary approach to planning and project implementation. It emphasizes that the environmental impacts of federally funded projects must be given serious consideration in the decision-making process. Environmental documentation consistent with NEPA and other applicable laws and regulations is required on all proposed U.S. Department of Transportation, Federal Highway Administration (FHWA) projects, or those on federally controlled facilities, such as Interstate Highway 25 (I-25). This information gathering and analysis process allows informed decisions regarding project approval and helps to define the stipulations necessary to mitigate impacts.

The New Mexico Department of Transportation (NMDOT) has adopted policies and procedures that are consistent with NEPA and other federal and state environmental legislation. The NMDOT follows a process of comprehensive, interdisciplinary planning to ensure that community and environmental concerns are integrated with project development and design. This policy is reflected in the NMDOT's *Location Study Procedures*, which is a process for

analyzing transportation alternatives, selecting reasonable options, and evaluating the environmental effects of the preferred concepts.

Public input, agency coordination, and environmental factors are important considerations in this analysis process, along with engineering and cost data. Evaluation of these factors serves to inform the study team, public, and elected officials of the consequences of the proposed action, and as such is part of the decision-making process.

3.3.1. Natural Resources

Physiography, Geology and Paleontology

The Project Area is located in the City of Albuquerque and Bernalillo County, New Mexico. The west terminus of Sunport Boulevard is situated approximately one mile east of the Rio Grande, with the east terminus west of the Albuquerque International Airport. The project area is within the Albuquerque Basin and the Rio Grande Floodplain physiographic province. The elevation of the project area ranges from approximately 4,940 to 5,070 feet above mean sea level.

The climate in the project area is classified as ustic aridic to aridic and temperatures range from a typical low of 19 F in the winter to highs over 90 F in the summer (Griffith, G.E. et al, 2006). Average annual precipitation is less than 10 inches, with most falling in the summer months (Brown, 1987).

Soils

Soils within the study area are primarily Bluepoint loamy fine sand, found on slopes that range from one to nine percent gradient. Bluepoint soils consist of deep, somewhat excessively drained soils that formed in sandy alluvial and eolian sediments on alluvial fans and terraces (USDA, 1977). Impacts to soils would primarily consist of construction disturbances and resulting erosion. These potential impacts would be minimized through the National Pollution Discharge Elimination System (NPDES) permit process, which requires a storm water pollution prevention plan (SWPPP) as a contractual requirement to control erosion and sedimentation.

Wetlands

The US Army Corps of Engineers (USACE) and the US Environmental Protection Agency (USEPA) define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (USEPA, USACE, 1980).

There are three diagnostic characteristics that must be determined for wetland classification: (1) hydrophytic vegetation (species that require the presence of permanent or semi-permanent water for their existence), (2) hydric soils (wet long enough during the growing season to develop anaerobic conditions), and (3) wetland hydrology (availability of enough naturally occurring water to create the wetland environment). The South Diversion Channel is ephemeral in that it contains storm water flow after storm events, but no wetland vegetation, standing water, or other features typical to wetlands were observed in the channel within the project corridor. No wetlands are present in the Project Area.

Floodplains

Protection of floodplains and floodways is required by Executive Order (EO) 11988, Floodplain Management; U.S. DOT Order 5650.2, Flood Management and Protection; and 23 CFR 650, Subpart A, "Location and Hydraulic Design of Encroachment on Floodplains." These guidelines require that any potential impacts to floodplain areas be studied to reduce the risk of flood loss; minimize the impact of floods; and restore and preserve the beneficial values of floodplains. The NMDOT's policy is to avoid building at risk structures in floodplains and to ensure that any physical improvements are designed to prevent adverse floodplain effects.

The Department of Homeland Security, which oversees the Federal Emergency Management Agency (FEMA), has jurisdiction over the National Flood Insurance Program (NFIP) and regulates flood insurance mapping throughout the United States. Communities that participate in the NFIP adopt Flood Insurance Rate Maps (FIRM's) which depict the 100 and 500-year flood boundaries. The study area has been mapped on FIRM Community-Panel No. 35001CO342G. Refer to Figure 3-8 following for an excerpt of this FIRM depicting the Flood Hazard Zones. The South Diversion Channel is located within a special flood hazard area that is subject to inundation by the 1% annual chance flood (Zone AH) that is confined to the channel. Portions of Broadway Boulevard in the area of Woodward Road and south of Stock Drive are within a zone that is protected, but with cautionary conditions. The conditions state that this area is shown as being protected from the 1-percent annual chance flood hazard by levee dike or other structure, however overtopping or failure of the structure is possible and could result in destructive flood elevations and water velocities. The western terminus of Alternative A at its connection with Woodward Road will be within this conditional zone.

A retention pond that drains into the South Diversion Channel exists near the two southernmost alternatives (Alternatives D and H). The FIRM panel shows the retention pond and an adjoining Airport Arroyo within the Zone AH. Alternative D would likely cross the area of the Airport Arroyo. Coordination with the Bernalillo County Floodplain Administrator will be conducted in order for the project to comply with EO 11988.

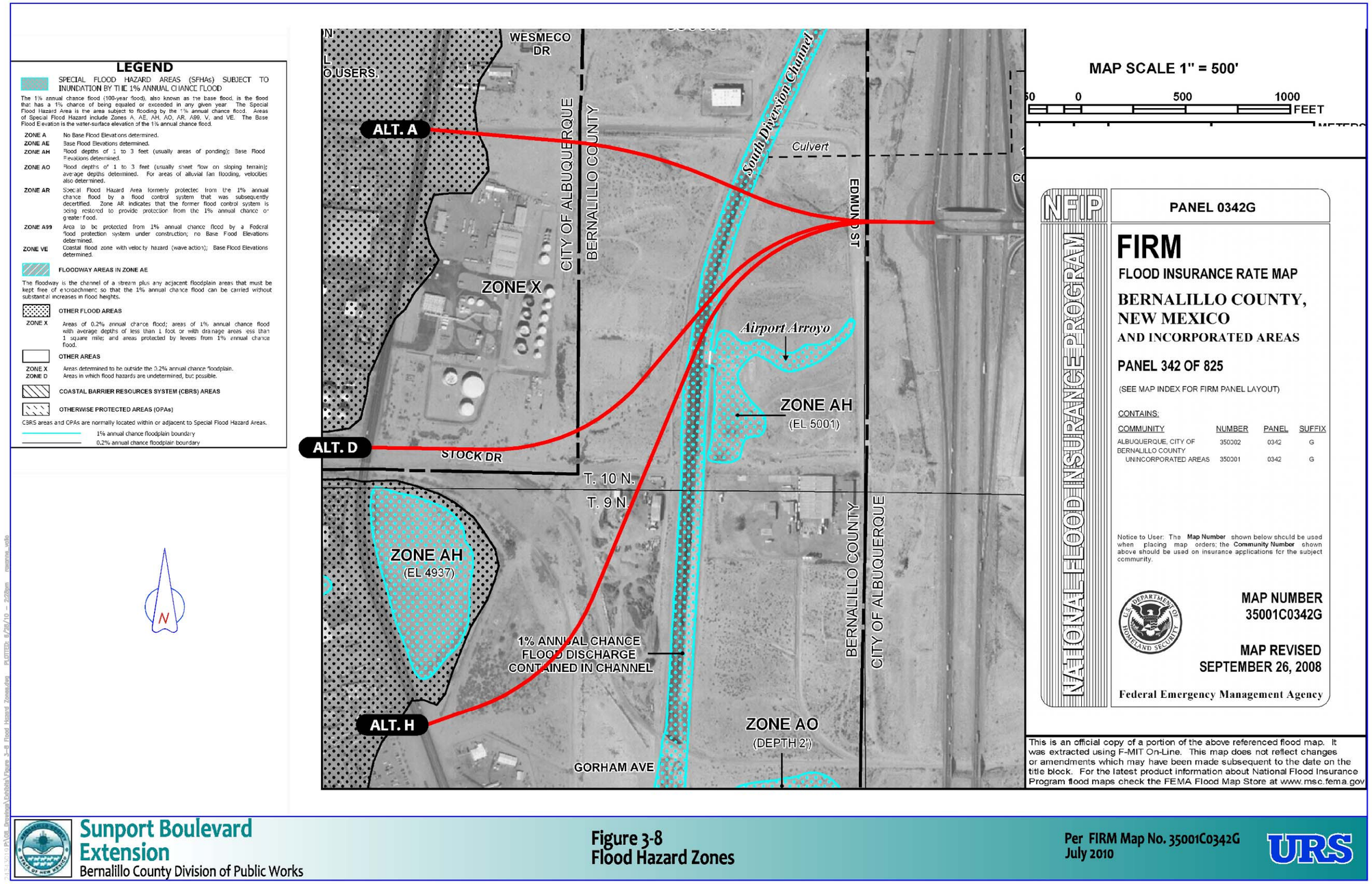
Surface Water

The Clean Water Act (CWA) regulates dredge and fill activities that have the potential to impact waters of the United States, including wetlands, and designates to the USACE the authority to issue permits and regulatory guidance governing these activities. According to the USACE Albuquerque District, waters of the United States are defined as:

- Traditional "navigable water of the U.S." including adjacent wetlands;
- All interstate waters including interstate wetlands;
- All other waters such as interstate lakes, rivers, streams (including intermittent streams), prairie potholes, mudflats, playa lakes, etc.;
- All impoundments of these waters;
- Tributaries of the above listed waters;
- Wetlands adjacent to the above waters; and
- Arroyos.

The South Diversion Channel may qualify as a tributary of the Rio Grande, a "navigable water", making the channel a jurisdictional water under the CWA. Section 404 of the CWA applies to all waters and wetlands that are jurisdictionally designated and have sufficient nexus to interstate

Figure 3.8 Flood Hazard Zones



commerce. A jurisdictional survey/determination of the channel and coordination with the USACE will be conducted prior to the commencement of any construction activities in order to determine whether a Nationwide and/or project specific 404 permit will be required. In addition, coordination with the New Mexico Environment Department Surface Water Quality Bureau may be necessary for water quality certification under Section 401 of the CWA. The channel is owned and maintained by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). Coordination with AMAFCA has been ongoing and will continue prior to any construction activities.

As already described under the previous Soils section, effects on water quality during project construction must be addressed under the NPDES permit process. A SWPPP will be developed for this project because more than one acre of land will be disturbed.

Groundwater

The study area is located within the Middle Rio Grande Basin, which is a groundwater basin composed of the Santa Fe Group aquifer system. The depth of water in the Santa Fe Group aquifer system varies widely, ranging from less than two feet near the Rio Grande to about 1,180 feet in an area west of the river beneath the West Mesa. Due to groundwater draws on area municipal wells, the groundwater movement beneath the Study Area is generally from west to east. The depth to groundwater within the Study Area ranges from approximately 30 feet to 120 feet below ground surface. Groundwater impacts are not anticipated from this project.

Vegetation

The project is primarily within the Albuquerque Basin sandscrub and desert grassland community. The most common native plant species within the project area are four wing saltbush (Atriplex canescens), purple sage (Psorothamnus scoparius), tumbleweed (Salsola tragus), and broom snakeweed (Gutierrezia sarothrae). Although the area is heavily industrialized and has been impacted by development, illegal dumping and industrial operations, the study area contains some vacant lands with native plant species. Project construction activity will occur primarily within disturbed areas.

Noxious weeds are undesirable, non-native plant species that have negative impacts upon crops, native plant communities, livestock, and the management of natural or agricultural systems. The New Mexico Department of Agriculture has targeted numerous noxious weeds for control or eradication pursuant to the Noxious Weed Management Act of 1998. No noxious weeds are known to occur in the Study Area.

Wildlife

Wildlife within the Study Area is highly influenced by the existing interstate highway and regional urban development of the Albuquerque area. No sensitive wildlife species were observed during preliminary field visits. Although no bird nests were observed in the project area, it is possible that burrowing owls or other shrub-nesting birds could move into the area.

To comply with the Migratory Bird Treaty Act (MBTA), a pre-construction nesting bird survey will be conducted for this project per the New Mexico Department of Game and Fish Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation. If nesting birds are encountered, they will be treated in accordance with the MBTA, which protects against the "taking" of migratory birds, their nests, and their eggs, except as permitted by the US Fish and

Wildlife Service (USFWS). If nesting birds are affected by the project, appropriate protection or mitigation measures will be developed in coordination with the USFWS. Generally, the USWFS recommends avoiding tree and brush removal or other disturbances that could affect nesting birds from March through August (the nesting season).

Threatened and Endangered Species

Information from the USFWS, the New Mexico Department of Game and Fish (NMDGF), and the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) was sought regarding threatened, endangered, or sensitive species. From information provided by these agencies, a list of potentially occurring species in the project area was compiled. This list of "target" species was based on the local biotic community and the habitat requirements of the species. A 100 percent ground survey was conducted to identify protected species. No listed species were observed during the biological survey. Species of Concern designations are used for planning and conservation efforts only. It was determined that suitable habitat exists for three Species of Concern: the Western burrowing owl *(Athene cunicularia hypugaea)*, and two plant species; the La Jolla prairie clover *(Dalea scariosa)* and the Santa Fe milkvetch *(Astragalus feensis)*. Based on the potential suitable habitat for the Western burrowing owl if construction occurs during nesting season (March through August) a pre-construction presence/absence survey for the owl will be performed per the NMDGF Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation. In addition, a pre-construction survey may be required for the two plant species of concern. Due to the habitat requirements of species commonly found in Bernalillo County, the limited nature of the undertaking, the existing fragmented habitat, and high level of existing disturbance, the proposed work is not expected to affect any other special status species for Bernalillo County or their habitat.

Air Quality

The proposed project is within Bernalillo County, in an area defined as the Albuquerque Metropolitan Planning Area (AMPA) by the Mid Region Council of Governments (MRCOG). Bernalillo County is currently designated by the EPA as an attainment area for all air pollutants identified in the National Ambient Air Quality Standards (NAAQS). However, it was previously designated as a moderate non-attainment area for carbon monoxide (CO), in 1978, due to violations of the NAAQS for CO. The county remained under this designation until 1996, when it was redesignated as an attainment area under maintenance for CO. Currently, the county is designated as "limited maintenance" because it has been in attainment for more than ten years. This indicates that the county is clean enough to meet health standards today, but it continues to require oversight to keep it that way.

Principal sources of CO in the study area are vehicular traffic on the street system as well as emissions from industrial sources of the area. Under certain conditions, high traffic volumes result in localized impacts, or "CO hot spots," which are detrimental to the health of people who are exposed. These areas of potential air quality problems, when they occur, are typically found near major intersections in areas immediately adjacent to driving lanes. Because air quality impacts are assessed according to the particulars of roadway design, potential impacts will be investigated in more detail as the project proceeds.

Farmland

None of the lands in the project area meet the US Department of Labor, Natural Resource Conservation Service (NRCS) definition of prime farmland and the project will not affect farmlands of any type. The NRCS will be contacted regarding this project.

3.3.2. Social and Economic Impacts

Environmental Justice Issues

Demographic characteristics in the proposed project area were evaluated in this section to help define potential impacts to minority or low-income populations. The analysis was based primarily on data from the 2000 US Census estimate and US Census 2006-2008 American Community Survey 3-year estimates for the South Valley.

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low Income Populations, prevents federal policies and actions from creating disproportionately high and adverse health and environmental impacts to minority and low-income populations. In compliance with EO 12898, it is the FHWA's and NMDOT's policy to avoid disproportionately high and adverse impacts on minority and low-income population groups. Income data and minority population data for the County, South Valley Census-Designated Place (CDP), and the City are summarized in Table 3-3 following.

There are greater than average numbers of low-income and minority residents within the South Valley area (surrounding the study area) than Albuquerque and Bernalillo County, however the project is not likely to disproportionately impact these members of the community. Although the project is not expected to result in adverse impacts on these populations as a whole, an enhanced public outreach will be conducted as part of the environmental assessment process in order to engage the surrounding community. The project is not expected to impact community cohesion, displace people, or in other ways disproportionately and adversely impact minority or low-income populations. Overall, the project is expected to be consistent with Title VI of the Civil Rights Act and the Federal environmental justice policy.

Table 3-3 Table 3 3 Demographic Summary for Bernalillo County/City of Albuquerque

	Bernalillo County	South Valley	Albuquerque
Population	626,991	38,837	507,823
Minority (%)			
Native American	5.0	0.7	5.1
African American	3.2	1.6	3.5
Asian	2.3	0.6	2.6
Hawaiian/Pacific Islander	0.0	0.0	0.0
White Only	43.7	17.4	44.2
Hispanic/Latino: Any race	45.2	79.5	44.0
Other Races	17.7	21.2	18.0
Two or More Races	3.3	2.7	3.3
Economic Data			
Per capita income	$26,102	$17,169	$25,871
Median family income	$59,478	$39,112	$59,283
Percentage population below poverty	15.2%	24.4%	15.2%
Percentage families below poverty	11.1%	20.5%	10.8%

Source: U.S. Census Bureau 2006-2008 American Community Survey

Land Use

Land use in the study area is primarily industrial. This project is currently included in the MRCOG FY 2010 to FY 2015 Transportation Improvement Program (TIP). Generally, the project is consistent with regional plans, including the Metropolitan Transportation Plan (MTP), and will help to fulfill expectations about growth and access in the area.

Sunport Boulevard will connect directly to I-25 with the existing interchange. Local access to properties along the project corridor will be provided as discussed in more detail in Section 8.2 of this report. With the proximity of direct access to I-25, the project will provide opportunities and create an attraction for new businesses to be created in the project corridor. With the introduction of new businesses, additional employment opportunities are anticipated as well.

Noise

Noise is generally defined as a loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although exposure to very high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of different individuals to similar noise events is diverse and influenced by many factors including the type of noise; the perceived importance of the noise, and its appropriateness in the setting; the time of day and the type of activity during which the noise occurs; and the sensitivity of the individual.

Traffic noise is typically described in units of A-weighted decibels (dBA) and is discussed in terms of hourly average noise levels. A traffic noise impact occurs when the future predicted traffic noise levels approach or exceed the Noise Abatement Criteria (NAC) or when predicted future traffic noise levels substantially exceed the existing noise level, even though the predicted levels may not exceed the NAC. The FHWA, in 23 CFR 772, specifies NAC for noise-sensitive land uses. The following table lists the categories of NAC as defined by the FHWA.

Table 4.12.1 : 23 CFR, Part 772, Table 1 Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Level in Decibels (dBA)*

Activity Category	$L_{eq}(h)$	$L_{10}(h)$	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

1. **Either $L_{eq}(h)$ or $L_{10}(h)$ (but not both) may be used on a project.*

The NMDOT noise abatement policy is based on the FHWA regulations and NAC, using the $L_{eq}(h)$ noise metric. NMDOT noise policy defines a traffic noise impact as an impact which occurs when the predicted traffic-related noise level approach within one (1) dBA of or exceed the NAC, or when the predicted traffic noise levels exceed ambient noise levels by 10 dBA (Leq) or more.

The Bernalillo County code does not specify noise limits for transportation sources.

Existing noise sources in the area consist of traffic on I-25, aircraft from the Sunport and Kirtland Air Force Base, from trains on the rail spur servicing the bulk fuels terminals, traffic on Broadway Boulevard and other local streets and roadways, and noise associated with industrial and commercial activities of the area.

The NAC Activity Categories represented in the vicinity of the proposed project improvements include primarily commercial and industrial properties (Category C) and undeveloped lands (Category D). The nearest residential (Category B) land uses within the project study area appear to be about six single family homes on the north side of Wesmetco Drive, about 550 to 600 feet to the north of the proposed alternative A alignment,. The vacant land of the area would not be considered of extraordinary significance for quiet or serene value.

Category C and D land uses in the project area would not likely be negatively impacted by traffic noise from the proposed project due the higher NAC impact threshold for these categories and a general lack of exterior noise-sensitive activities for these areas. The Category B residences north of Wesmetco Drive are beyond the typical screening distance for NAC triggered impacts (500 feet), and existing ambient noise levels in this area contributed to by existing transportation and industrial noise sources would likely eliminate any possibility of the proposed project increasing noise levels by 10 dBA. As a result, noise impacts are not anticipated for this project and no noise mitigation is recommended.

Visual Resources

The developed landscape in an area is central to an area's complexion and attractiveness or non-attractiveness; street design and landscaping can complement and enhance the environment. During the process of assessing potential changes to the environment, it will be important to consider how the proposed project would change the look or visual character of the area. Because the roadway will be elevated at the eastern portion of the project area until it drops down to grade at the western terminus, the project will change the visual look of the area. The project is in an industrial area and does not currently have highly valued visual resources (i.e. natural, cultural); therefore any adverse impacts to the visual resources from this project are minor. No mitigation of adverse impacts is necessary.

Recreational Resources and Alternate Modes of Travel

The County and the NMDOT are committed to the principle of a multi-modal transportation system, which includes developing accessible, connected, and sustainable multimodal opportunities for all citizens. These opportunities should allow travel choices which make the most efficient use of the state's transportation infrastructure. Federal, state, and local transportation policies reflect this commitment to accommodate bicycle, pedestrian, and related recreational resources.

The Long Range Bikeway System Map dated June 30, 2007, included as a component of the 2030 Metropolitan Transportation Plan (MTP) for the Albuquerque Metropolitan Planning Area, shows the Sunport Boulevard corridor as a proposed "Bikeway Corridor", connecting proposed "Trails" along the South Diversion Channel west of I-25 and Transport Street east of I-25 and north of University Boulevard. Design opportunities for accommodating these planned facilities will be examined as part of the Project. Refer to Figure 4-5 for the Long Range Bikeway System Map.

3.3.3. Cultural Resources

The project study area has been heavily disturbed by previous industrial development related activity. A preliminary cultural and archaeological records search was conducted of the study area. The record search yielded information pertaining to six previously conducted surveys and a single previously recorded site. The previously recorded site—LA 159034—is located at the terminus of Alignment D. The site is an abandoned segment of the San Jose Lateral. Cultural resource specialists recorded the site during a recent survey that partially overlapped the proposed alignments (Parrish et al. 2008). LA 159034 is described by Parrish (2008) as follows:

> LA 159034 is an abandoned irrigation ditch, crossing under Broadway Boulevard between Woodward Avenue and Rio Bravo Boulevard in Albuquerque's South Valley… Alluvial sediments support an overstory of deciduous trees and an understory of various grasses and forbs, all growing within and along the lateral. The San Jose Lateral is plotted and marked as an acequia managed by the Middle Rio Grande Conservancy District (MRGCD); however, the lateral no longer provides irrigation to any agricultural fields or other properties in the vicinity. The lateral originally flowed east directly south of an east/west-oriented segment of BNSF railroad track. The site is overgrown with brush and is in poor condition. No artifacts were observed along the lateral.
>
> This abandoned lateral totals 2,044 feet in length and measures 10 feet wide from bank to bank, 2 feet wide at the bottom, and 3 feet deep. It begins… at a headgate not visible due to its location within fenced private property. The lateral travels east for 482 feet through an industrial area. It… cross(es) under Broadway Boulevard through a culvert whose type is not visible due to the lateral's overgrown and poor condition. The lateral continues for 1,562 feet along a curved alignment surrounding an irregularly-shaped field. The field this lateral originally irrigated, located east of Broadway Boulevard, is currently for sale and is no longer agricultural in nature. The lateral remains unlined, and no water control features were observed. Any tapboxes that may have been present to irrigate the field are no longer present. The lateral terminates after crossing under Broadway Boulevard south of the previous crossing; however, the culvert is no longer present west of Broadway Boulevard within the developed industrial area.
>
> LA 159034 is associated with the San Jose Drain, which is managed by the MRGCD. The San Jose Drain is a component of an extensive system of canals maintained by the MRGCD. Many existing ditches were acquired by the MRGCD in the 1930s. The original construction date of this ditch—and many of the other ditches incorporated into the MRGCD system—is unknown…

> LA 159034 is an abandoned irrigation ditch that no longer provides irrigation to any agricultural fields or other properties in the vicinity. The ditch is in poor condition and no longer retains its historic integrity in terms of setting, feeling, or association. No evidence of buried cultural material was observed and the site is not likely to yield important information. For these reasons, LA 159034 is recommended ineligible for inclusion in the NRHP [Parrish et al. 2008].

Each design alternative being considered crosses the South Diversion Channel. The channel was described in a Historic Water Delivery System Inventory Form (HWDSIF) prepared for the NM 45 South Coors Corridor Road Improvement Project as a federally funded flood control project that is an example of a mid-twentieth century channel with both dirt and concrete-lined portions (Parrish et al. 2008). The South Diversion Channel is described by Parrish as follows:

> The South Diversion Channel was constructed by the United States Army Corps of Engineers (USACE) as a federally funded flood control project. The project was sponsored locally by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMFCA)…. The South Diversion Channel was created to control flooding in the southeast valley of Albuquerque by diverting and/or confining storm-water runoff from Tijeras Arroyo and other smaller drainages and channeling them into the Rio Grande. The South Diversion Channel is an example of a mid-twentieth century channel with both dirt and concrete-lined portions…
>
> The South Diversion Channel collects storm-water runoff… from a number of locations. These include a developed area southwest of Milne Stadium in southeast Albuquerque, an undeveloped area southeast of the I-25/Avenida Caesar Chavez intersection, a mixed-use area on University Boulevard south of Sunshine Terrace, and from Tijeras Arroyo… The South Diversion Channel (flow)s south… eventually turning west near Mountain View Elementary School and flows into the Albuquerque Riverside Drain and the Rio Grande.
>
> The South Diversion Channel is managed by AMAFCA and is part of an extensive system of flood control structures that have been part of the larger AMAFCA flood control system since 1963. Construction of the South Diversion Channel was begun in 1963 by the USACE and locally sponsored by AMAFCA as one of the first large-scale efforts to control flooding in the metropolitan area. AMAFCA flood control structures continue to play an important role in the development of Albuquerque's infrastructure and expansion by diverting storm-water runoff away from developed areas and into the Rio Grande through many AMAFCA managed dam systems.

The results of pre-field investigations show that if the preferred design alternative is Alternative D, then site LA 159034 may require update recording, evaluation of significance, and assessment of project impacts. Regardless of which currently proposed design alternative is preferred, the South Diversion Channel may require update recording, evaluation of significance, and assessment of project impacts.

Field Survey Findings—Newly Discovered Sites

LA 167000 (PMX-2010-23-1)

This site is a moderate-density prehistoric lithic scatter located at the west edge of the first terrace above the Rio Grande Floodplain, south of Woodward Road and east of Broadway Boulevard. The site continues south outside the area of potential effect (APE), although it was fully recorded during the current investigation. Despite various sources of disturbance, the site core has been relatively unaffected and appears to remain intact.

The site contains 30 items of artifacts, including four cores, two manos, one flaked stone tool, and 23 pieces of lithic debitage. Approximately 50 percent of the assemblage is located in a small artifact concentration along the edge of the APE. Flaked stone material is comprised entirely of material available locally within Santa Fe gravels, which are exposed along the terrace edge at the site location. The site may have functioned as a limited-use camp, where procurement of local lithic materials and other activities took place. No diagnostic artifacts were identified, and a temporal/cultural affiliation was not assigned.

NRHP Eligibility, Effect, and Management Recommendations

The site is fairly small, exhibits only moderate artifact density, and contains neither features nor diagnostic artifacts. However, it is located in a geomorphologic setting that suggests it may be partially buried. Artifacts were observed eroding out of a small drainage channel, and observations of the channel suggest sediments are at least 50 cm deep at the site location. The site, therefore, may have the potential to provide important information regarding subsistence strategies, land-use patterns, lithic procurement strategies, and cultural/temporal affiliation through the recovery of artifacts and chronometric and botanical samples. As archaeological testing is required to confirm the presence of subsurface deposits and assess whether the site will contribute to a better understanding of the prehistory of the region, the project archeologist recommends the site as undetermined until testing allows for an eligibility assessment to be made.

The project archeologist recommends that the site be avoided by all project related activities. If complete avoidance is feasible, subject to consultation and comment, the proposed undertaking will have no effect on these resources. If avoidance is not possible, the project archeologist recommends that a limited testing plan be implemented under existing survey permit NM-10-121-S and per the New Mexico Administrative Code (NMAC) 4.10.16. The testing program will be designed to identify the nature and extent of subsurface archaeological deposits within the APE and determine if the site contains elements that merit eligibility to the NRHP. If the site is determined eligible and if elements contributing to its eligibility will be affected by the proposed undertaking, the project proponent should prepare a data recovery plan per NMAC 4.10.8 and to the standards within NMAC 4.10.16

LA 167001(PMX-2010-23-2)

This site is a small prehistoric lithic scatter located along the south edge of the APE. The site is situated on a flat terrace, immediately south of a broad arroyo that flows west across the terrace. The majority of the site is located south of the APE, although it was fully recorded during the current investigation. The site contains 19 flaked stone artifacts, 100 percent of which were analyzed in the field. The assemblage includes three cores and 16 pieces of lithic debitage. All of these materials are available from local gravel exposures, which occur in the general site

vicinity. Ten of the 16 pieces of debitage contain cortex, and the majority of platforms are cortical, providing evidence of procurement and/or early stage reduction of local materials.

NRHP Eligibility, Effect, and Management Recommendations

This is a small site with an artifact assemblage suggesting a limited range of activities. No features or temporally diagnostic artifacts were identified, and the site does not contain evidence for subsurface archaeological deposits. However, the terrace is stable at the site location and appears to contain deep sediments, raising the possibility that the site contains a buried component. Because the potential for such deposits could not be adequately assessed during the current investigation, the ability of the site to provide a better understanding of local prehistory has not been determined. The project archeologist recommends the site as *undetermined* until an eligibility assessment can be made.

The project archeologist recommends that the site be avoided by all project related activities. If complete avoidance is feasible, subject to consultation and comment, the proposed undertaking will have no effect on these resources. If avoidance is not possible, the project archeolgist recommends that a limited testing plan be implemented under existing survey permit NM-10-121-S and per the New Mexico Administrative Code (NMAC) 4.10.16. The testing program will be designed to identify the nature and extent of subsurface archaeological deposits within the APE and determine if the site contains elements that merit eligibility to the NRHP. If the site is determined eligible and if elements contributing to its eligibility will be affected by the proposed undertaking, the project proponent should prepare a data recovery plan per NMAC 4.10.8 and to the standards within NMAC 4.10.16.

Isolated Occurrences (IOs)

A single IO was identified during the field survey. IO 1 consists of a chalcedony complete flake and a piece of cortical obsidian angular debris in a 10-m area. This resource will not provide important information to better our understanding of prehistory or history and is therefore recommended ineligible for listing in the NRHP under any criteria. No further investigations are recommended for this resource

3.3.4. Hazardous Materials

Contamination of soil or water with hazardous materials is a serious concern for potential road right-of-way acquisition and construction due to the liability associated with clean up, as well as health and safety considerations. The area of the proposed project is located within industrial development, with some commercial uses, and vacant property.

South Valley Superfund Site

The three proposed alignments for the Sunport Boulevard extension all cross through the South Valley Superfund site (EPA ID# NMD980745558). In 1979, wells in the San Jose well field became contaminated by organic compounds, forcing closure of one private well and two Albuquerque municipal wells. The site was listed as a National Priorities Site by the Environmental Protection Agency (EPA) on September 8, 1983 and covers about two square miles, including the Sunport Boulevard Extension project area. Numerous sources were found to have contributed to the problem. Originally, investigation of the well contamination source included six facilities and the surrounding area for one square mile. The original six facilities were Whitfield, Inc., Duke City Fueling, Texaco, Chevron, General Electric (GE), and Van

Waters, Inc. (currently Univar). Van Waters was originally identified as the "Edmund Street Properties". The Texaco facility is now owned by Chevron. Van Waters and GE are the two facilities currently identified with the South Valley superfund site (pers. communication with Al Pasteris, March 16, 2010 and March 26, 2010).

The contaminants of concern beneath the Sunport Boulevard Extension project area listed under the South Valley site consist of halocarbons (1,1,1-trichloroethane, tetrachloroethane, trichloroethylene, etc.) and aromatics (benzene, toluene, ethylbenzene, and xylenes). The South Valley site affected the groundwater of the area, resulting in extensive cleanup activities including the installation of a pump and treat system that is networked throughout the project Study Area. Refer to Figure 3-9 following for an illustration of the Monitoring Well Locations.

The EPA initiated a five year review process that is scheduled for release in June 2010 (EPA, 2010). The current status is listed by the EPA as "The on-going remedial actions continue to contain, capture and reduce the concentration of contaminants within the ground water plume. As such, on-going remedial actions continue to be protective of human health and the environment."

Pump and Treat System Project Impacts

As part of cleanup activities for the South Valley superfund site monitoring, extraction, and injection wells are dispersed throughout the vacant property on either side of the South Diversion Channel west of Interstate 25 to north of Woodward Road and south to the area of Stock Drive. The largest density of wells is located from north to south adjacent to the interstate right-of-way. A deep-zone ground water treatment plant owned and operated by GE as part of the pump and treat system is located on the adjacent property north of Woodward Road. Refer to Figure 3-8 on the following page for a Map of Monitoring Well Locations.

The proposed alignments have the potential to impact the pump and treat system. Bernalillo County, NMED, URS, the EPA Region VI, and GE have been in discussions to determine the impacts of the roadway alignments. Mitigation measures have been discussed for design of the roadway. Early analysis indicates that Alignment A will have the least potential for impact on the pump and treat system. Impacts are not anticipated to be significant with the implementation of mitigation measures which may include the avoidance of extraction wells, replacement or relocation of monitor wells and incorporating pipe sleeves under the roadway for possible future well installations. Coordination with the EPA, NMED and GE will continue as the design progresses.

Other Hazardous Materials Issues

The Chevron bulk terminal fuels facility (including Ever Ready Oil) is located south of Woodward Road and is undergoing monitoring and cleanup of shallow groundwater aquifer contamination by petroleum hydrocarbons. While the Chevron/Texaco facilities were one of the six facilities investigated originally by the EPA, the compliance effort of monitoring and cleanup by Chevron is separate from the South Valley superfund site. Discussions with the New Mexico Environment Department Groundwater Quality Bureau indicate that while groundwater monitoring is ongoing and will continue in the future, the facility is nearing closure status (pers. communication with Bart Faris, March 15, 2010 and April 21, 2010).

The project area is also located within the landfill buffer zone for the former Schwartzman landfill. According to Ms. Suzanne Busch with the City of Albuquerque, Environmental Health Department, Landfill Monitoring, the boundaries for this landfill are not well defined. Due to the proximity of the landfill to the project area, guidance from the City of Albuquerque shall be

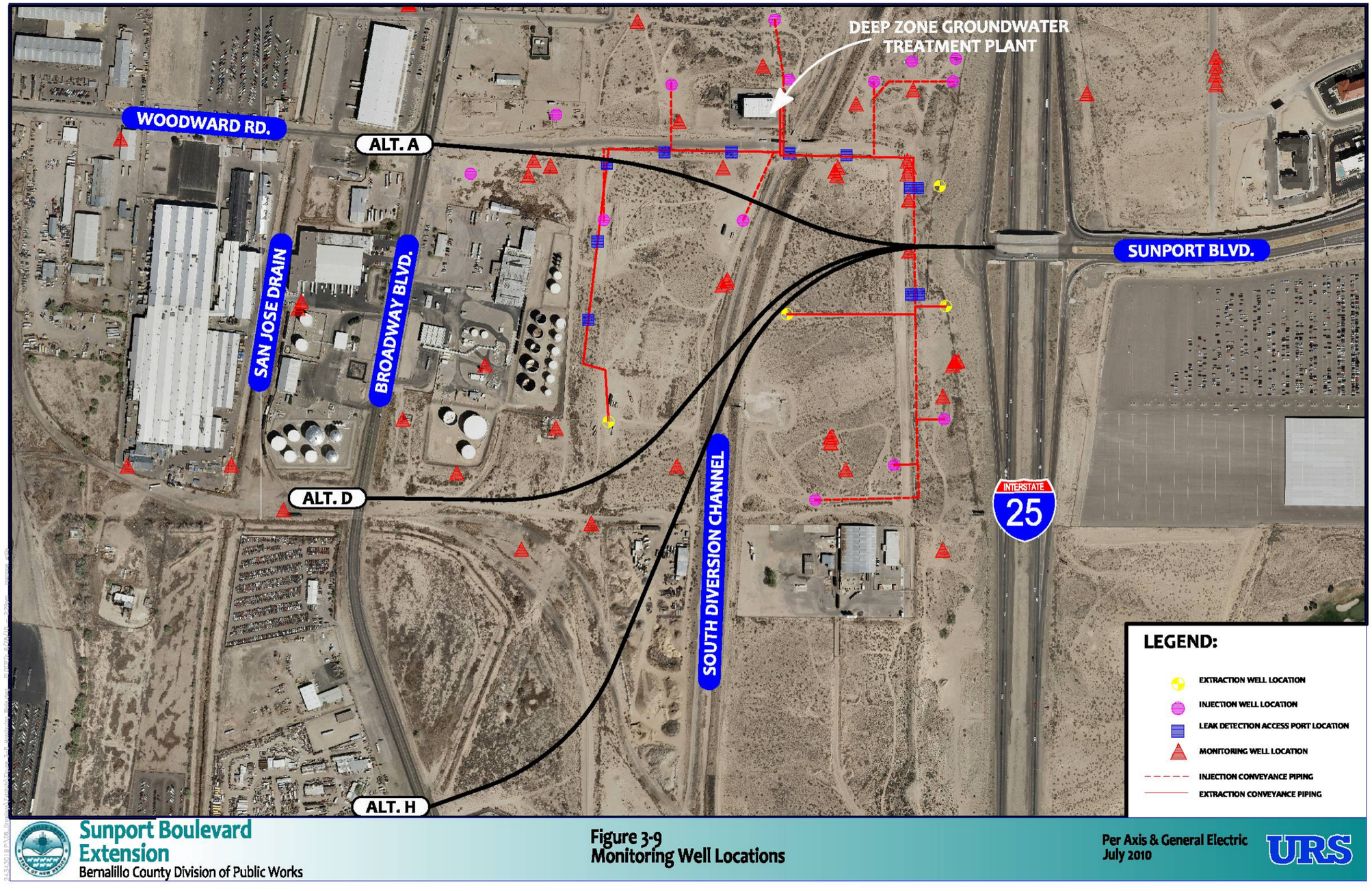
followed for landfills and landfill gas issues. The preferred alignment may require testing to be performed prior to construction to determine if there is any residual landfill waste within the footprint of the roadway corridor. If there is any utility work requiring underground excavation as part of construction, the City of Albuquerque Landfill Interim Guidelines will be followed in order to prevent landfill gas migration.

A Phase I Initial Site Assessment has been conducted in order to identify potential recognized environmental conditions. Preliminary investigations have not identified any other environmental conditions of concern. Refer to *Sunport Boulevard Extension Phase 1 Initial Site Assessment*, by URS, dated May 19, 2010 for further details.

3.3.5. Level of Effort Needed for Environmental Document

The engineering, social, economic, and environmental investigations conducted thus far on this project have not disclosed any potentially significant impacts on the quality of the human or natural environment. An Environmental Assessment (EA) is therefore the recommended level of effort for the environmental documentation on this project.

Figure 3-9 Monitoring Wells Locations



4. ASSESSMENT OF FUTURE CONDITIONS

4.1. TRAFFIC GROWTH AND FORECASTS

Traffic volumes used for analysis purposes were initially obtained from the Mid-Region Council of Governments (MRCOG) and subsequently adjusted for use in this Study as explained below. MRCOG's 2030 Metropolitan Transportation Plan (MTP) contains traffic volume forecasts based on regionally adopted socio-economic forecasts of population and jobs growth for the future planning year, 2030. (Traffic volume forecast data as derived by MRCOG and obtained from MRCOG for this project, addresses overall *vehicle* traffic, but does not include forecast volumes of heavy commercial truck traffic, nor does it address the modal split relative to transit use.) The MTP transportation network for 2030 includes the Sunport Boulevard project that is the subject of this study, as a part of the future transportation system in place by 2030. Therefore, travel demand modeling as done for the MTP reflects the "Build" scenario of future traffic. The future model associated with the MTP also includes many other roadway projects that have been assumed to occur and would be in place as part of the future 2030 transportation network. These other projects are in effect "committed improvements" that are assumed to be in place and handling traffic. For typical planning purposes, committed improvements are only those with defined funding and predicted to occur in the first three years of the TIP funding program; beyond that time, any "commitments" are subject to change and the vagaries of future transportation funding programs. Other future improvements to the transportation network in the vicinity of the Study area that have been incorporated into the MTP modeling are interpreted to have negligible impact to Sunport Boulevard, and therefore the MTP forecast results were generally used.

Following review of the 2030 modeled data and comparison against 2008 (and earlier) traffic count data also obtained from MRCOG, a problem with some of travel demand model's forecast data for 2030 became apparent. On certain roadway segments in the vicinity of the I-25 / Sunport interchange leading to the Albuquerque International Sunport, *existing* traffic counts (2008) were found to be greater than *future* forecasts (2030). After review and discussion with a representative from MRCOG, it was concluded that the airport itself is a major traffic generator, and the area in the immediate vicinity of the airport is subject to different traffic growth patterns than those typically represented by the MRCOG model, which is based on general area population and employment growth. The modeled volumes in the vicinity of the interchange were then overridden with manual adjustments made as seen in Appendix D. These adjustments were generally based on extrapolation of the most recent traffic count data to 2030, using the growth rates observed between the 2006 and 2030 travel demand model forecasts. However, there were exceptions to this approach as well.

As a point of comparison and correlation with airport planning, the Albuquerque International Sunport, *Airport Master Plan*, 2001, was consulted relative to airport use and traffic, specifically in the form of enplanements forecast. This Master Plan included "planning horizon milestones of passenger traffic at Albuquerque International Sunport". These milestones, developed in 2001, included a Short Term projection of 12,500 enplanements for the "Design Day", an Intermediate projection of 15,000 enplanements for the Design Day, and 22,700 enplanements for the Long Range Design Day forecast. With a significant percentage of this traffic entering the Sunport via the I-25 / Sunport Boulevard Interchange, these projections correlate reasonably

well with the manual adjustments described in the paragraph above and shown in Tables 4-1 and 4-2 below.

For the "No-Build" scenario, the MTP transportation network and traffic forecast had to be altered to remove Sunport Boulevard from the future scenario. In the case of the No-Build, there would be no future extension of Sunport Blvd, and area traffic would have to seek and use other area roadways. That scenario has also been modeled by MRCOG, specifically for this project, with modeling results (and with certain data adjusted as described above) shown in Table 4-1 below and illustrated on Figure 4-1 following. Figure 4-1 depicts 2030 daily traffic volumes for the No-Build Scenario; Figure 4-2 following depicts 2030 AM and PM peak hour traffic volumes for the No-Build Scenario.

It should be noted that both the No-Build and Build scenarios include a frontage road planned on the east side of I-25, connecting Sunport Boulevard to Gibson Boulevard. This frontage road has been included in the 2030 MTP and in travel demand modeling as performed by MRCOG. The location and means of connection of this frontage road to Sunport Boulevard could affect intersection operations on Sunport. For purposes of this Study, the frontage road has been assumed to be a one-way northbound frontage road, with a "slip ramp" connection diverging from the northbound on-ramp to I-25, thus not having a significant affect on traffic operations on Sunport Boulevard or the intersection of the northbound ramps and Sunport Boulevard.

Table 4-1 Forecast Traffic Volumes (2030) No-Build Scenario

Roadway Segment	Traffic Volume ADT (vpd)		Traffic Volume AM Peak Hr (vph)	Traffic Volume PM Peak Hr (vhp)
	Directional	Total	Directional	Directional
Sunport Blvd. (East of I-25)	EB 18,400 WB 21,972	40,372	EB 3,029 WB 504	EB 1,123 WB 3,362
Sunport Blvd. (West of I-25)	0	0	0	0
Sunport / I-25 NB On Ramp	NB 15,900	15,900	NB 490	NB 2,740
Sunport / I-25 NB Off Ramp	NB 4,248	4,248	NB 860	NB 294
Sunport / I-25 SB On Ramp	SB 6,750	6,750	SB 125	SB 960
Sunport / I-25 SB Off Ramp	SB 17,200	17,200	SB 1,892	SB 941
Broadway North of Woodward	NB 12,498 SB 12,306	24,804	NB 1,596 SB 612	NB 1,013 SB 1,620
Broadway South of Woodward	NB 7,786 SB 7,243	15,029	NB 1,430 SB 288	NB 667 SB 1,386
Woodward West of Broadway	EB 6,107 WB 6,494	12,601	EB 403 WB 443	EB 538 WB 519
Gibson, Broadway to I-25	EB 15,205 WB 16,266	31,471	EB 1,517 WB 935	EB 1,217 WB 1,671
Rio Bravo, Broadway to I-25	EB 21,000 WB 21,065	42,065	EB 2,148 WB 1,265	EB 1,455 WB 1,987

Figure 4.1 Traffic Volumes 2030 No Build Daily

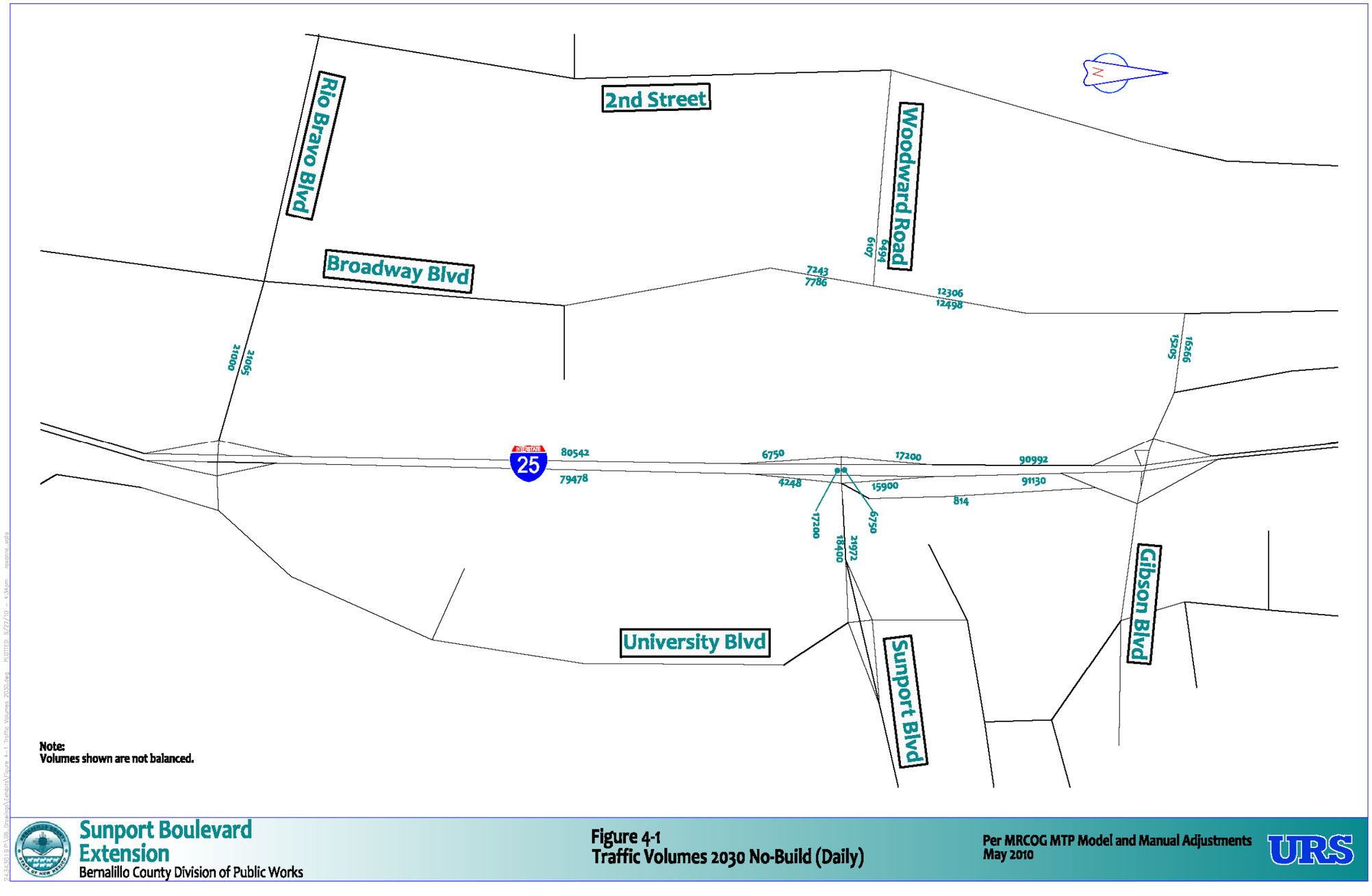
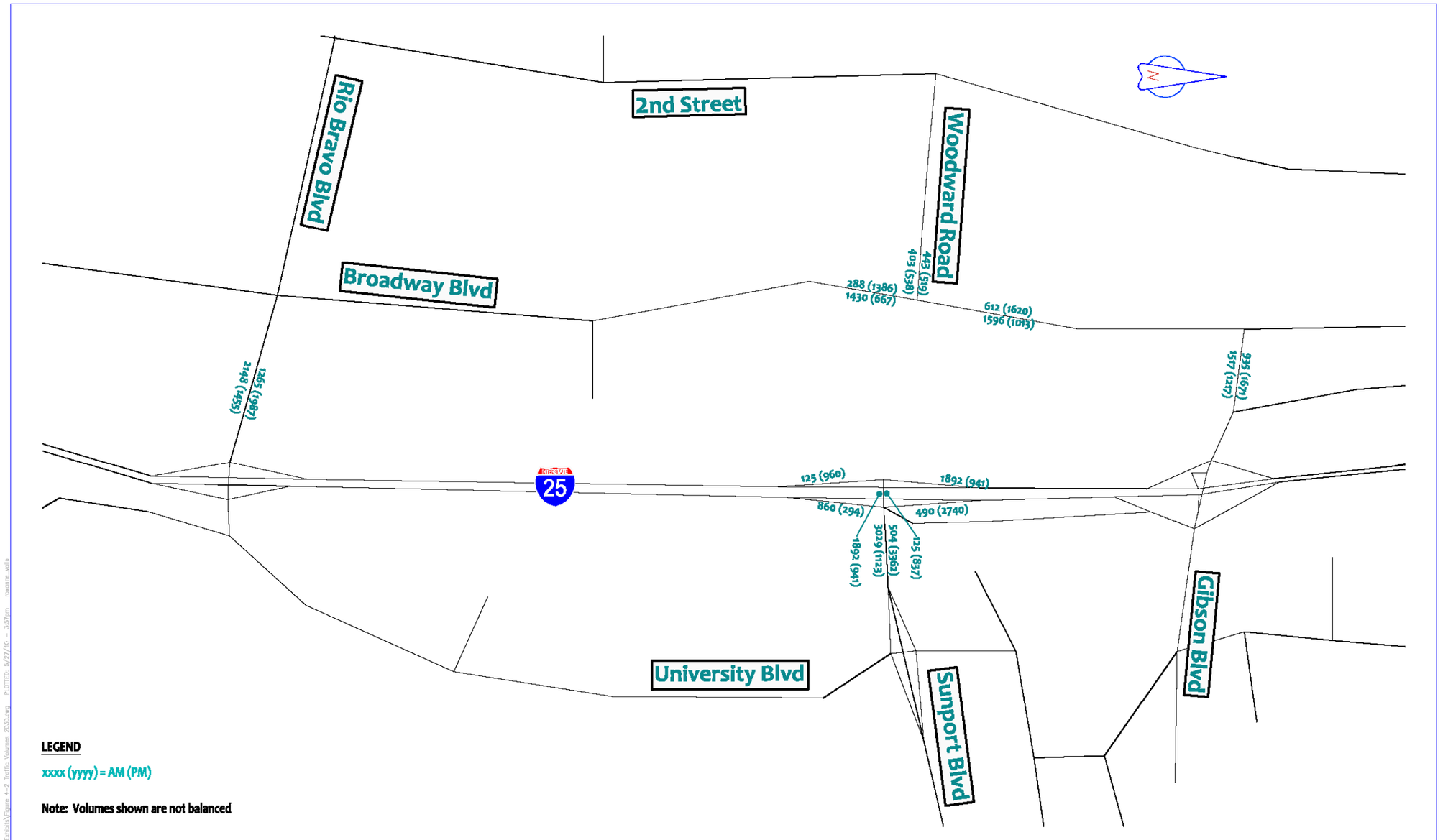


Figure 4.2 Traffic Volumes 2030 No Build AM/PM Peak



Future forecast traffic volumes for the Build scenario represent Sunport Boulevard between Broadway and I-25 in place as a key part of the Study Area's and region's transportation network. Similar adjustments were made to MRCOG's Build scenario modeling results, as were applied to the No-Build scenario. The 2030 Build traffic volumes are shown in Table 4-2 below and are illustrated on Figure 4-3 following. Figure 4-3 depicts 2030 daily traffic volumes for the Build Scenario; Figure 4-4 following depicts 2030 AM and PM peak hour traffic volumes for the Build Scenario.

The Build Scenario has been depicted in travel demand modeling output as Alternative A (described in Section 6), connecting to Broadway at Woodward Road. Other connections to Broadway, as would occur with Alternatives D or H (refer to Section 6) would result in somewhat different traffic assignment on Woodward, Broadway and on Sunport itself, but have been assumed to be in the same order of magnitude, and effectively the same, for future volume forecasts in this analysis. No travel demand modeling has been performed specifically for Alternatives D or H.

Table 4-2 Forecast Traffic Volumes (2030) Build Scenario

Roadway Segment	Traffic Volume ADT (vpd) Directional	Traffic Volume ADT (vpd) Total	Traffic Volume AM Peak Hr (vph) Directional	Traffic Volume PM Peak Hr (vph) Directional
Sunport Blvd. (East of I-25)	EB 20,400 WB 23,700	44,100	EB 2,923 WB 613	EB 1,568 WB 2,844
Sunport Blvd. (West of I-25)	EB 11,224 WB 9,747	20,971	EB 1,070 WB 397	EB 876 WB 875
Sunport / I-25 NB On Ramp	NB 19,200	19,200	NB 811	NB 1,828
Sunport / I-25 NB Off Ramp	NB 6,000	6,000	NB 1,074	NB 322
Sunport / I-25 SB On Ramp	SB 4,653	4,653	SB 143	SB 837
Sunport / I-25 SB Off Ramp	SB 18,063	18,063	SB 1,790	SB 1,053
Broadway North of Woodward	NB 5,995 SB 6,479	12,474	NB 1,080 SB 353	NB 549 SB 1,269
Broadway South of Woodward	NB 10,329 SB 9,407	19,736	NB 1,553 SB 296	NB 891 SB 1,559
Woodward West of Broadway	EB 8,000 WB 8,000	16,000	EB 731 WB 492	EB 607 WB 736
Gibson, Broadway to I-25	EB 9,421 WB 10,844	20,265	EB 1,121 WB 683	EB 828 WB 1,427
Rio Bravo, Broadway to I-25	EB 18,135 WB 19,000	37,135	EB 1,966 WB 1,235	EB 1,258 WB 1,803

Figure 4.3 Traffic Volumes 2030 Build (Daily)

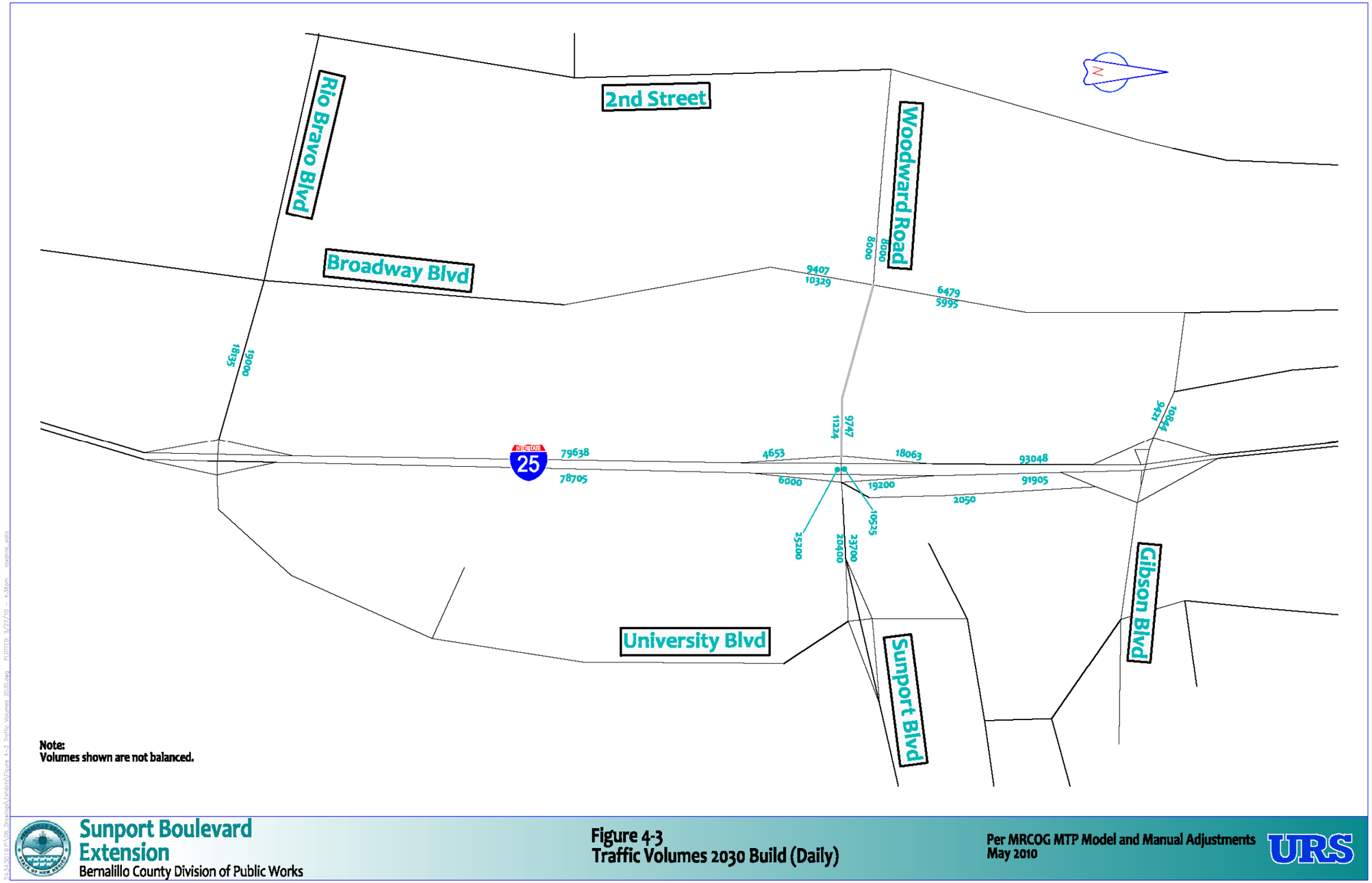
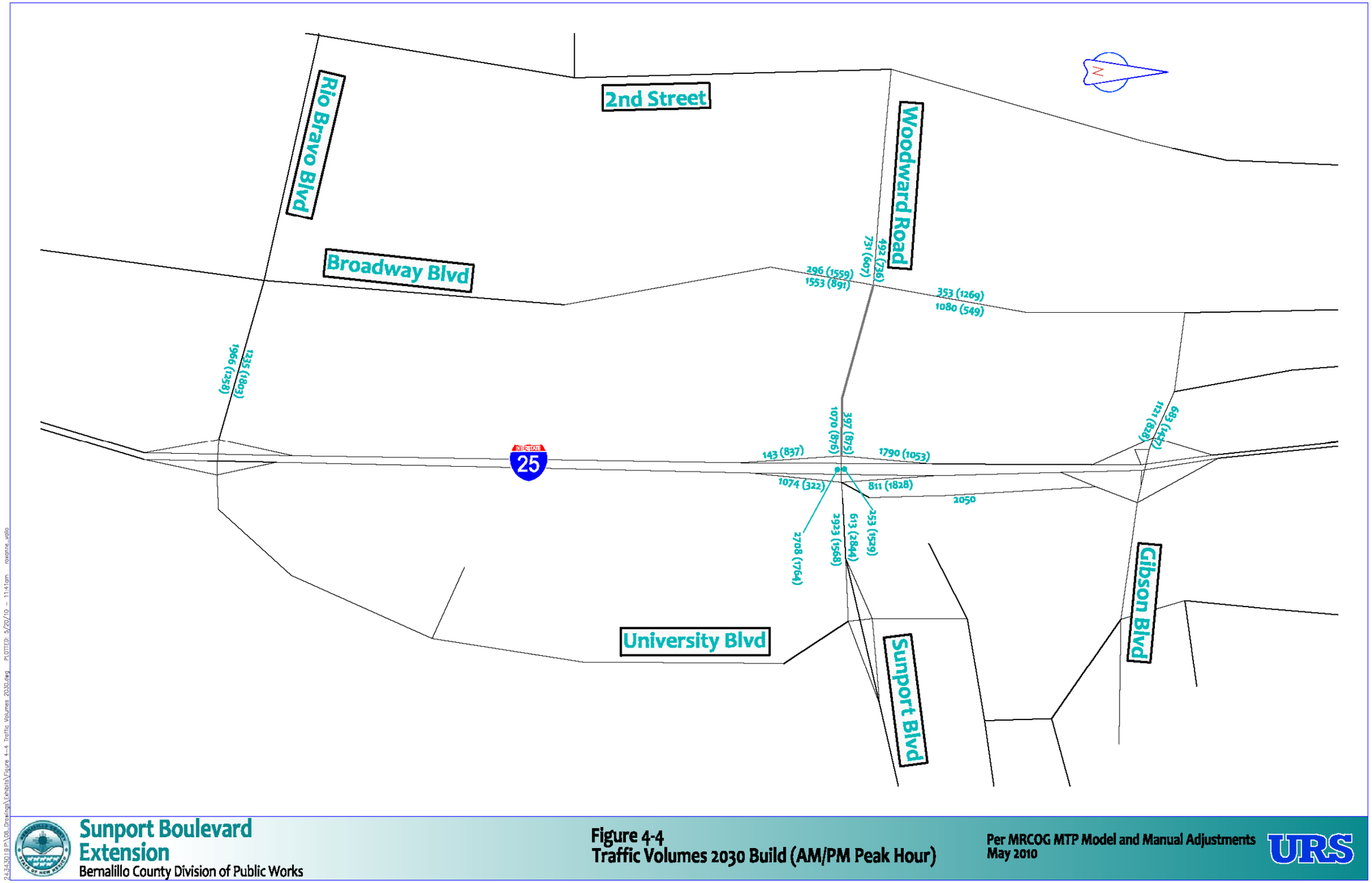


Figure 4.4 Traffic Volumes 2030 Build (AM/PM Peak)



4.2. TRAFFIC OPERATIONS FOR 2030 NO BUILD

The No-Build Scenario includes traffic growth as forecast for 2030, and intersection configuration as currently exists with no changes to the existing roadway geometry for Sunport Boulevard and the I-25 ramps. With the growth in traffic volumes, the warrant for a traffic signal is assumed to be satisfied, and installation of traffic signals at both ramp terminal intersections with Sunport Boulevard have been included. At the west side ramps, a two-phase signal operation is planned, with a separate phase for each operation, southbound to eastbound and westbound to southbound.

Table 4-3 Intersection Level of Service and Delay (2030) No-Build

Intersection	Level of Service AM Peak Hour	Delay AM Peak Hour (seconds)	Level of Service PM Peak Hour	Delay PM Peak Hour (seconds)
Sunport / I-25 East Ramp Terminal	A	1.5	B	11.9
Sunport I-25 West Ramp Terminal	B	15.5	D	37.1
Broadway / Woodward	C	26.0	C	31.3

4.3. TRAFFIC OPERATIONS FOR 2030 BUILD SCENARIO

The Build Scenario includes Sunport Boulevard between Broadway and I-25 as a four lane median divided urban arterial roadway connecting directly to the existing Sunport Boulevard at the I-25 overpass. The most significant change associated with the introduction of the added roadway segment is the need for additional phases of the traffic signal operation at the west side ramps. With the No-Build scenario, two phases of signal operation are adequate at the west side ramp intersection; with the added segment of Sunport Boulevard, a multi-phase operation is needed at this intersection. The addition of other phases, and the introduction of significantly more traffic into the intersections at the I-25 ramps exacerbates the conflicts and balancing that is necessary to arrive at acceptable operations for the intersections.

Table 4-4 Intersection Level of Service and Delay (2030) Build

Intersection	Level of Service AM Peak Hour	Delay AM Peak Hour (seconds)	Level of Service PM Peak Hour	Delay PM Peak Hour (seconds)
Sunport / I-25 East Ramp Terminal	A	5.4	B	18.9
Sunport I-25 West Ramp Terminal	C	30.9	C	21.8
Sunport / Woodward / Broadway	C	32.3	C	22.8

As would be expected, the Build Scenario does result in traffic operations with lower levels of service at the Sunport Boulevard intersections than would occur in the No-Build scenario, however, it is expected that the intersections and operations on Gibson Boulevard between

Broadway and I-25, and to a lesser extent on Rio Bravo Boulevard, are improved with the reduction in traffic on those arterials roadways.

4.4. MULTI-MODAL FACILITIES

4.4.1. Bicycle Facilities

Bicycle and pedestrian facility planning has been performed in the Study Area by MRCOG. The *Bicycle and Pedestrian Projects* map and the *Long Range Bikeway System* map prepared by MRCOG both depict bicycle facilities in the project Study Area that are relevant to project planning. Figure 4-5 following contains an enlarged excerpt of MRCOG's Long Range Bikeway System map highlighting the project Study Area. On the west side of I-25, future bicycle facilities are shown on the *Long Range Bikeway System* map as follows:

- Future bicycle lanes are shown along Broadway Boulevard extending from the Albuquerque City Limits (coinciding approximately with the west terminus of Alternative D shown in Section 6 this report) north to Gibson Boulevard.
- A "Bicycle Corridor" is depicted along the general alignment of Sunport Boulevard from Broadway to I-25
- A Proposed Trail is conceptually symbolized along the South Diversion Channel crossing I-25 south of Sunport Boulevard and extending along and on the east side of I-25 north to what is signed as Transport Street, north of Sunport Blvd and west of University Boulevard.

On the east side of I-25, more immediate future bicycle facilities are shown on the *Bicycle and Pedestrian Projects* map. The following bicycle facility is shown:

- A "Publicly Funded Bike or Pedestrian project" on University Boulevard from Gibson Boulevard south to Rio Bravo Boulevard.

In order to fulfill at least a portion of the planning indicated with the above mentioned Bicycle Corridor designation across I-25 and other projects, bike lanes are proposed to be included as a key component of the Sunport Boulevard roadway cross section, and that of the Woodward Road cross section. Five foot bike lanes in each direction, eastbound and westbound, exclusive of the roadway gutter pan, are proposed to provide a link via Sunport Boulevard and a necessary connection for bicyclists traveling along the Woodward Road and Broadway Boulevard corridors west of I-25 with the University Boulevard corridor east of I-25. These five foot bike lanes are depicted on Figure 6-1 in a following section of this report.

The provision of bike lanes on Sunport Boulevard will be effective as part of the larger bicycle system with a link into University Boulevard, connecting with the future project identified above. The bike lanes proposed on Sunport Boulevard west of I-25 will connect with the existing wide shoulders on the Sunport Boulevard overpass bridge at the I-25 Interchange; the proposed six foot wide shoulders (in the future roadway configuration) are shown in Figure 6-2. Sunport Boulevard east of I-25 also has wide shoulders (10-12 feet) which can accommodate bike traffic, although modification to the traffic island in the southeast quadrant of the intersection at the northbound off-ramp terminal will be necessary to carry the wide shoulder through the island area. Bike traffic will therefore utilize the new Sunport Boulevard bike lanes from Broadway to I-25, and can then utilize the wide shoulders along Sunport Boulevard from I-

25 to the University Boulevard ramps. Existing wide shoulders continue along the ramps to and from University, terminating approximately 100 feet from University Boulevard where sidewalk begins along the eastbound off-ramp, and where curb and gutter begins along the westbound on-ramp. Modifications of these transition areas will be necessary in the future for full implementation of the bike lanes, however, this work would be considered as part of the University Boulevard Bike project mentioned above. To summarize, good on-street bicycle facilities can be provided from Broadway Boulevard to University Boulevard with the inclusion of bike lanes on the new portion of Sunport Boulevard, and with use of the existing wide shoulders along the existing portion of Sunport Boulevard.

The FY 2010 – FY 2015 TIP includes another bike facilities project, identified as CN A300460, with funding in 2012—2014, for reconstruction of a segment of the Bosque del Rio Trail which will include a 400 ft. connection to Woodward Road. Although not currently planned as part of this project, further widening of Woodward Road would be needed in the future to complete the provision of bike lanes between the trail connection and the segment of Woodward Road west of Broadway that will be improved as part of this project.

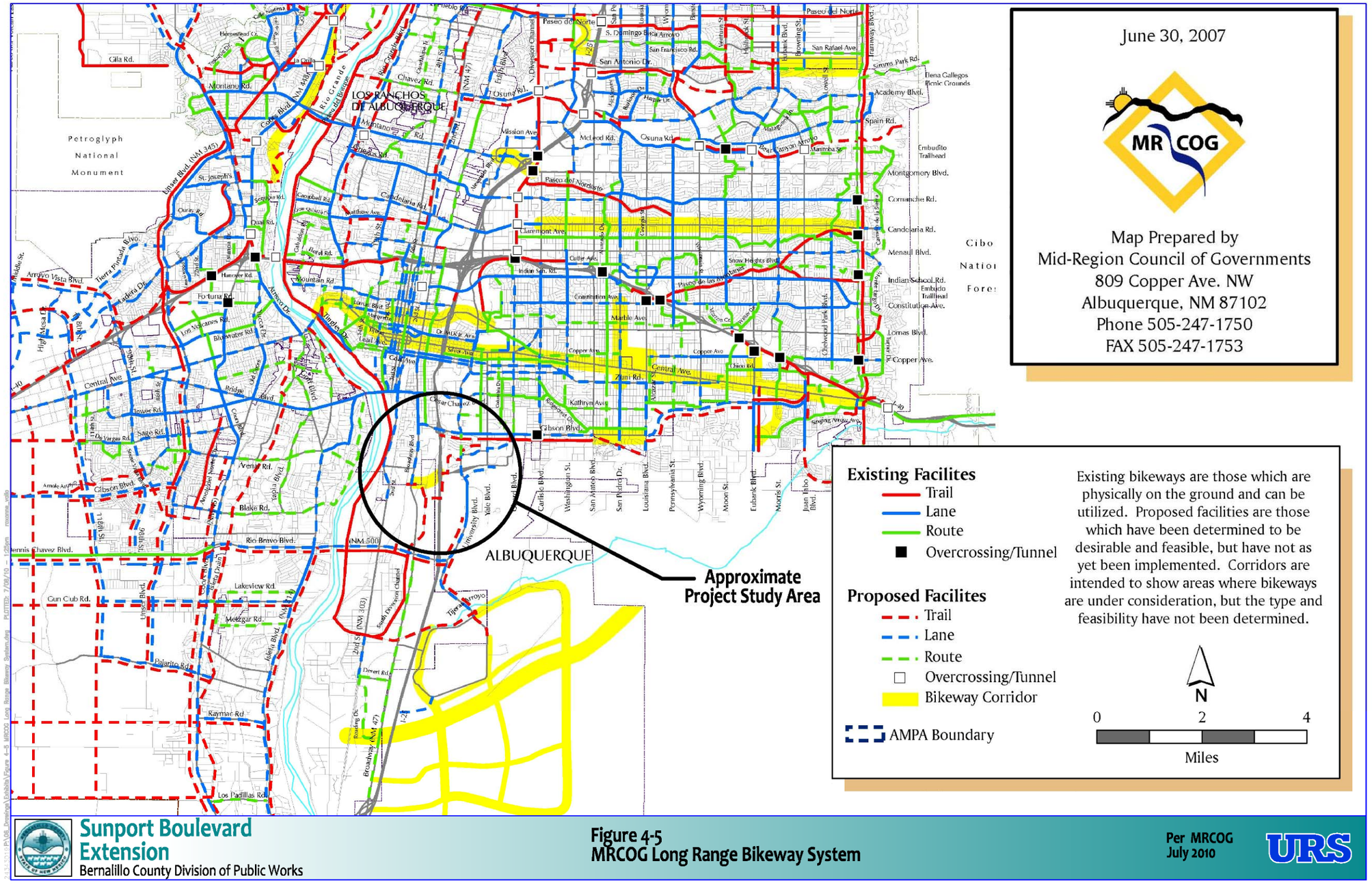
4.4.2. Pedestrian Facilities

Pedestrian traffic is not expected along the Sunport Boulevard corridor. The west terminus area is comprised of industrial land uses; the east terminus consists of the I-25 interchange and the primary access road to the airport. Neither of these is interpreted to be a generator of pedestrian traffic. Therefore, occasional random pedestrian use will be accommodated only on the bicycle lanes or on the graded areas adjacent to and outside of the roadway curb and gutter. Sidewalks will be included on the bridge structures only to provide for a safe means of crossing the bridges by a motorist who may be experiencing vehicle problems or by the random pedestrian that may be present. Otherwise, sidewalks are not planned nor proposed as part of this project.

4.4.3. Transit Facilities

A transit connection analysis and report will be prepared for this project under the subsequent preliminary engineering phase of work. Refer to this report for greater detail on existing transit service and facilities in the vicinity of the Study Area, and for recommendations regarding future alternatives for a connection between the NMRRX and the airport, and future transit services.

Figure 4.5 MRCOG Long Range Bikeway System



5. PROJECT PURPOSE AND NEED

5.1. CONGESTION RELIEF

Travel demand modeling has been completed (by MRCOG) comparing the No-Build and Build scenarios for Sunport Boulevard. Results of this modeling have been presented in the preceding Section 4 of this report. In addition, Table 5-1 below contains data extracted from the tables in Section 4, and provides a comparison of No-Build vs. Build volumes for a select few key locations.

Table 5-1 Comparison of Forecast 2030 Traffic—No-Build vs. Build Scenarios

Roadway Segment	No-Build Scenario Forecast Traffic Total ADT (2030) vpd	Build Scenario Forecast Traffic Total ADT (2030) vpd	Comparative Difference in Volume with Build Scenario	Comments
Sunport, Broadway to I-25	0	20,971	Increase by 20,971	New roadway attracts traffic
Gibson, Broadway to I-25	31,471	20,265	Decrease by 11,206	Traffic shifted from Gibson (36%)
Broadway, north of Sunport / Woodward	24,804	12,474	Decrease by 12,330	Traffic bound for Gibson shifted (50%)
Broadway, south Sunport / Woodward	15,029	19,736	Increase by 4,707	Traffic bound for new Sunport Blvd. (31%)
Rio Bravo, Broadway to I-25	42,065	37,135	Decrease by 4,930	Traffic shifted from Rio Bravo (12%)

The roadways that experience the greatest change in forecast volume are, as would be expected, the east-west roadways: Sunport Boulevard itself, Gibson Boulevard and Rio Bravo Boulevard. Sunport Boulevard is forecast to carry over 21,000 vehicles per day by 2030; these vehicles have been diverted from use of Gibson (with 36% of the traffic diverted) and Rio Bravo (with 12% of the traffic diverted). Broadway also experiences significant changes, with an increase in the segment south of Sunport Boulevard (31% increase), with traffic bound for use of Sunport Boulevard, and a decrease north of Sunport Boulevard (50%), with the shifting of traffic onto Sunport Boulevard that would have otherwise been bound for Gibson if Sunport Boulevard did not exist. So, in effect, the construction and use of Sunport Boulevard greatly improves the future *available* capacity of Gibson, and to a lesser degree, Rio Bravo. As stated in the NMDOT's *Revised Detailed Transportation Needs Analysis and Recommendations Report* from the"Interstate 25 South Corridor Study Isleta Boulevard to Interstate 40", both Gibson and Rio Bravo are, or will be, six lanes each, within developed corridors, and with little space to expand

and add capacity. The addition of Sunport Boulevard provides significant congestion relief to the area's primary arterials streets.

5.2. SYSTEM CONTINUITY

Sunport Boulevard was originally conceived as a primary access route that would lead from Broadway Boulevard (and even 2nd Street) to the Albuquerque International Airport, the Sunport. As documented in Section 2.3 Project History, a "multi-lane, east/west arterial street (Sunport) connecting from the interchange west to 2nd Street and east to Yale Boulevard" was the original planning objective. Sunport Boulevard, as presently exists, does serve as the primary access to the Sunport, but from I-25 only, with no connection designed or constructed west of I-25. With Broadway as a primary arterial serving major north-south traffic throughout the Albuquerque metropolitan area, and with Broadway only a half mile west of I-25, the lack of a Sunport Boulevard link between Broadway and I-25 is an obvious gap in the present transportation system. Continuation of the present transportation system, extending Sunport Boulevard west from I-25 to Broadway, is necessary to close that gap.

5.3. NETWORK CONNECTIVITY

The transportation network in the South Valley and Mountain View areas of Bernalillo County is comprised primarily of a set of primary arterial streets that serve north-south traffic movements, such as 2nd Street and Broadway (and to the east of I-25, University Boulevard). In the east-west direction, the network also consists of a set of primary arterial streets, including Rio Bravo Boulevard and Gibson Boulevard. The distance from Rio Bravo Boulevard to Gibson Boulevard, along the Broadway alignment, is approximately 2.5 miles. The projected westerly alignment of Sunport Boulevard would be approximately1.5 miles north of Rio Bravo or 1.0 miles south of Gibson Boulevard, depending on the specific alignment selected. Sunport Boulevard therefore provides an important element of the area's transportation network, completing and connecting other primary elements of the network in a reasonably spaced general grid pattern.

6. ALTERNATIVES CONSIDERED

6.1. ROADWAY TYPICAL SECTION

In order to address the previously identified Purpose and Need for the project, a new roadway linking Broadway and I-25 is required. The Build Scenario discussed in Section 4 of this report includes Sunport Boulevard between Broadway and I-25 as a four lane median divided urban arterial roadway. The determination of the new roadway typical section is fairly straightforward with respect to the major details, i.e. number of lanes, typical section type and multi-modal facilities. The forecast traffic volume for 2030 is approximately 21,000 vehicles per day, as shown in Table 4-2; the maximum capacity of a two lane roadway is generally 12,000 to 14,000 vehicles per day, so the forecast volume exceeds the capacity of a two lane roadway. For a multi-lane roadway, a four lane roadway can typically accommodate up to 40,000 vehicles per day before traffic operations deteriorate excessively. Therefore, there is a clear need for a four lane roadway section to meet forecast traffic volume needs.

In addition to the general volume / capacity and laneage needs, another capacity concern is also present, since the new roadway will be on a steep grade between Broadway and I-25. As described in Section 3.1.1 previously, there is an approximate 120 ft. elevation difference between Sunport Boulevard over I-25 and the intersection of Broadway at Woodward Road, a distance of just under a half mile. With this elevation differential, a fairly steep grade is required on the new roadway. Taking into account landing grades at either end of the roadway segment, a grade of 7% is necessary for two of the alignment alternatives that have been considered (as described in more detail in the subsections below). With use of this relatively steep grade, and with the termini of this roadway within an industrial area and at an interstate highway where a fairly high volume of truck traffic is anticipated, a truck climbing lane was considered. (Refer to Appendix G for the capacity analyses performed with regards to the climbing lane.) After further analysis of the capacity results, the conclusion was reached that no climbing lane is warranted, since the roadway volume is expected to be adequately accommodated by the two eastbound (uphill) lanes, allowing ample room for both slow moving trucks in the outside lane, while also accommodating passenger cars and faster vehicles in the inside lane.

The location of this project is on the current fringe of the Albuquerque urban area, and the roadway in question can be considered as either a primary or at least as a minor arterial in terms of function, and with consideration of the need to carry storm drainage on the roadway, avoiding runoff over erosive side slopes, an urban type roadway section is clearly warranted. An urban roadway section will include a raised median to allow space for left turn bays, and curb and gutter along with a storm drainage system, to collect storm runoff and direct its outfall to a designated location.

Based on the above considerations, the extension of Sunport Boulevard between I-25 and Broadway will consist of a four lane urban arterial roadway section. Figures 6-1 and 6-2 following illustrate the proposed roadway typical section. Figure 6-1 depicts the roadway constructed on an embankment section and on a retaining wall section, with the need for retaining walls to be determined as a function of height of fill, bridge proximity, and availability of right of way. Figure 6-2 depicts two bridge sections, one section carrying Sunport Boulevard over I-25 on an existing bridge, and the other carrying Sunport Boulevard over Edmunds Street and the South Diversion Channel on a new set of bridges, one for each direction of traffic flow.

Figure 6.1 Sunport Boulevard Typical Sections - Roadways

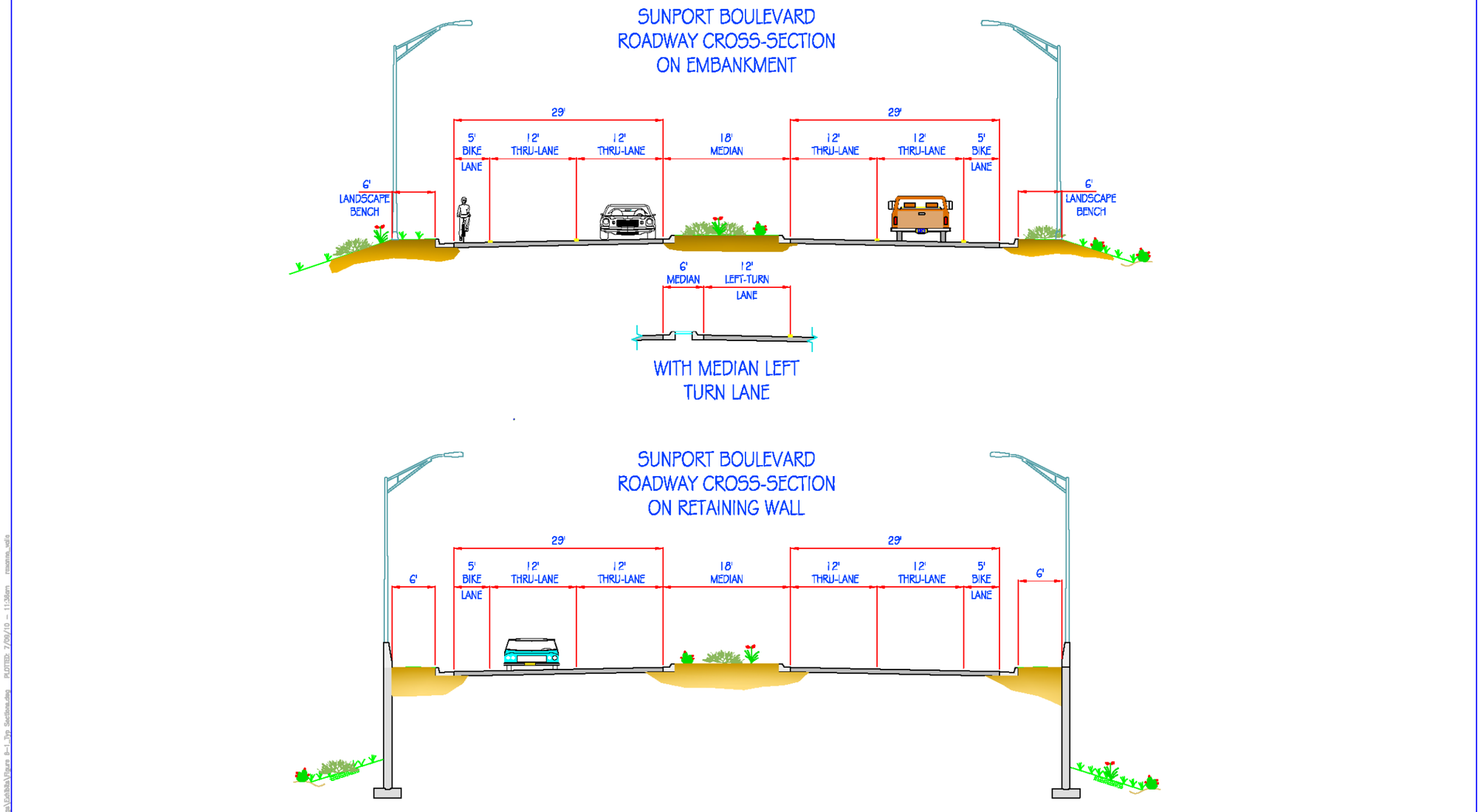


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Figure 6-1
Sunport Boulevard Roadway Cross Sections

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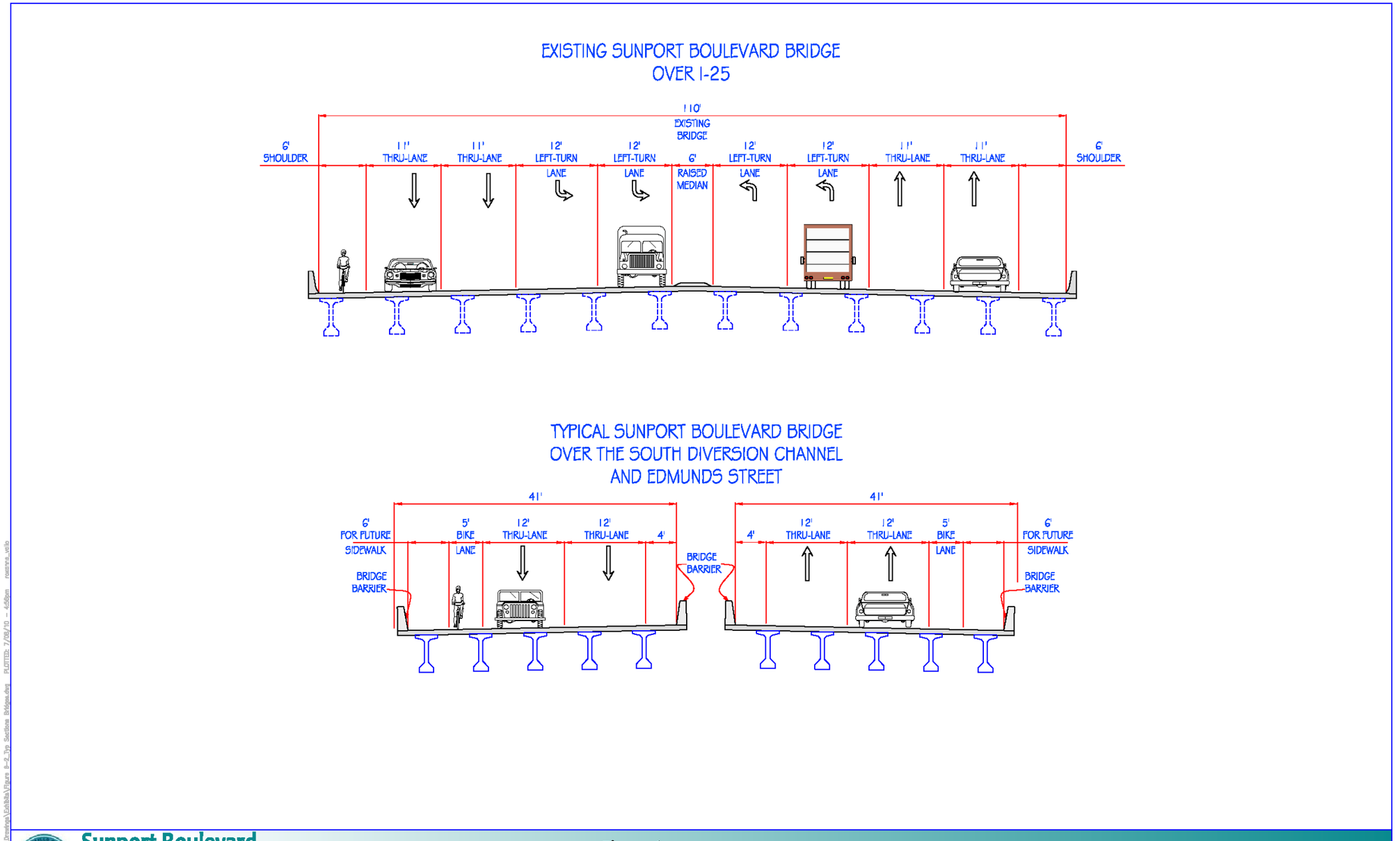
Figure 6.2 Sunport Boulevard Typical Sections - Bridges



Sunport Boulevard Extension
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Figure 6-2
Sunport Boulevard Roadway Cross Sections (Bridges)

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The existing bridge over I-25 was constructed in 1996 with 110 feet of available roadway width, providing adequate width for the traffic forecast for 2030 under this present project. With the 110 feet, two through lanes will be provided in each direction, as well as two left turn lanes in each direction, and bike lanes in each direction. In order to accommodate all of the present and future roadway needs, some of the lane widths will be 11 feet as shown in the figure. With this proposed section and lane widths, no widening of this bridge is necessary.

6.2. HISTORICAL ALTERNATIVES

Two alignment alternatives were identified in original planning documents prepared in the period from 1989 to 1991, including the Detailed Evaluation of Alternatives report and the Environmental Assessment. The following are the actual descriptions of these two alternatives as excerpted from the EA.

"Alternative D West—Build New Roadway from Broadway Boulevard (at Stock Drive) to I-25

Alternative D West begins at an at-grade intersection with Broadway Boulevard on the south side of the Chevron Pipeline Division property, 3200 Broadway, SE. The first segment of the alignment is coincident with Stock Drive and parallels an AT&SF spur for 200 feet before crossing at grade, another spur owned by Chevron. An at-grade intersection is proposed to connect with a re-alignment of Arno Street approximately one-quarter mile east of Broadway, in order to provide access to otherwise landlocked businesses and properties south of Stock Drive. The alignment undergoes a reverse curve to the northeast and must bridge both the AMAFCA South Diversion Channel (at a 45 degree skew) and Edmunds Street before connecting to the proposed new interchange at I-25, approximately 4,300 feet south of Gibson Boulevard."

"Alternative H West—Build New Roadway from Broadway Boulevard (at Gorham Avenue) to I-25

Alternative H West begins at an at-grade intersection with Broadway Boulevard just north of a Bernalillo County maintenance yard at a 400-ft long dead-end street named Gorham Avenue. For the sake of comparison, this beginning point is 1,400 feet south of the D West intersection with Broadway. The alignment crosses two sets of tracks, one for the Sandia Base spur and one for the Kirtland spur which must be adjusted approximately five feet upward and five feet downward, respectively, to accommodate an at-grade crossing of the roadway. An at-grade intersection is proposed to connect with Stock Drive, approximately one-quarter mile east of Broadway, in order to provide access to otherwise landlocked businesses and properties south of Stock Drive. The alignment undergoes a reverse curve to the northeast and must likewise bridge both the AMAFCA South Diversion Channel (at a 45 degree skew) and Edmunds Street before connecting to the proposed new interchange at I-25, approximately 4,300 feet south of Gibson Boulevard."

The above alternatives have been further developed and included in this report, through conceptual design of horizontal alignments and profile grades, to define the applicable footprint and to determine impacts and feasibility of each alternative. They are identified herein with their original designations—Alternative D and Alternative H.

After review of the detailed horizontal alignment developed for Alternative H, it has become clear that Alternative H presents the most southerly alignment concept that is worthy of any consideration. There is a relatively short distance to be traversed with the various alignments

being considered—the direct distance from Broadway to the existing Sunport Boulevard at I-25, via a direct and straight westerly extension of Sunport Boulevard, is 0.46 mile. The length of Alternative H is 0.71 miles, thus extending the length by over 50%. More importantly, there are physical features to be traversed, with the bridged spanning of AMAFCA's South Diversion Channel, that present constraints and define the limits of feasible vs. infeasible alternatives.

Tables 6-1 and 6-2 below contain the detailed characteristics of Alternatives D and H. These alignments, as well as the new Alternative A are shown in an overview on Figure 6-3. In addition, these alternatives are shown in detail on Figures 6-4a, 6-4b, 6-4c and 6-5a, 6-5b, and 6-5c following. Alternatives D and H have been developed based on present day design approach and with use of current design criteria; the concepts only have been carried forward from the original studies as noted previously.

Table 6-1 Alignment Alternative D Characteristics

Alternative Designation	D
Alternative Description	Connection between Stock Drive at Broadway and existing Sunport at I-25
Length of Roadway Alignment (from CL of Broadway to CL Intersection with I-25 Southbound Ramps)	0.56 miles
Roadway Design Speed	50 mph
Maximum Grade	7.0 % (use of a steeper grade would be necessary to achieve adequate vertical clearance over AMAFCA Service Road as described below)
Minimum Radius / Maximum Superelevation	930 ft. / 0.04 ft. / ft.
Major Structures	450 ft. Bridge over AMAFCA's South Diversion Channel and associated Service Road, with bridge on 57 degree skew 145 ft. Bridge over Edmunds Street if needed for local access and monitoring well avoidance
Railroad Crossings	1 (Chevron Spur RR)
Major Design Issues	Vertical clearance provided over AMAFCA Service Road is 9.3 ft., unacceptable to AMAFCA (minimum required clearance is 12 ft.).

Figure 6.3 Proposed Alternatives Overview

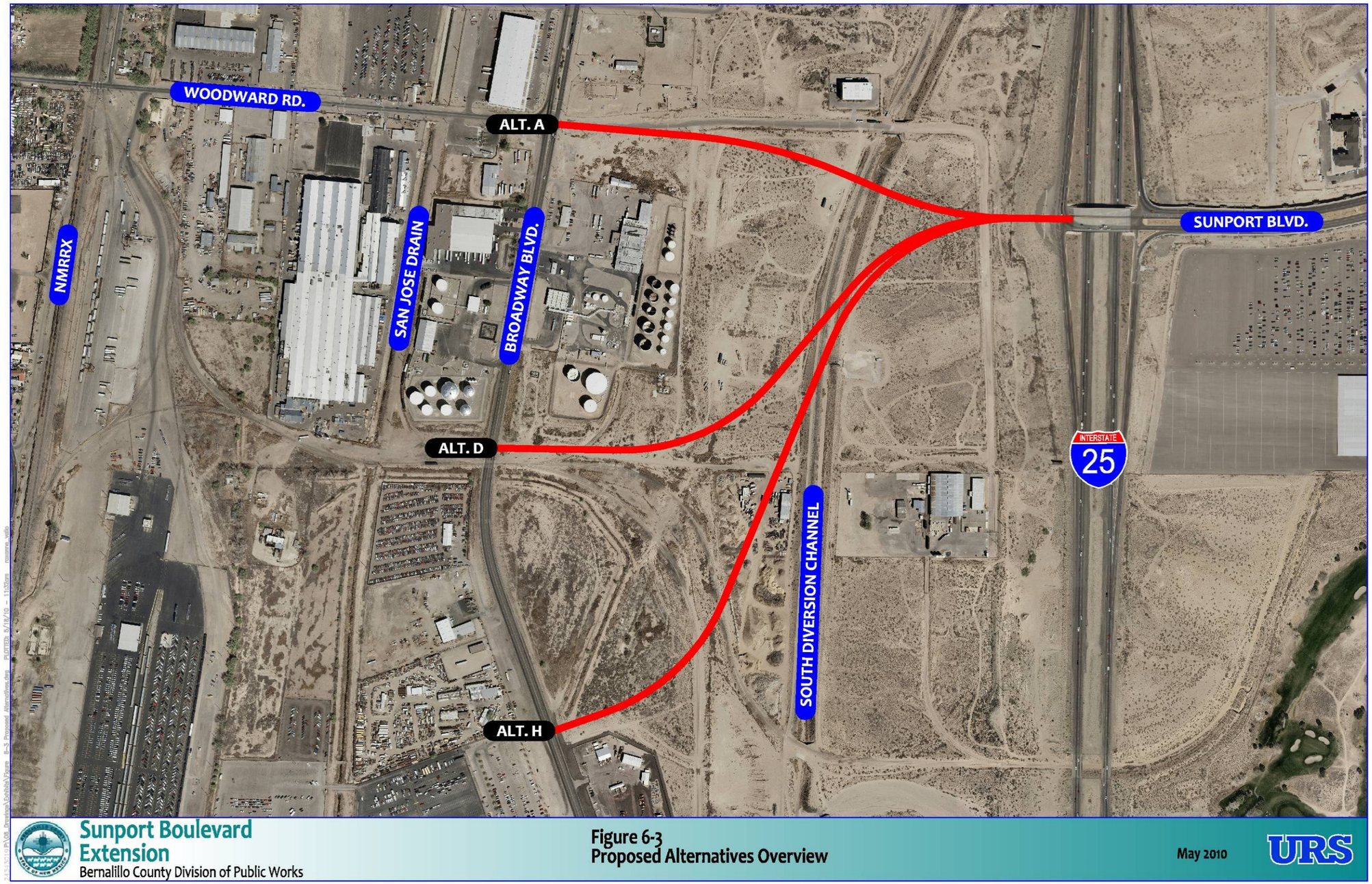

Figure 6.4a Alternative D Plan and Profile

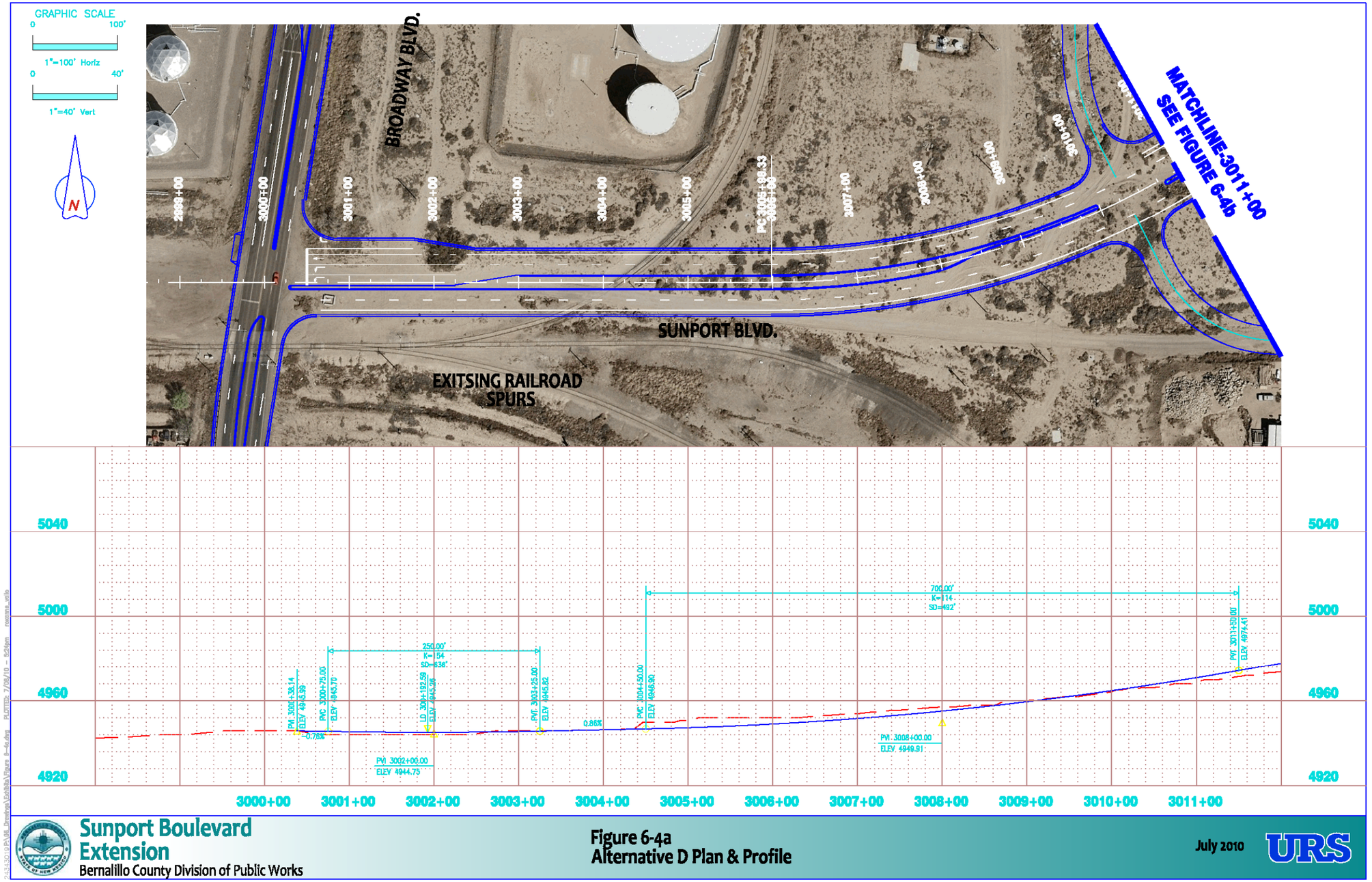

Figure 6-4b Alternative D Plan and Profile (cont.)

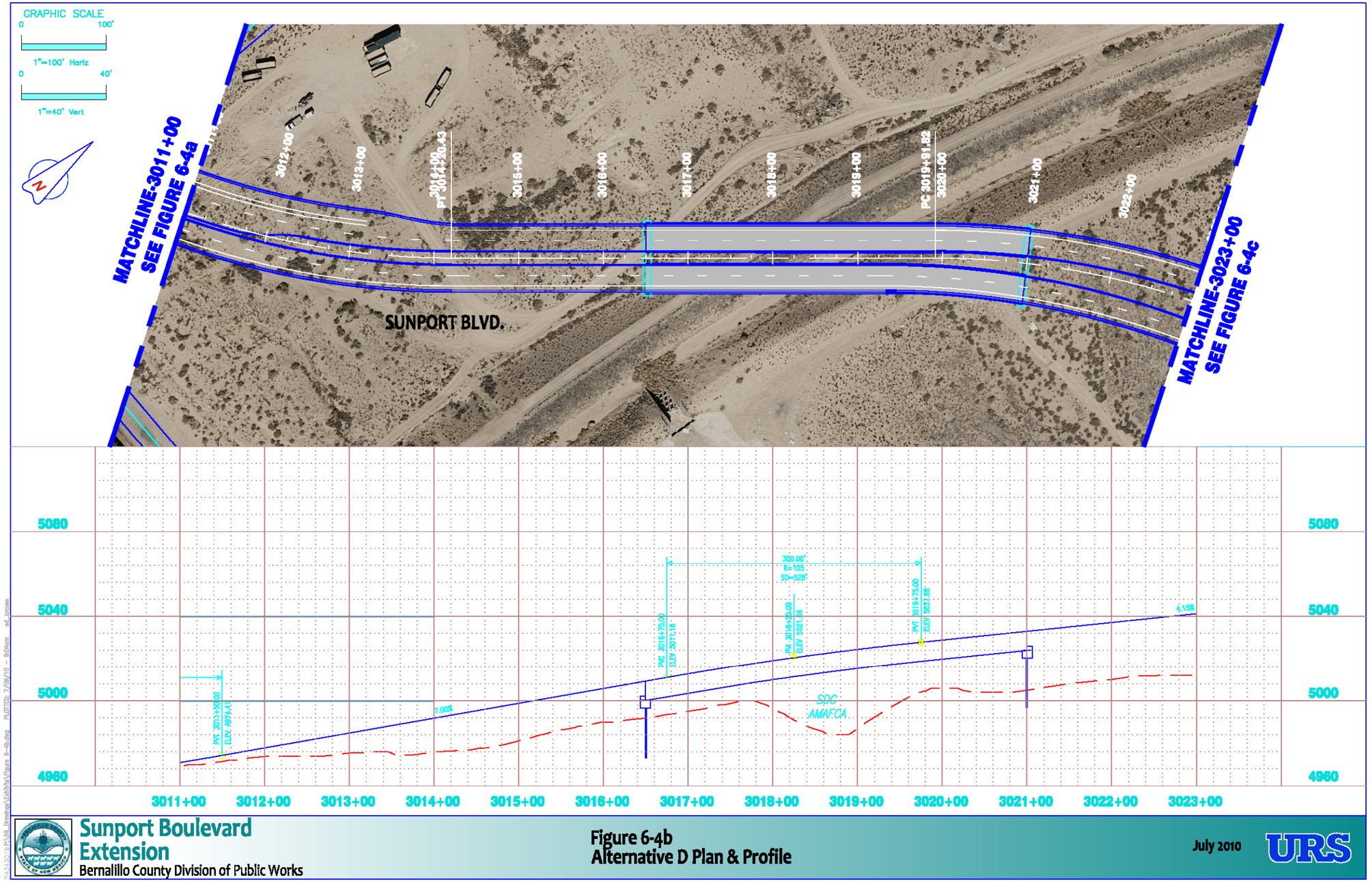

Figure 6-4c Alternative D Plan and Profile (cont.)

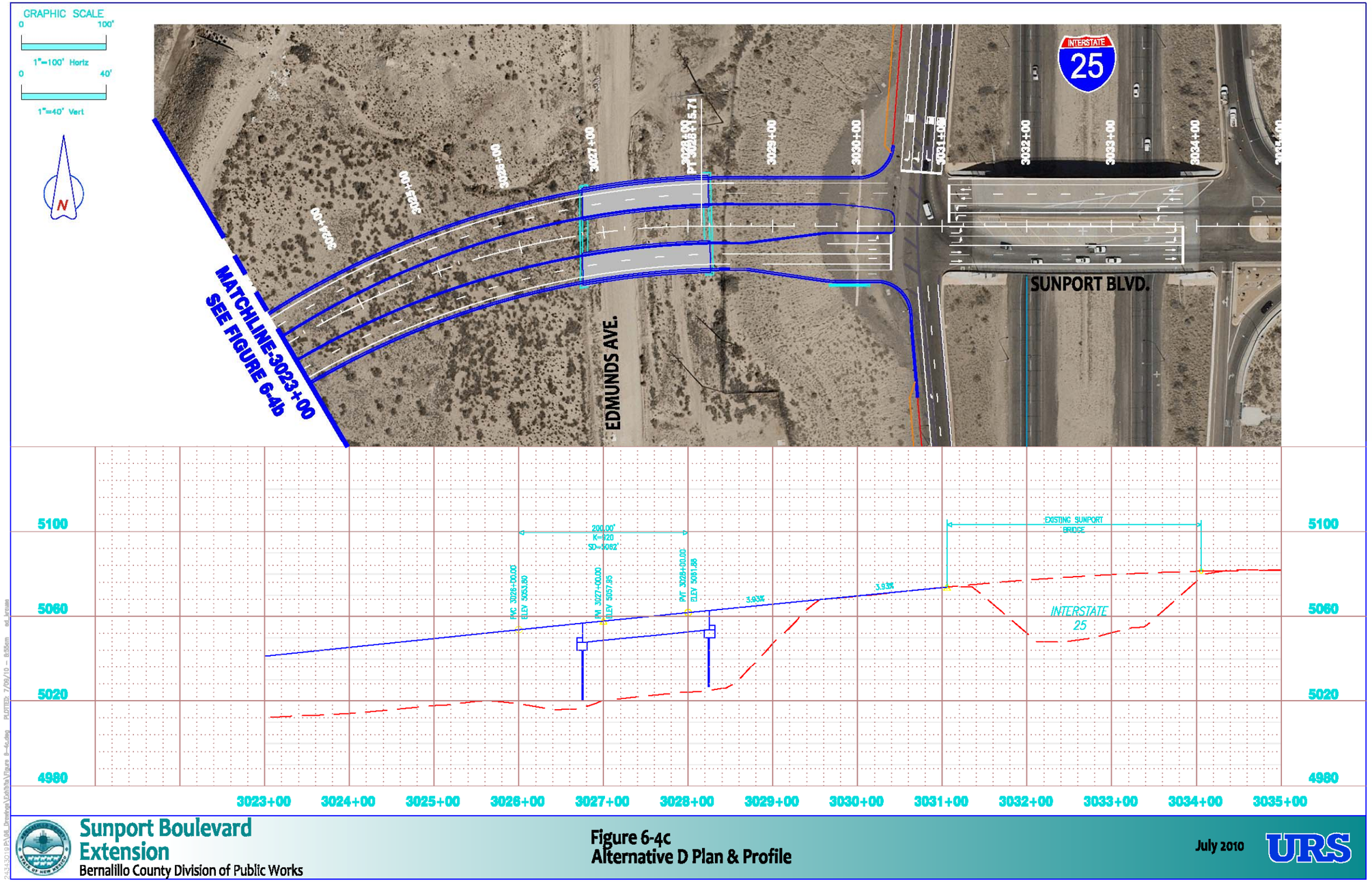

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Figure 6-4c
Alternative D Plan & Profile

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Table 6-2 Alignment Alternative H Characteristics

Alternative Designation	H
Alternative Description	Connection between Gorham Avenue (local drive) and existing Sunport at I-25
Length of Roadway Alignment (from CL of Broadway to CL Intersection with I-25 Southbound Ramps)	0.71 miles
Roadway Design Speed	50 mph
Maximum Grade	4.9 %
Minimum Radius / Maximum Superelevation	930 ft. / 0.04 ft. / ft.
Major Structures	795 ft. Truss Bridge over AMAFCA's South Diversion Channel and associated Service Road, with bridge on 19 degree skew 215 ft. Bridge over Edmunds Street if needed for local access and monitoring well avoidance
Railroad Crossings	1 (Sandia Base Spur RR) 1 (Kirtland AFB Spur RR)
Major Design Issues	Vertical clearance provided over Service Road is 12 ft. or greater, acceptable to AMAFCA. Skew angle for crossing of South Diversion Channel (71 degrees) is infeasible (longer bridge at lesser skew angle would be used) and highly undesirable. Need to raise Sandia Base Spur RR track approximately 5 ft. (although may not be feasible) Need to lower KAFB Spur RR track approximately 5 ft. (although may not be feasible)

Figure 6.5a Alternative H Plan and Profile

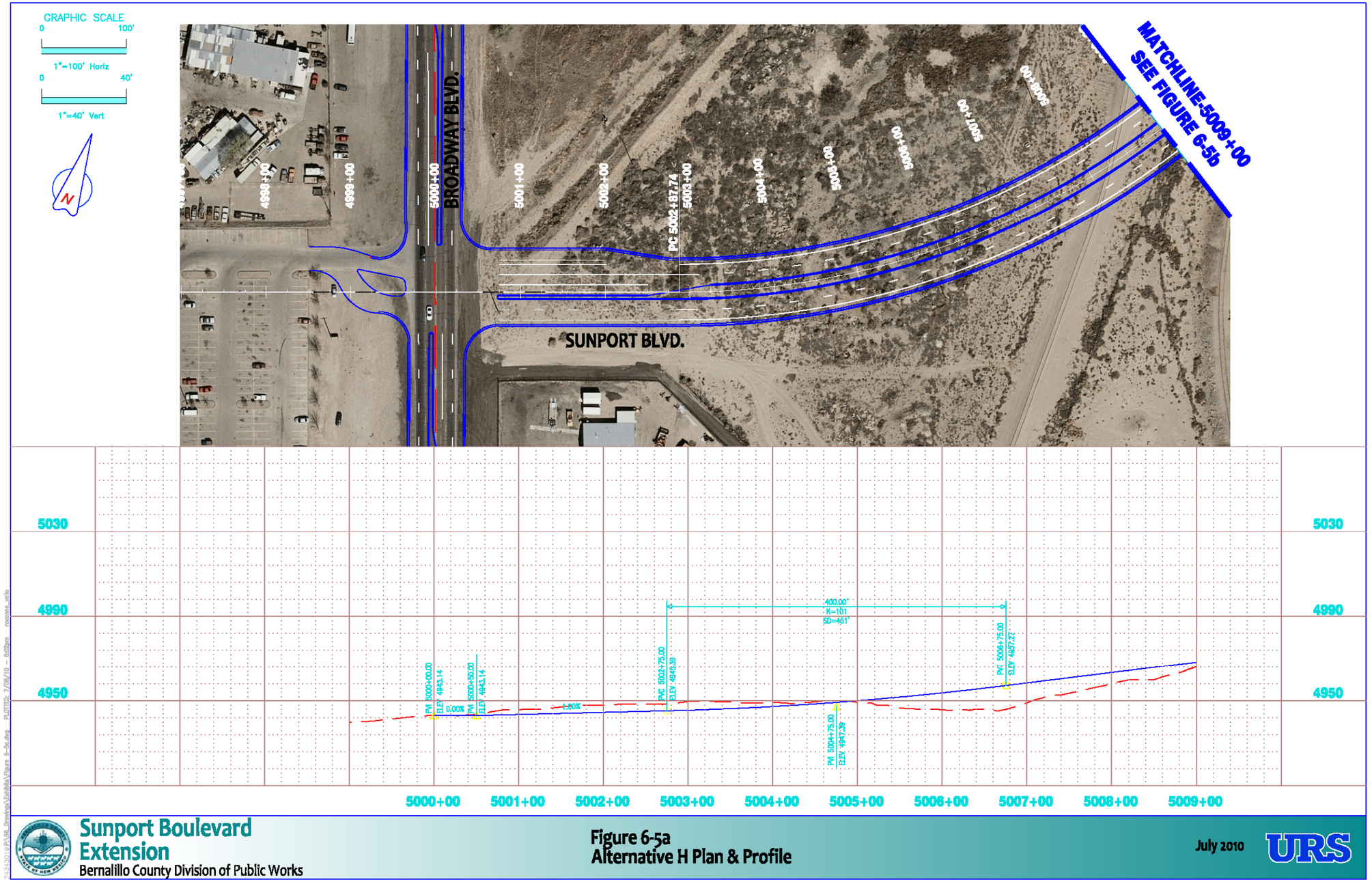


Figure 6-5b Alternative H Plan and Profile (cont)

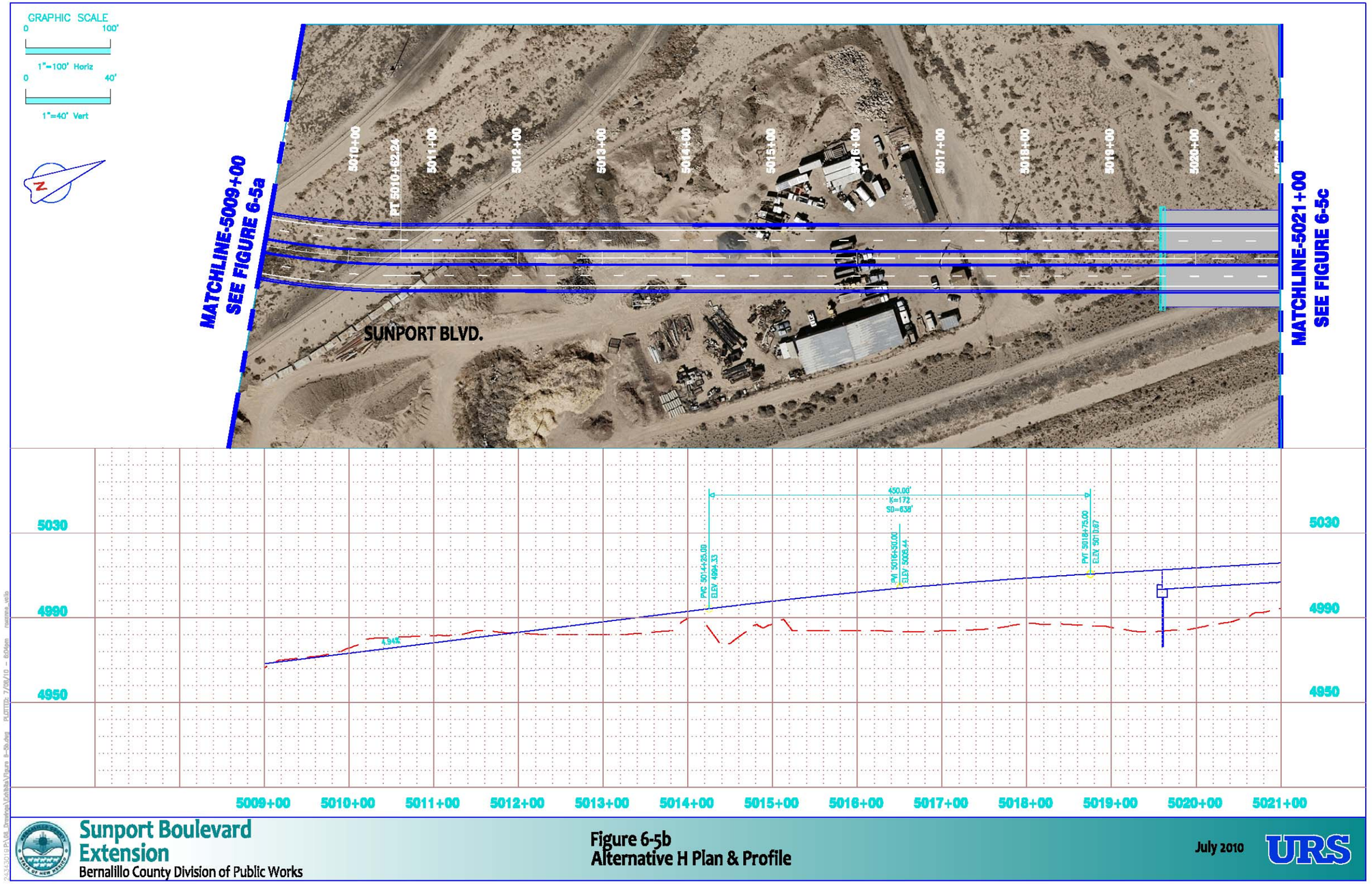


Figure 6-5c Alternative H Plan and Profile

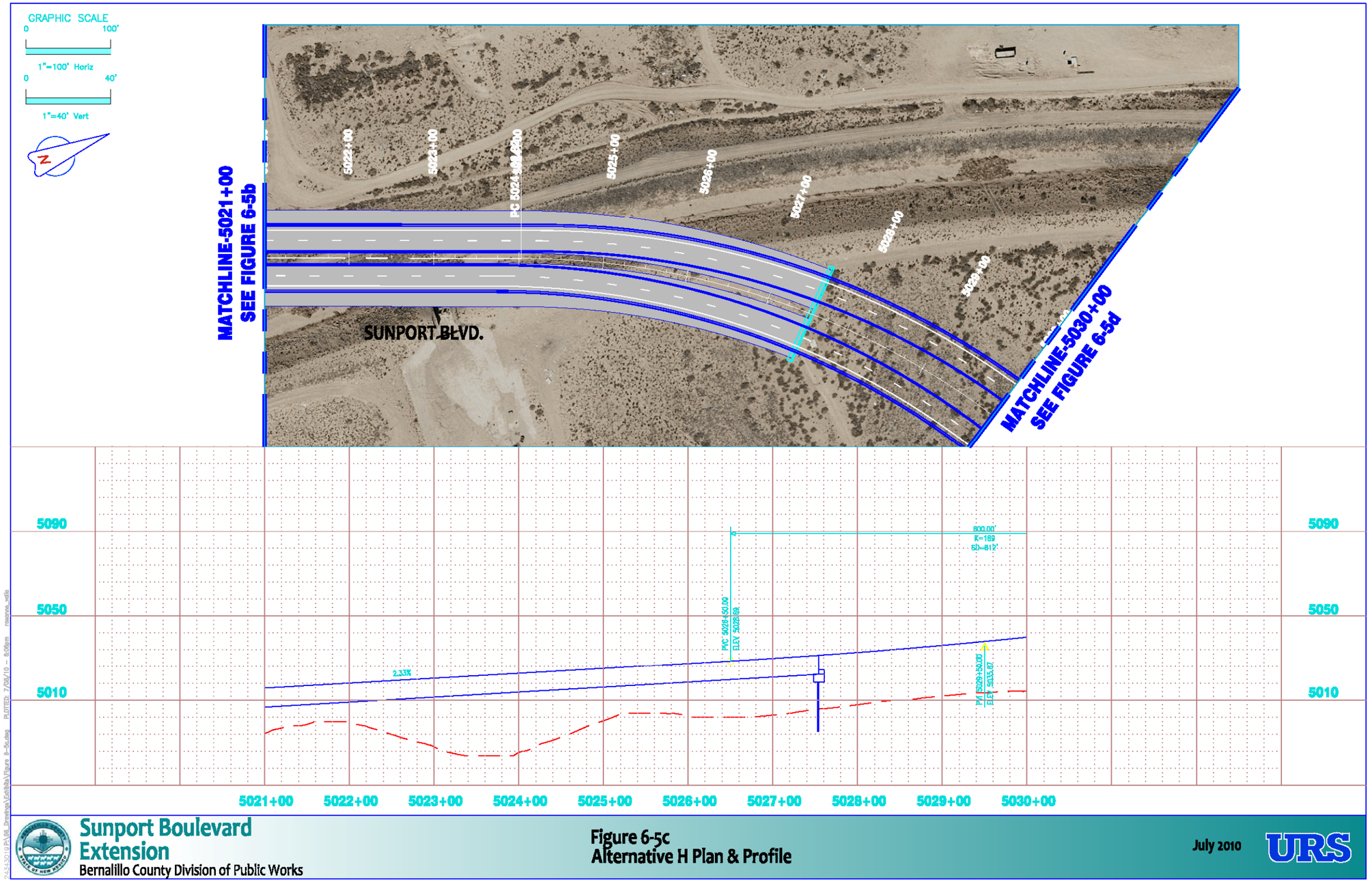
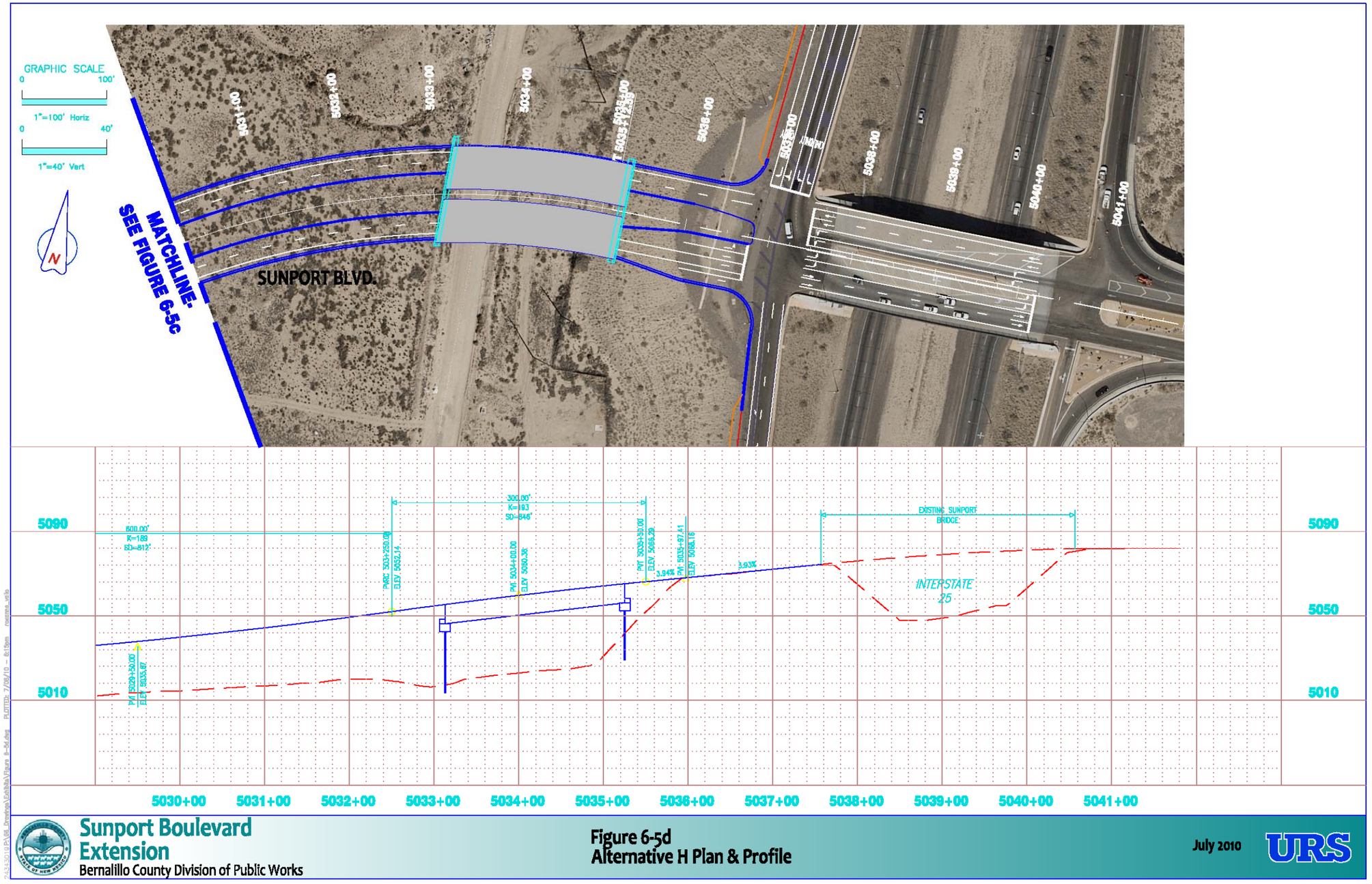


Figure 6-5d Alternative H Plan and Profile



6.3. NEW ALIGNMENT ALTERNATIVE

A fairly obvious alignment concept for Sunport Boulevard linking Broadway Boulevard at Woodward Road and Sunport Blvd at the I-25 Interchange has been developed, and is labeled herein as Alternative A. A version of Alternative A was previously considered and eliminated from consideration in the previous studies described in Section 2.3 of this report, because of the presence of the superfund site in its path. In addition, a somewhat different location was proposed at that time for the interstate crossing and interchange, resulting in a shorter and steeper connection between I-25 and Broadway. Those concerns are no longer applicable, and Alignment Alternative A has thus been developed. Refer to Figures 6-6a, 6-6b, and 6-6c following for details of Alternative A.

Table 6-3 Alignment Alternative A Characteristics

Alternative Designation	A
Alternative Description	Direct connection between Woodward and existing Sunport at I-25
Length of Roadway Alignment (from CL of Broadway to CL Intersection with I-25 Southbound Ramps)	0.46 miles
Roadway Design Speed	50 mph
Maximum Grade	7.0%
Minimum Radius / Maximum Superelevation	1500 ft. / 0.04 ft. / ft.
Major Structures	184 ft. Bridge over AMAFCA's South Diversion Channel and associated Service Road 126 ft. Bridge over Edmunds Street if needed for local access and monitoring well avoidance
Railroad Crossings	None
Major Design Issues	Vertical clearance provided over Service Road is 12 ft., acceptable to AMAFCA

6.4. OTHER ALTERNATIVES

Alignment concepts north of Woodward Road were also considered during project studies. When holding the location of existing Sunport Boulevard at I-25 and shifting the projected westerly alignment of Alternative A to the northwest, a major drawback to any such alignment becomes immediately clear—a costly and complex relocation that is related to the superfund site cleanup. The GE / Axis facility (including building, parking lot, landscaping and extensive underground pipelines), a water processing facility where extracted groundwater is pumped to, cleaned and then re-injected back into the ground for the GE superfund site, is located in the path of any alignment north of Alternative A. For the same reasons that a version of Alternative A was dropped in the 1989 study, no other northerly alternatives are considered feasible or practical, when considering impact to this major superfund site cleanup facility. It is expected that costs associated with the purchase and relocation of the Axis facility would be cost prohibitive, and unnecessary. When such an alignment alternative is reviewed against others that are much less complex, there appears to be no good reason for continued pursuit of a more costly and complex alternative. Therefore, no other alignment alternatives have been considered that would intersect with Broadway north of Woodward Road.

Figure 6-6a Alternative A Plan and Profile

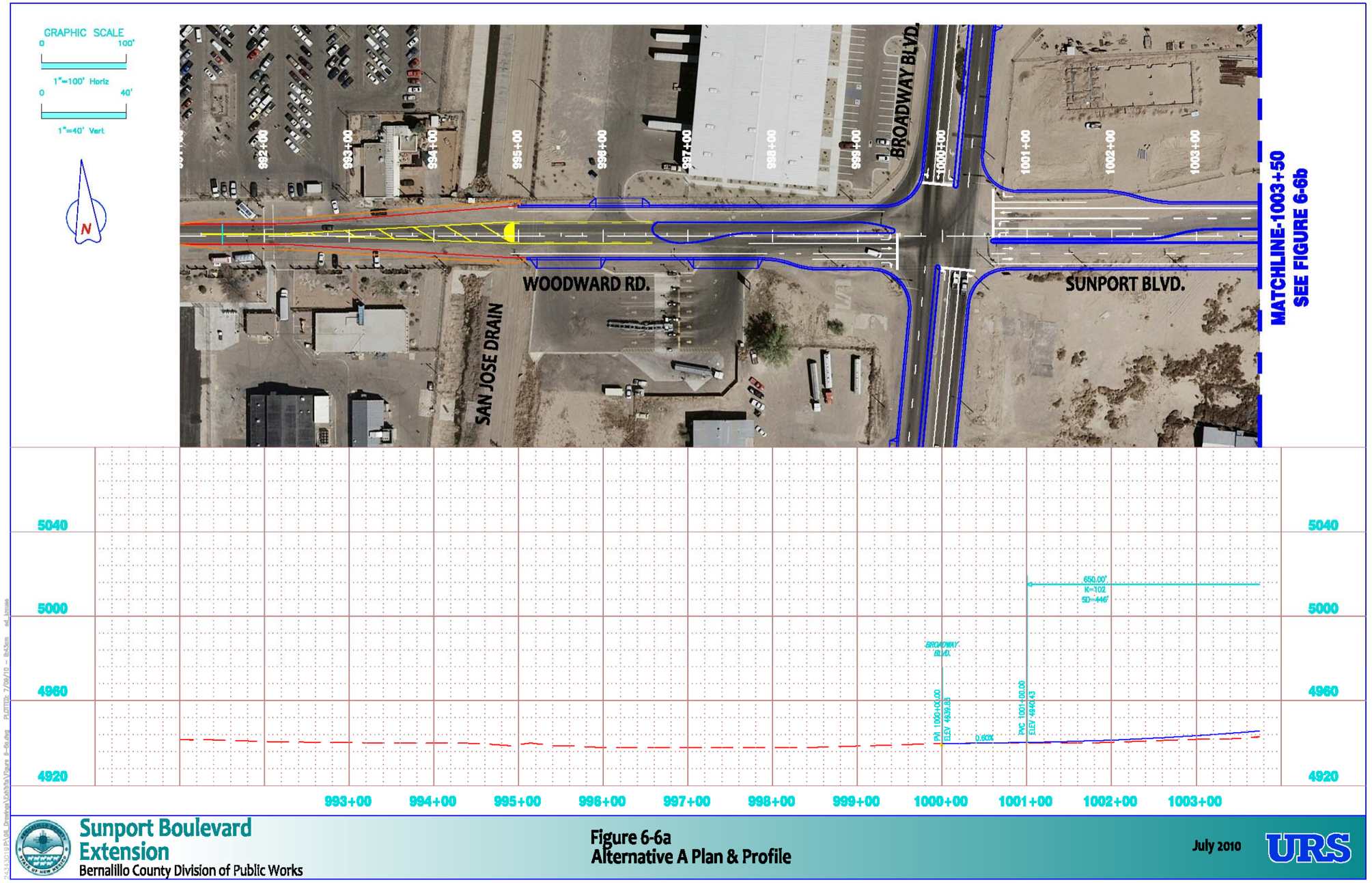


Figure 6-6b Alternative A Plan and Profile (cont.)

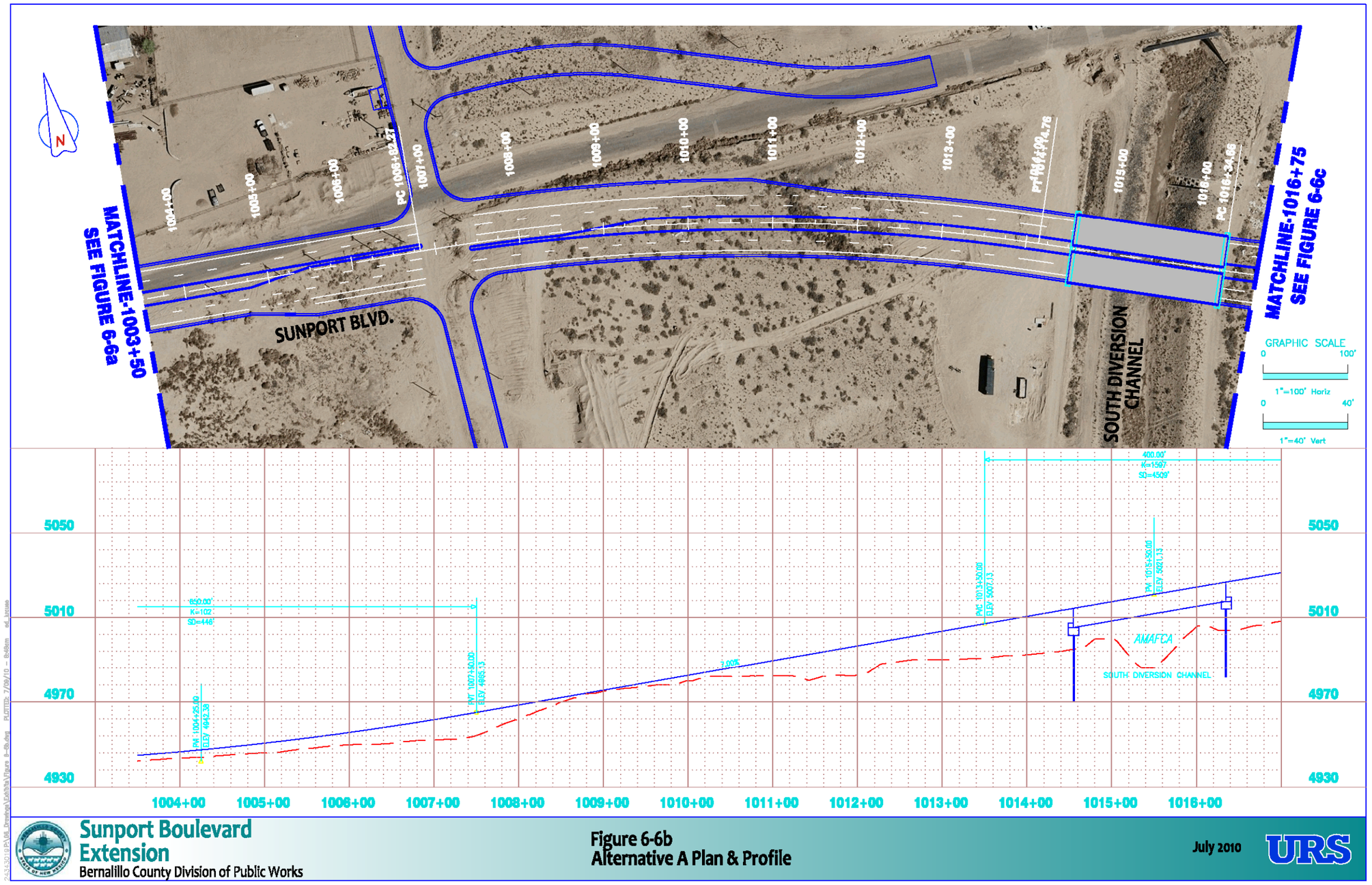


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Figure 6-6b
Alternative A Plan & Profile

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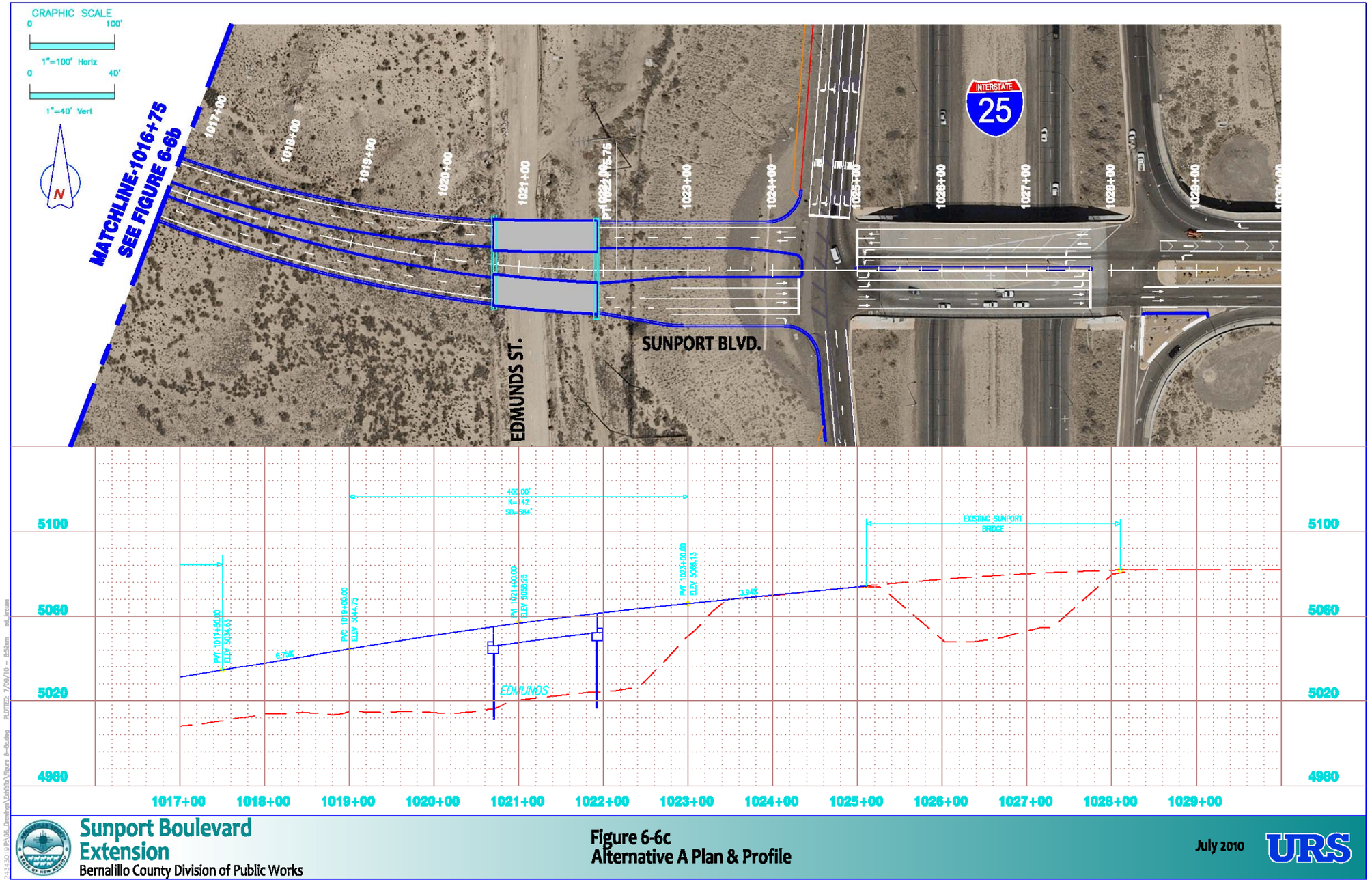
Figure 6-6c Alternative A Plan and Profile (cont.)



6.5. MODIFICATIONS TO I-25 / SUNPORT BOULEVARD INTERCHANGE

All of the alternatives considered have their eastern terminus at the existing location of Sunport Boulevard within the I-25 / Sunport Boulevard Interchange. Original planning and construction of the interchange took into account the fact that Sunport Boulevard would ultimately be extended to the west, and as discussed under Subsection 3.1.7 Right of Way, a stub-out of right of way was obtained for this extension. Traffic volumes forecast for 2030, with or without the Sunport Boulevard extension in place, requires the addition of lanes to the west side ramps, both the southbound off-ramp and southbound on-ramp in order to achieve an acceptable operating condition and level of service. As part of the development of alternatives, and as part of the planned improvements and related construction cost, all alternatives will include the aforementioned ramp widening. Improvements proposed for the ramps will be as follows:

Southbound Off-Ramp. Two lanes will be added to this ramp to expand the ramp from its current two lanes to four lanes. The new lane utilization will consist of a single right turn lane, a right / thru lane, and two left turning lanes, for the total of four. The exit at the I-25 departure point will remain unchanged with a single exit lane, tapering/transitioning into the four lanes within and after the striped gore area.

Southbound On-Ramp. One lane will be added to this ramp to expand the ramp from its current single lane section to two lanes. The lane utilization will consist of one lane to receive the eastbound to southbound right turning traffic; the other lane will receive the westbound to southbound left turning traffic, and any through traffic that continues from the southbound off-ramp across the intersection back onto the freeway.

Figure 6-7 following depicts widening of the southbound off-ramp; Figure 6-8 following depicts widening of the southbound on-ramp. Both ramps are proposed to be widened as an extension of the existing width, on the same profile grade as currently exists. Therefore the existing profile grades control the widening of the roadway section, as depicted in Figures 6-7 and 6-8.

Figure 6.7 Southbound I-25 Off-Ramp Plan & Profile

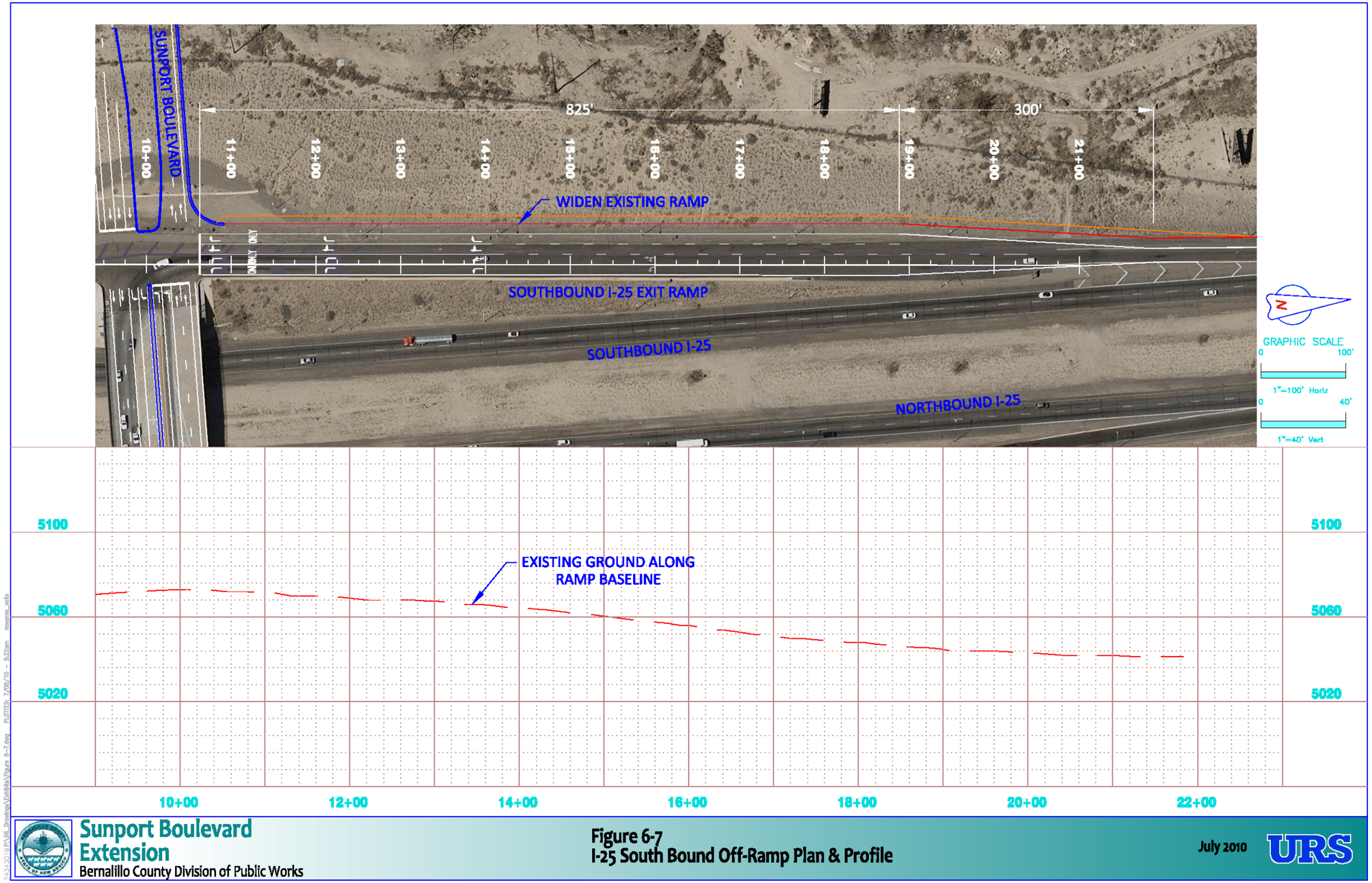
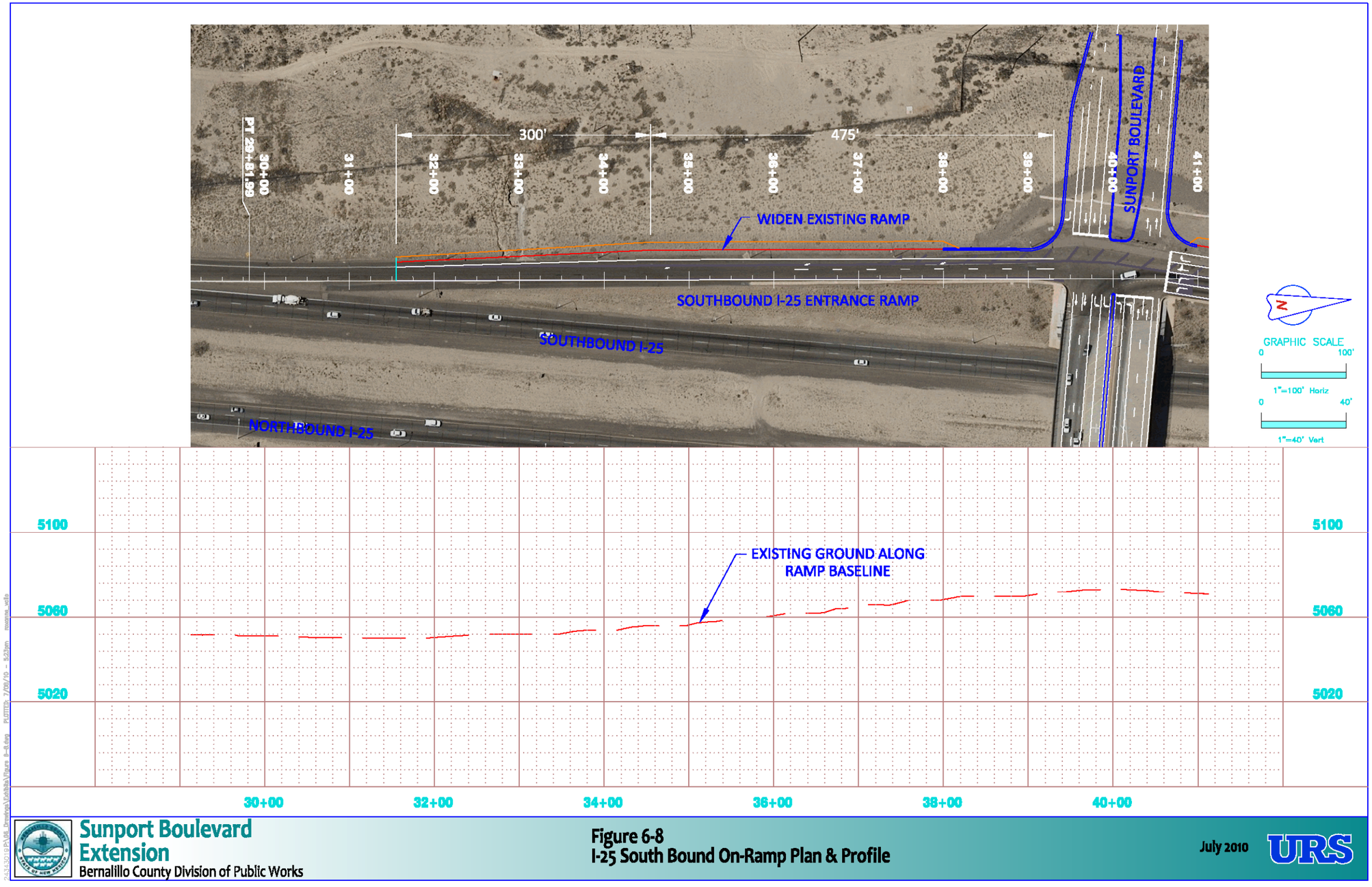


Figure 6.8 Southbound I-25 On-Ramp Plan & Profile



7. EVALUATION OF ALTERNATIVES

Evaluation criteria have been developed for use in screening and evaluating the No-Build and Build alternatives with the participation of the Project Stakeholders. The following criteria have been selected and the alignment alternatives described in Section 6 have been evaluated against the criteria.

Traffic Operations. Factors identified and assessed under this criterion include the primary concern of traffic relief to Gibson and Rio Bravo, i.e. providing another alternative for traffic to access I-25 from Broadway and locations to the west of Broadway. In addition to this primary concern, there are also considerations of the introduction and spacing of added signalized intersections on Broadway.

Network Connectivity. The primary issue identified and assessed under this criterion is the degree to which the alternative addresses the need for providing missing links and direct connections to the existing transportation network, particularly connecting Broadway, Woodward Road, and 2nd Street to each other and to I-25.

Roadway Geometrics. All build alternatives will be designed to meet current AASHTO, NMDOT and / or City of Albuquerque design criteria. However, with the grades to be traversed, and the relatively short distance between Broadway and I-25 to be spanned, the vertical alignment or profile grades vary between alternatives. Alternatives with the steepest grades would be less desirable than alternatives with flatter grades.

Complexity / Feasibility. This is one of the most important and differentiating criterion. All of the build alternatives can be designed, engineered and constructed. However, there are very different degrees to which the engineering and construction is really feasible. Alternatives with the least complexity, such as the fewest or shortest bridges, avoidance of acute skew angle crossings of structures, avoidance of business relocations and avoidance of railroad realignments would all be much more desirable than the reverse situation, when alternatives generate undue engineering complexity or cause unnecessary impact to these facilities.

Environmental Impacts. This criterion is used to summarize and address any differentiating impacts to various environmental factors such as concerns related to hazardous materials, historic or cultural resources, etc.

Construction Cost. This criterion is fairly straightforward, based on calculation and entry of the total construction cost for each alternative, and the ranking of alternatives with the least expensive being the most desirable.

Right of Way Required. This criterion considers the number of parcels of land to be acquired from private property owners and the number of relocations, if any, of established businesses that are currently operating on the parcels to be acquired.

Table 7-1 below includes a short narrative summary of the findings related to each of the alternatives and each alternative's subsequent ranking, with poor findings shown in red, and good or positive findings shown in green. Information not shown in color can be considered fairly neutral.

The preferred alternative is that which is considered to rank in the good or acceptable range for all or most all criteria, and that which is also considered to have no fatal flaws or poor findings.

Table 7-1 Alternative Evaluation Matrix

Evaluation Criteria	Alignment Alternative			
	No Build	A	D	H
Traffic Operations	No traffic relief to adjacent arterials, Gibson traffic is 55% greater; Rio Bravo traffic is 13% greater	Provides an alternative to Gibson and Rio Bravo for traffic use. Local operations good with 4 way intersection at Woodward at LOS C	Provides an alternative to Gibson and Rio Bravo for traffic use. Introduces new intersection—creates another signalized intersection on Broadway only 1550 ft. from Woodward, creates potential conflict with RR crossing in close proximity to intersection with Broadway	Provides an alternative to Gibson and Rio Bravo for traffic use. Introduces new intersection—creates another signalized intersection on Broadway 2900 ft. from Woodward. Creates two new at-grade spur RR crossings with associated vehicle-train conflicts.
Network Connectivity	Poor—no alternative access or connection to Sunport or I-25 from west	Good—direct connection to Woodward and 2nd Street via Woodward	Poor—no connection to Woodward or 2nd	Poor—no connection to Woodward or 2nd
Roadway Geometrics	NA	Horizontal Alignment meets design speed; with 7% maximum grade, allows adequate clearance over AMAFCA Service Road (minor grade change of Service Road may be necessary).	Horizontal Alignment meets design speed; with 7% maximum grade, cannot achieve adequate clearance over AMAFCA Service Road due to proximity of spur RR crossing at grade	Horizontal Alignment meets design speed; with 4.9% maximum grade, but undesirable skew angle created over South Diversion Channel and AMAFCA Service Road
Complexity / Feasibility	NA	Good—No impact to Railroad tracks, reasonable bridge crossings of Edmunds Street and South Diversion Channel	Poor—undesirable skewed crossing of South Diversion Channel creates longer bridge; impacts RR industrial spur and introduces safety concern with RR proximity at intersection	Poor—requires relocation of two RR spur tracks, extreme skewed crossing of South Diversion Channel, creates longer bridge, alignment is 50% longer than Alternative A

Evaluation Criteria	Alignment Alternative			
	No Build	A	D	H
Environmental Impacts	No impact to biological, cultural or community resources.	Crosses groundwater monitoring wells & pipelines, but can be mitigated. Soil is not considered to be contaminated. Impact on two cultural resource sites. Enters 500 year flood hazard area (Zone X), but impact is minimal.	Crosses groundwater monitoring wells & pipelines, but can be mitigated. Soil is not considered to be contaminated. Impact on one known cultural resource site.	Crosses groundwater monitoring wells & pipelines, but can be mitigated. Soil not considered to be contaminated. Relocations of spur RR tracks may be considered impact to historic structure. Impact on one known cultural resource site.
Construction Cost	None	$ 16 M	$ 26 M	$ 39 M
Right of Way Required	None	8 parcels (tbd)	6 parcels (tbd)	9 Parcels (tbd), including 1business relocation

8. RECOMMENDATIONS

8.1. PREFERRED ALTERNATIVE

Following the evaluation of alternatives as performed and documented in Section 7, Alignment Alternative A is the preferred alternative and is recommended for design and implementation. Alternative A is preferred for the following reasons:

- Traffic operations are good—this alternative utilizes an alignment connecting with Woodward Road, thus not adding or creating the need for another signalized intersection on Broadway, and good levels of service can be provided in the 2030 design year.
- Network Connectivity is good—with incorporation of and connection to Woodward Road, a direct and functional transportation network is provided.
- Roadway Geometrics are acceptable—the 7% profile grade is fairly steep, however, considered to be acceptable. It is acknowledged that heavy truck traffic will experience a slow climb from Broadway to I-25, however, the two eastbound uphill lanes will provide adequate capacity, with the outside lane available for slow moving vehicles. (Use of an eastbound climbing lane was considered, but not found to be warranted based on general and truck traffic volumes.)
- Complexity / Feasibility is positive—no major obstacles or unnecessarily difficult features are crossed or have to be incorporated into the roadway design.
- Environmental Impacts—no significant impacts are foreseen, all impacts to the soil and groundwater monitoring systems can be mitigated. These systems will not be needed indefinitely, but rather through the remainder of site clean-up. The right of way necessary is not considered to contain contaminated soil.
- Construction Cost—the cost shown is the lowest for any of the proposed alternatives.
- Right of Way Required—Seven parcels will be necessary, however there are no relocations of businesses involved, and the overall area of the right of way needed is less than the other alternatives.

The conceptual design of the roadway typical sections and the horizontal and vertical alignments of Alignment Alternative A are included in this report, illustrated in Figures 6-1, 6-2, and 6-6. These concepts will be carried forward into the subsequent preliminary engineering / design phase of this project. More precise details will be developed during the preliminary engineering phase to include items such as pavement design, specifics of roadway appurtenances, roadway drainage facilities, landscaping, lighting, and traffic control devices. During the preliminary design phase, consideration will be given to the use of sustainable best practices in the selection of design features. Items such as the shape and materials of medians, use of recycled materials, and LED street lighting, known to be energy efficient, and previously successful on certain City of Albuquerque streets and on certain state highways, will be considered for use on this project.

8.2. LOCAL ACCESS ALTERNATIVES

Along with the recommendation of Alignment Alternative A as the preferred alternative, consideration should also be given as to how access to adjacent properties is provided with the introduction of the new roadway corridor in an area where no major roadway previously existed. An access point into Sunport Boulevard will be needed in order to provide new access where local access would otherwise be cut off from current historical use.

Sunport Boulevard is proposed as a primary 4-lane urban arterial roadway, generally on a high embankment section as it drops in grade from the high point at I-25 down to the elevation of Broadway. Because of the nature and grade of this new road, access into and out of Sunport Boulevard will be physically limited to one location only between Broadway and I-25. This one access point must provide access to the various parcels of land in the vicinity of the alignment that will have to be maintained.

An access point and intersection with Sunport Boulevard is proposed approximately midway between Broadway and I-25. This intersection would likely be located between 660 ft. and 1200 ft. east of Broadway. The intersection may be a full movement four-way intersection, or it may be a partial movement "tee" intersection with a northerly leg only (in addition to the Sunport Boulevard east and west legs), depending on further analysis to be performed in the subsequent preliminary engineering phase of this project as discussed below.

There are two criteria that need to be considered for locating the point of access on Sunport Boulevard: the City of Albuquerque Development Process Manual (DPM) requirements, and the NMDOT State Access Management Manual.

- City of Albuquerque DPM: "Continuous streets intersecting arterials must generally be spaced no closer than 900 feet on center." Continuous streets are defined as "Intersections where the streets on two sides of the principal roadway are directly opposite each other [and] it is not a "T" intersection."

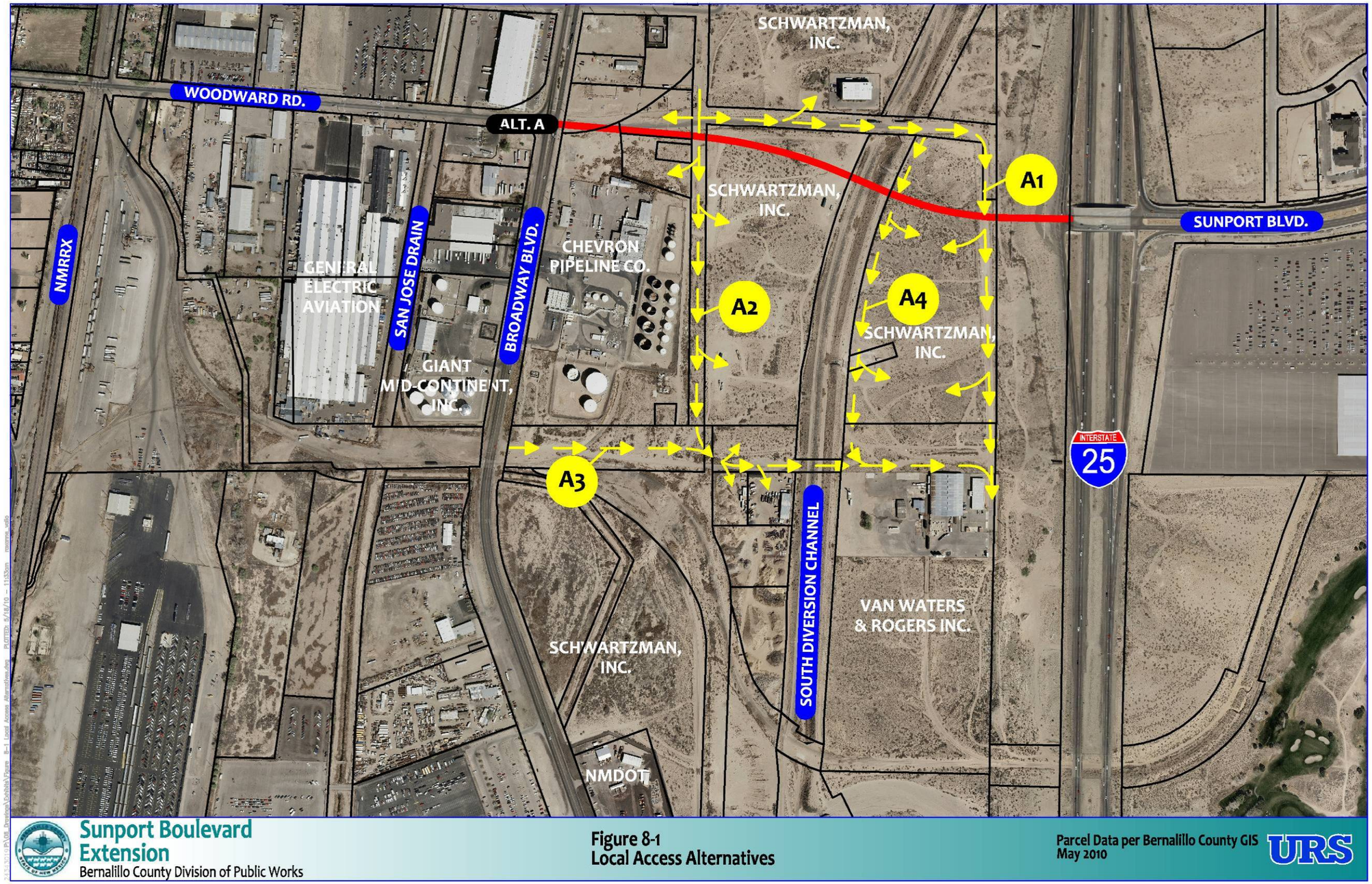
- State Access Management Manual: Per Table 18.C-1, *Access Spacing Standards for Intersections and Driveways*, provides the following spacing criteria:
  - Urban Primary Arterial / unsignalized / posted speed <55 mph—1,320 feet
  - Urban Minor Arterial / unsignalized / posted speed <55 mph—660 feet

Locating the intersection 660 feet east of Broadway would place it at the minimum 1/8 mile spacing from Broadway, possibly precluding any future signalization, but probably feasible considering the relatively low traffic volumes expected to use it. Locating the intersection 1200 feet from Broadway would also place it approximately 1200 feet from the west I-25 ramp intersection, not quite achieving the desirable 1320 feet spacing.

Locating this access approximately 700 feet from Broadway appears to be the preferable location, since this corresponds with an existing north-south platted right of way (Arno Street), where the local access road to at least the south would be located. This spacing would be based on the assumption that the intersection will not be signalized. This issue will be investigated in more detail during the upcoming preliminary engineering phase of this project.

With use of this point of access and inclusion of a local access road approximately mid-way between Broadway and I-25, four alternatives have been considered herein for providing access to the adjacent properties within the Study Area as affected by the selection of Alignment Alternative A. There are three key parcels for which access will change significantly and which these various alternatives will address—two large parcels identified as Schwartzman Inc. located on both the west and east sides of the South Diversion Channel, and one large parcel identified as Van Waters & Rogers Inc., located south of the easterly Schwartzman parcel. These parcels and alternatives for access are illustrated on Figure 8-1 on the following page.

Figure 8.1 Local Access Alternatives



Access Alternative A1—Connect to Woodward Road north of Sunport, utilize existing Woodward right of way and road to Edmunds, south on Edmunds, bridge over Edmunds for access south of Sunport to the Van Waters parcel. This access requires bridging over Edmunds with the new Sunport roadway. However, this bridge would also provide a means of crossing a major extraction and water quality monitoring well that is reportedly of high value and high cost to relocate and thus the cost differential related to the access may not be significant.

Access Alternative A2—Connect to Woodward Road south of Sunport, utilize an existing apparent right of way (called Arno Road) that appears to be about 75-80 feet wide based on power pole locations, between the Chevron and Schwartzman parcels south to the Stock Drive right of way (Stock Drive is the reported name, not signed or posted in the field, of a dirt road extending from Broadway east), then utilize Stock Drive to the east, bridge over the South Diversion Channel for access to the east to the Van Waters parcel. This alternative will require new gravel roads with a raised grade for Stock Drive, and a bridge over the South Diversion Channel.

Access Alternative A3—Utilize Stock Drive right of way from Broadway, parallel and north of the railroad tracks, construct new gravel road with roadway embankment on higher grade in Stock Drive right of way, cross the northerly industrial railroad spur track, connect with Alternative A2 and bridge over South Diversion Channel for access to the east to the Van Waters parcel. This alternative will require construction of an improved road immediately adjacent to the industrial spur railroad tracks, as well as crossing of the northerly spur track. It will also cross on or near a petroleum pipeline that has surface facilities in the area. The current rough gravel road provides primary access to a materials and equipment salvage yard business east of Broadway (refer to Figure 8-1).

Access Alternative A4—Utilize a segment of Alternative A1 north of Sunport on Woodward right of way and road to the South Diversion Channel, either utilize and share the South Diversion Channel access road or obtain new right of way or easement and build new gravel road between South Diversion Channel and Schwartzman parcel. This alternative may require a longer Sunport Boulevard bridge over the South Diversion Channel and would cross a large stilling basin that intercepts runoff from the east and enters the South Diversion Channel, apparently within AMAFCA right of way.

These local access alternatives will be investigated in detail in the preliminary engineering phase of project development. As part of this Phase A/B Study, general land parcel and ownership information has been obtained only from City and County GIS record databases, not from ground surveys or land title records and research. Property ownership monuments and occupancy data will be surveyed and record title information researched in the preliminary engineering phase during which a more detailed analysis and evaluation can be made regarding the advantages and disadvantages of each of these access alternatives. All of the alternatives for local access will be costly, when taking into account the need for bridges over Edmunds Street or the South Diversion Channel. Disruption of historic access should also be weighed, when considering alternative access.

8.3. TRAFFIC THROUGH SUNPORT INTERNATIONAL AIRPORT

Comments were received related to traffic issues at the July 1st Project Stakeholder Meeting from a representative of the City of Albuquerque Department of Aviation. Reportedly, Sunport

Boulevard through the passenger terminal area has experienced cut-through traffic that does not have an origin or destination at the airport itself. Traffic from I-25 to the west apparently enters the terminal area and, by use of a commercial vehicle by-pass lane or other pick-up and drop-off lanes, travels through the terminal area and then exits the airport to the east onto Girard Boulevard, bound for Gibson Boulevard or points north. The concern was expressed that the new extension of Sunport Boulevard to Broadway, with its introduction of more traffic through the interchange area, would likely exacerbate the number of cut-through vehicles into and through the airport, using the route described.

Cut-through traffic is best controlled by physical or traffic-calming means within the airport terminal area or the immediate approaches to it. In the case of eastbound traffic on Sunport Boulevard, this would be at some point east of the interchange of Sunport Boulevard and University Boulevard. When existing and future traffic volumes are compared between the No-Build and Build scenarios on Sunport Boulevard east of the I-25 interchange ramps, it can be seen that traffic growth is expected. The 2008 daily traffic volume, based on actual traffic counts by MRCOG, is 12,562 vpd. The 2030 daily traffic volume forecast for the No-Build scenario in the eastbound direction is 18,400 vpd; the eastbound volume in 2030 in the Build scenario is 20,400 vpd. From this comparison, it can be seen that overall traffic growth is expected to be significant, but the difference between the No Build and the Build is not significant; much of the traffic bound for the airport area will originate on I-25 with or without the extension of Sunport Boulevard. Regardless of its origin, this cut-through problem would exist with or without the extension of Sunport Boulevard to Broadway.

The entrances to the terminal area are posted with low speed limits, 15 mph, and are monitored by radar speed feedback signs / trailers alerting the driver to his or her actual travel speed. Signage also exists alerting the driver entering the airport area that vehicles are subject to search (relative to a heightened level of security following September 11, 2001), and STOP signs are posted. Implementation of searches would certainly delay and discourage any vehicles traveling through the terminal area. Since Sunport Boulevard is a City of Albuquerque public facility, through traffic cannot currently be prohibited, but the City Council could pass an ordinance to close Sunport Boulevard through the terminal area to through traffic.

Other traffic calming or diversion measures could also be installed, including toll or fee collection, signage posting no cut-through use (if an ordinance is passed), and enforcement via uniformed police stopping and ticketing violators who are observed to pass through. Actual implementation of any such measures would have to be east of University Boulevard, since the roadways in question, including the Sunport / University interchange, are all intended to carry the general public at any time.

Further discussion regarding traffic cut-through mitigation is expected to continue during the subsequent preliminary engineering / preliminary design phase of this project. The selection of a preferred alternative is not affected by this issue and it is recommended that the project proceed as described in the following section on implementation.

8.4. IMPLEMENTATION

Following the acceptance of this report, the following steps are planned, in accordance with the typical project development process as identified in the NMDOT's *Location Study Procedures* document previously referenced in Section 2.5:

- Prepare Environmental Assessment (EA)
- Preliminary Engineering and Preliminary Right of Way Plans
- Final Design and Final Right of Way Plans
- Construction Documents (Plans, Specifications & Estimate) and Acquisition of Right of Way
- Construction of Project

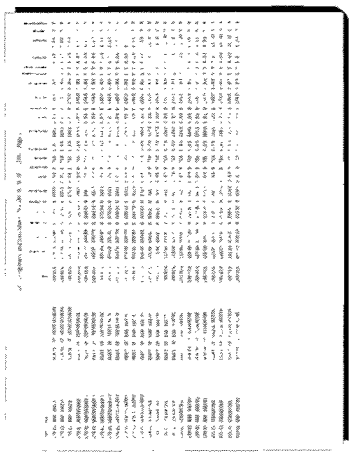
Preparation of an Environmental Assessment is underway concurrently with this report. Completion of the EA is expected by the end of 2010. Preliminary Engineering is expected to commence in the Summer of 2010 and be completed by early 2011. Future phases of the project are expected to be implemented sequentially and continuously.

APPENDIX A

EXISTING TRAFFIC COUNTS (MRCOG)

Sunport Blvd Extension
24247112 Existing Count Data
received from Matthew Marsh
MRCOG 11/29/12

Key to Summary Statistics Printout of Directional Volume Counts



For more information about MRCOG's traffic counting program, contact Eric Webster at (505) 247-1750 or by email at ewebster@mrcog-nm.gov

MR COG Communities Working Together

The summary statistics printout of directional volume counts shows summarized data collected by tube counters. The list below explains what information is provided in this report:

Date	date count was taken (4-digit year, 2-digit month)
Raw Count Vol.	the unadjusted raw daily count volume
Dir. 1 Vol.	the volume of direction 1
Dir. 1 Direction	the direction of direction 1 (N, E, S, or W)
Dir. 2 Vol.	the volume of direction 2
Dir. 2 Direction	the direction of direction 2 (N, E, S, or W)
AM Pk. Hr. Vol.	the A.M. peak hour volume
AM D. S.	the A.M. directional split
Dir. of AM D. S.	the direction of the A.M. directional split
AM Pk. Hr.	the A.M. peak hour (start time)
AM Pk. Hr. Fac.	The A.M. peak hour factor
PM Pk. Hr. Vol.	the P.M. peak hour volume
PM D. S.	the P.M. directional split
Dir. of PM D. S.	the direction of the P.M. directional split
PM Pk. Hr.	the P.M. peak hour (start time)
PM Pk. Hr. Fac.	The P.M. peak hour factor
MRCOG Standard	Quality of the count according to MRCOG (T = good, Q = questionable)
NMSHTD Standard	Quality of the count according to the New Mexico Department of Transportation (T = good, Q = questionable)
AM Peak %	percentage of total daily traffic that took place during the AM peak
PM Peak %	percentage of total daily traffic that took place during the PM peak
Count Type	type of count taken (V = volume, C = vehicle class)
Loop or Road Tube	manner in which count was taken (R = road tube, L = inductance loops)

Important: If the Count Type column shows a "C" indicating a vehicle class count, the raw count volume number represents an axle-equivalency of two-axle vehicles (for example, a 6-axle truck is counted as three two-axle vehicles). For the number of the actual vehicles recorded, refer to the associated 48-hour vehicle class count.

COGID	Route	Location	Date	Raw Count Vol.	Dir. 1 Vol.	Dir. 1 Direction	Dir. 2 Vol.	Dir. 2 Direction	AM Pk. Hr. Vol.	AM D.S.	Dir. of AM D.S.	AM Pk. Hr.	AM Pk. Hr. Fac.	PM Pk. Hr. Vol.	PM D.S.	Dir. of PM D.S.	PM Pk. Hr.	PM Pk. Hr. Fac.	MRGCOG Standard	NMSHTD Standard	AM Peak %	PM Peak %	Count Type	Loop or Road Tube
26641	UNIVERSITY	NORTH OF LOS PICAROS	200811	3126	1511	N	1615	S	377	0.96	S	600	0.73	359	0.79	N	1500	0.65	T	T	12.06	11.48	V	R
63400	I-25 SBD	GIBSON OFF RAMP2 - AVENIDA CE	200601	51011	0	-	0	-	4026	1	S	645	0.95	4474	1	S	1630	0.94	T	T	7.89	8.77	V	R
63441	BROADWAY	NORTH OF GIBSON	199005	16322	8205	N	8117	S	1154	0.53	S	715	0.88	1425	0.56	N	1530	0.97	Q	T	7.07	8.73	V	R
63441	BROADWAY	NORTH OF GIBSON	199305	19604	9958	N	9646	S	1337	0.53	N	715	0.94	1810	0.53	S	1515	0.88	T	T	6.82	9.23	V	R
63441	BROADWAY	NORTH OF GIBSON	199604	18349	8906	N	9443	S	1350	0.51	N	730	0.9	1545	0.51	S	1615	0.87	T	T	7.36	8.42	V	R
63441	BROADWAY	NORTH OF GIBSON	200004	17935	8173	N	9762	S	1598	0.61	S	715	0.93	1702	0.53	S	1630	0.94	T	T	8.91	9.49	V	R
63441	BROADWAY	NORTH OF GIBSON	200304	17614	8661	N	8953	S	1382	0.53	N	715	0.86	1523	0.53	S	1630	0.86	T	T	7.85	8.65	V	R
63441	BROADWAY	NORTH OF GIBSON	200804	18103	8894	N	9209	S	1246	0.55	S	745	0.85	1909	0.52	N	1630	0.95	T	T	6.88	10.55	V	R
63480	I-25 NBD	GIBSON ON RAMP2 - AVENIDA CES	199205	38660	0	-	0	-	3963	1	N	700	0.85	3074	1	N	1530	0.87	T	T	10.25	7.95	V	R
63480	I-25 NBD	GIBSON ON RAMP2 - AVENIDA CES	200601	51762	0	-	0	-	4876	1	N	700	0.93	4417	1	N	1600	0.92	T	T	9.42	8.53	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199206	3353	0	-	0	-	428	1	S	630	0.72	309	1	S	1500	0.79	T	T	12.76	9.22	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199304	2907	0	-	0	-	400	1	S	615	0.58	251	1	S	1500	0.65	T	T	13.76	8.63	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199604	4040	0	-	0	-	516	1	S	630	0.73	328	1	S	1500	0.85	T	T	12.77	8.12	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199806	3728	0	-	0	-	417	1	S	615	0.69	386	1	S	1645	0.66	T	T	11.19	10.35	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199809	3536	0	-	0	-	377	1	S	630	0.63	481	1	S	1700	0.9	T	T	10.66	13.6	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	199901	3411	0	-	0	-	389	1	S	630	0.7	288	1	S	1645	0.84	T	T	11.4	8.44	C	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	200205	2914	0	-	0	-	345	1	S	630	0.76	311	1	S	1645	0.75	T	T	11.84	10.67	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	200503	4091	0	-	0	-	402	1	S	630	0.85	403	1	S	1645	0.83	T	T	9.83	9.85	V	R
63600	GIBSON INTCH.	I-25 SBD OFF RAMP TO WBD GIBS	200803	3907	0	-	0	-	392	1	S	630	0.84	293	1	S	1715	0.81	T	T	10.03	7.5	V	R
63641	GIBSON	EAST OF BROADWAY	199201	16201	7626	E	8575	W	1376	0.53	W	715	0.8	1433	0.58	W	1545	0.91	T	T	8.49	8.85	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199109	18129	9583	W	8546	E	1374	0.57	E	700	0.95	1614	0.54	W	1500	0.88	T	T	7.58	8.9	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199406	18953	9324	E	9629	W	1561	0.65	E	700	0.86	1608	0.6	W	1615	0.9	T	T	8.24	8.48	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199502	19591	9367	E	10224	W	1596	0.59	E	700	0.78	1938	0.57	W	1500	0.9	T	T	8.15	9.89	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199504	17276	8847	E	8429	W	1512	0.62	E	700	0.8	1776	0.59	W	1615	0.89	T	T	8.75	10.28	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199804	18286	9028	E	9258	W	1398	0.62	E	715	0.79	1502	0.59	W	1645	0.82	T	T	7.65	8.21	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	199805	18458	9923	W	8535	E	1423	0.58	E	700	0.89	1607	0.57	W	1500	0.94	T	T	7.71	8.71	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	200212	18032	8492	E	9540	W	1432	0.61	E	700	0.85	1977	0.68	W	1600	0.9	T	T	7.94	10.96	V	R
63642	GIBSON	WEST OF I-25 W. RAMPS	200612	16461	7553	E	8908	W	1195	0.53	E	730	0.84	1525	0.57	W	1630	0.96	T	T	7.26	9.26	V	R
63720	I-25 SBD	GIBSON OFF RAMP 1 - GIBSON OF	200505	47118	0	-	0	-	3485	1	S	715	0.94	3886	1	S	1630	0.99	T	T	7.4	8.25	V	R
63802	GIBSON	I-25 UNDERPASS	199304	30957	20570	E	10387	W	2759	0.85	E	700	0.92	2522	0.61	E	1530	0.84	Q	T	8.91	8.15	V	R
63802	GIBSON	I-25 UNDERPASS	199604	34027	22760	E	11267	W	2950	0.82	E	700	0.93	2745	0.6	E	1530	0.85	Q	T	8.67	8.07	V	R
63802	GIBSON	I-25 UNDERPASS	200005	30436	19651	E	10785	W	2837	0.84	E	715	0.88	2481	0.55	W	1645	0.82	Q	T	9.32	8.15	V	R
63802	GIBSON	I-25 UNDERPASS	200212	28285	10584	W	17701	E	2722	0.81	E	700	0.9	2401	0.56	W	1545	0.9	Q	T	9.62	8.49	V	R

COGID	Route	Location	Date	Raw Count Vol.	Dir. 1 Vol.	Dir. 1 Direction	Dir. 2 Vol.	Dir. 2 Direction	AM Pk. Hr. Vol.	AM D.S.	Dir. of AM D.S.	AM Pk. Hr.	AM Pk. Hr. Fac.	PM Pk. Hr. Vol.	PM D.S.	Dir. of PM D.S.	PM Pk. Hr.	PM Pk. Hr. Fac.	MRGCOG Standard	NMSHTD Standard	AM Peak %	PM Peak %	Count Type	Loop or Road Tube
65642	RANDOLPH	WEST OF YALE	200309	8610	4653	W	3957	E	698	0.57	W	730	0.9	799	0.5	E	1630	0.93	T	T	8.11	9.28	V	R
65642	RANDOLPH	WEST OF YALE	200809	10931	5735	E	5196	W	975	0.56	E	715	0.77	1056	0.55	E	1630	0.87	T	T	8.92	9.66	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	199209	17062	7498	N	9564	S	1110	0.64	S	730	0.89	1356	0.53	N	1630	0.82	Q	T	6.51	7.95	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	199509	19601	10688	S	8913	N	1257	0.67	S	730	0.84	1535	0.52	N	1645	0.83	T	T	6.41	7.83	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	199810	10506	5082	N	5424	S	700	0.62	S	715	0.88	753	0.55	S	1600	0.93	T	T	6.66	7.17	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	200210	6354	3288	N	3066	S	364	0.57	N	700	0.87	524	0.57	N	1515	0.8	T	T	5.73	8.25	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	200510	7362	3831	N	3531	S	544	0.63	S	730	0.83	542	0.68	N	1500	0.61	T	T	7.39	7.36	V	R
66001	YALE	NORTH OF SUNPORT BLVD.	200810	4992	1996	N	2996	S	311	0.66	S	600	0.89	333	0.59	S	1500	0.86	Q	F	6.23	6.67	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	199712	520	0	-	0	-	55	1	E	715	0.76	72	1	E	1615	0.72	T	T	10.58	13.85	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	199806	695	0	-	0	-	63	1	E	700	0.79	63	1	E	1700	0.79	T	T	9.06	9.06	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	200106	1533	0	-	0	-	119	1	E	700	0.8	120	1	E	1630	0.81	T	T	7.76	7.83	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	200406	1501	0	-	0	-	165	1	E	645	0.79	104	1	E	1630	0.81	T	T	10.99	6.93	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	200706	2604	0	-	0	-	192	1	E	645	0.86	168	1	E	1500	0.81	T	T	7.37	6.45	V	R
6600	SUNPORT/UNIVERSITY INT	EBD ON RAMP	200806	1485	0	-	0	-	105	1	E	615	0.88	97	1	E	1530	0.87	T	T	7.07	6.53	V	R
66081	BROADWAY	NORTH OF WOODWARD RD.	199208	11357	5219	N	6138	S	881	0.57	N	700	0.81	1009	0.63	S	1630	0.94	T	T	7.76	8.88	V	R
66081	BROADWAY	NORTH OF WOODWARD RD.	199508	17256	6087	N	11169	S	963	0.59	N	700	0.79	1240	0.65	S	1645	0.83	Q	F	5.58	7.19	V	R
66081	BROADWAY	NORTH OF WOODWARD RD.	199808	13357	6081	N	7276	S	1023	0.64	N	715	0.82	1289	0.73	S	1700	0.85	T	T	7.66	9.65	V	R
66081	BROADWAY	NORTH OF WOODWARD RD.	200310	13822	6331	N	7491	S	1032	0.65	N	715	0.85	1518	0.71	S	1630	0.96	T	T	7.47	10.98	V	R
66081	BROADWAY	NORTH OF WOODWARD RD.	200909	18151	7331	N	10820	S	1455	0.61	N	715	0.83	1757	0.71	S	1545	0.95	Q	T	8.02	9.68	V	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	199711	677	0	-	0	-	56	1	W	745	0.78	72	1	W	1515	0.95	T	T	8.27	10.64	V	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	199806	896	0	-	0	-	70	1	W	715	0.76	91	1	W	1515	0.81	T	T	7.81	10.16	V	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	200106	2027	0	-	0	-	158	1	W	730	0.73	161	1	W	1530	0.88	T	T	7.79	7.94	C	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	200406	1612	0	-	0	-	98	1	W	700	0.77	118	1	W	1645	0.8	T	F	6.08	7.32	V	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	200706	1917	0	-	0	-	119	1	W	700	0.93	138	1	W	1645	0.86	T	T	6.21	7.2	V	R
6610	SUNPORT/UNIVERSITY INT	WBD OFF RAMP	200806	1662	0	-	0	-	109	1	W	715	0.91	111	1	W	1530	0.92	T	F	6.56	6.68	V	R
66121	WOODWARD	EAST OF 2ND ST.	200406	3818	2163	E	1655	W	271	0.94	E	630	0.82	430	0.69	W	1645	0.92	Q	T	7.1	11.26	V	R
66122	WOODWARD	WEST OF BROADWAY	199108	4503	2264	W	2239	E	443	0.67	W	645	0.62	460	0.68	E	1530	0.52	T	T	9.84	10.22	V	R
66122	WOODWARD	WEST OF BROADWAY	199407	3882	2149	E	1733	W	383	0.73	W	630	0.63	428	0.74	E	1515	0.51	T	T	9.87	11.03	V	R
66122	WOODWARD	WEST OF BROADWAY	199407	3882	2149	E	1733	W	383	0.73	W	630	0.63	428	0.74	E	1515	0.51	T	T	9.87	11.03	V	R
66122	WOODWARD	WEST OF BROADWAY	199707	6136	2182	E	3954	W	511	0.78	W	630	0.61	627	0.69	W	1645	0.89	Q	T	8.33	10.22	V	R
66122	WOODWARD	WEST OF BROADWAY	200007	5711	1886	E	3825	W	453	0.79	W	630	0.71	509	0.76	W	1700	0.86	Q	T	7.93	8.91	V	R
66122	WOODWARD	WEST OF BROADWAY	200307	3346	2050	W	1296	E	221	0.73	W	615	0.71	386	0.72	W	1645	0.92	Q	T	6.6	11.54	V	R
66122	WOODWARD	WEST OF BROADWAY	200807	6555	3431	W	3124	E	470	0.63	E	615	0.83	503	0.7	W	1600	0.89	T	T	7.17	7.67	C	R

COGID	Route	Location	Date	Raw Count Vol.	Dir. 1 Vol.	Dir. 1 Direction	Dir. 2 Vol.	Dir. 2 Direction	AM Pk. Hr. Vol.	AM D.S.	Dir. of AM D.S.	AM Pk. Hr.	AM Pk. Hr. Fac.	PM Pk. Hr. Vol.	PM D.S.	Dir. of PM D.S.	PM Pk. Hr.	PM Pk. Hr. Fac.	MRGCOG Standard	NMSHTD Standard	AM Peak %	PM Peak %	Count Type	Loop of Road Tube
66161	BROADWAY	NORTH OF RIO BRAVO	199110	7124	3178	N	3946	S	587	0.73	N	715	0.91	691	0.74	S	1645	0.84	T	T	8.24	9.7	C	R
66161	BROADWAY	NORTH OF RIO BRAVO	199301	7150	4082	S	3068	N	631	0.72	N	700	0.91	714	0.74	S	1630	0.89	Q	T	8.83	9.99	V	R
66161	BROADWAY	NORTH OF RIO BRAVO	199601	9054	4987	S	4067	N	740	0.76	N	700	0.78	1133	0.8	S	1645	0.76	T	T	8.17	12.51	V	R
66161	BROADWAY	NORTH OF RIO BRAVO	200006	9849	3854	N	5995	S	642	0.69	N	645	0.83	1541	0.87	S	1715	0.79	Q	T	6.52	15.65	V	R
66161	BROADWAY	NORTH OF RIO BRAVO	200307	12384	5026	N	7358	S	876	0.62	N	645	0.92	1909	0.86	S	1645	0.91	Q	T	7.07	15.42	V	R
66161	BROADWAY	NORTH OF RIO BRAVO	200807	12001	6715	S	5286	N	932	0.71	N	700	0.78	1131	0.74	S	1645	0.92	Q	T	7.77	9.42	V	R
66180	SUNPORT/UNIVERSITY INTC	I-25 NBD. OFF RAMP	199711	624	0	-	0	-	91	1	N	600	0.73	48	1	N	1815	0.8	T	T	14.58	7.69	V	R
66180	SUNPORT/UNIVERSITY INTC	I-25 NBD. OFF RAMP	199806	928	0	-	0	-	117	1	N	700	0.75	55	1	N	1530	0.72	T	T	12.61	5.93	V	R
66180	SUNPORT/UNIVERSITY INTC	I-25 NBD. OFF RAMP	200106	1281	0	-	0	-	213	1	N	700	0.86	75	1	N	1545	0.94	T	T	16.63	5.85	V	R
66180	SUNPORT/UNIVERSITY INTC	I-25 NBD. OFF RAMP	200409	1367	0	-	0	-	197	1	N	645	0.74	75	1	N	1500	0.85	T	T	14.41	5.49	V	R
66180	SUNPORT/UNIVERSITY INTC	I-25 NBD. OFF RAMP	200809	1039	0	-	0	-	127	1	N	700	0.77	60	1	N	1645	0.68	T	T	12.22	5.77	V	R
66260	SUNPORT/UNIVERSITY INTC	I-25 NBD ON RAMP	199711	6956	0	-	0	-	333	1	N	900	0.88	730	1	N	1630	0.84	T	T	4.79	10.49	V	R
66260	SUNPORT/UNIVERSITY INTC	I-25 NBD ON RAMP	199806	7925	0	-	0	-	402	1	N	900	0.94	770	1	N	1645	0.81	T	T	5.07	9.72	V	R
66260	SUNPORT/UNIVERSITY INTC	I-25 NBD ON RAMP	200106	7280	0	-	0	-	416	1	N	900	0.79	626	1	N	1630	0.92	T	T	5.71	8.6	V	R
66260	SUNPORT/UNIVERSITY INTC	I-25 NBD ON RAMP	200409	11565	0	-	0	-	538	1	N	900	0.94	1292	1	N	1645	0.75	T	T	4.65	11.17	V	R
66260	SUNPORT/UNIVERSITY INTC	I-25 NBD ON RAMP	200809	9640	0	-	0	-	491	1	N	845	0.86	1049	1	N	1615	0.95	T	T	5.09	10.88	V	R
66431	UNIVERSITY	NORTHEAST OF RIO BRAVO	200903	7378	3862	N	3516	S	849	0.76	N	715	0.84	672	0.63	S	1630	0.9	T	T	11.51	9.11	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	199105	6555	3193	N	3362	S	553	0.77	N	645	0.9	628	0.68	S	1630	0.74	Q	T	8.44	9.58	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	199404	7755	3296	N	4459	S	730	0.7	N	700	0.8	797	0.73	S	1630	0.84	Q	T	9.41	10.28	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	199703	4636	2010	S	2626	N	530	0.84	N	700	0.8	396	0.57	S	1630	0.9	Q	T	11.43	8.54	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	200203	6205	3129	N	3076	S	637	0.84	N	700	0.6	610	0.68	S	1615	0.84	T	T	10.27	9.83	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	200503	6849	3510	N	3339	S	939	0.65	N	645	0.82	586	0.56	S	1630	0.86	T	T	13.71	8.56	V	R
66441	UNIVERSITY	NORTH OF GOLF COURSE ENTRANCE	200803	5860	3260	N	2600	S	596	0.79	N	715	0.76	473	0.6	S	1645	0.9	Q	T	10.17	8.07	V	R
66442	UNIVERSITY	SOUTH OF GEORGE RD.	199211	6365	4144	N	2221	S	600	0.79	N	700	0.88	656	0.58	N	1615	0.9	Q	T	9.43	10.31	C	R
66442	UNIVERSITY	SOUTH OF GEORGE RD.	199512	6621	5237	N	1384	S	570	0.96	N	715	0.84	510	0.87	N	1615	0.91	Q	T	8.61	7.7	V	R
66442	UNIVERSITY	SOUTH OF GEORGE RD.	199711	7867	4295	N	3572	S	767	0.64	N	715	0.75	658	0.6	N	1545	0.92	T	T	9.75	8.36	V	R
66460	SUNPORT/UNIVERSITY INTC	I-25 SBD. OFF RAMP	199711	6903	0	-	0	-	697	1	S	715	0.93	461	1	S	1530	0.91	T	T	10.1	6.68	V	R
66460	SUNPORT/UNIVERSITY INTC	I-25 SBD. OFF RAMP	199806	7785	0	-	0	-	814	1	S	715	0.94	504	1	S	1515	0.89	T	T	10.46	6.47	V	R
66460	SUNPORT/UNIVERSITY INTC	I-25 SBD. OFF RAMP	200106	6750	0	-	0	-	706	1	S	700	0.93	464	1	S	1615	0.89	T	T	10.46	6.87	V	R
66460	SUNPORT/UNIVERSITY INTC	I-25 SBD. OFF RAMP	200409	11403	0	-	0	-	1507	1	S	700	0.95	627	1	S	1500	0.82	T	T	13.22	5.5	V	R
66460	SUNPORT/UNIVERSITY INTC	I-25 SBD. OFF RAMP	200809	10032	0	-	0	-	1057	1	S	645	0.9	519	1	S	1500	0.92	T	T	10.54	5.17	V	R
66501	UNIVERSITY	NORTH OF GEORGE RD.	199801	4672	2635	N	2037	S	528	0.84	N	700	0.68	453	0.63	S	1630	0.76	Q	T	11.3	9.7	V	R
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	199711	3695	0	-	0	-	153	1	W	830	0.8	560	1	W	1630	0.83	T	T	4.14	15.16	V	R

COGID	Route	Location	Date	Raw Count Vol.	Dir. 1 Vol.	Dir. 1 Direction	Dir. 2 Vol.	Dir. 2 Direction	AM Pk. Hr. Vol.	AM D.S.	Dir. of AM D.S.	AM Pk. Hr.	AM Pk. Hr. Fac.	PM Pk. Hr. Vol.	PM D.S.	Dir. of PM D.S.	PM Pk. Hr.	PM Pk. Hr. Fac.	MRGCOG Standard	NMSHTD Standard	AM Peak %	PM Peak %	Count Type	Loop or Road Tube
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	199806	3820	0	-	0	-	165	1	W	900	0.88	510	1	W	1630	0.81	T	T	4.32	13.35	V	R
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	200106	5441	0	-	0	-	274	1	W	900	0.77	605	1	W	1630	0.92	T	T	5.04	11.12	V	R
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	200406	7010	0	-	0	-	303	1	W	900	0.79	914	1	W	1630	0.74	T	T	4.32	13.04	V	R
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	200706	7696	0	-	0	-	360	1	W	900	0.85	919	1	W	1615	0.9	T	T	4.68	11.94	V	R
6650	SUNPORT/UNIVERSITY INTC	WBD ON RAMP	200806	7643	0	-	0	-	327	1	W	900	0.76	948	1	W	1630	0.78	T	T	4.28	12.4	V	R
66502	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	199711	9571	5135	N	4436	S	780	0.63	N	715	0.73	745	0.6	N	1545	0.9	T	T	8.15	7.78	V	R
66502	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	200212	17614	8082	S	9532	N	1181	0.52	N	700	0.76	1302	0.56	N	1645	0.78	T	F	6.7	7.39	V	R
66502	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	200508	19245	10455	N	8790	S	1927	0.66	N	715	0.91	1411	0.56	N	1630	0.84	T	T	10.01	7.33	V	R
66502	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	200808	16061	8188	S	7873	N	951	0.66	S	615	0.89	1316	0.56	S	1645	0.91	T	T	5.92	8.19	C	R
66511	UNIVERSITY	NORTH OF UNIVERSITY/SUNPORT	199806	11108	3206	S	7902	N	1029	0.83	N	715	0.92	817	0.69	N	1515	0.75	Q	T	9.26	7.36	V	R
66512	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	200310	14550	9589	N	4961	S	1268	0.77	N	715	0.82	1126	0.63	N	1700	0.91	Q	T	8.71	7.74	V	R
66512	UNIVERSITY	SOUTH OF SUNPORT/UNIVERSITY	200810	16395	11663	N	4732	S	1606	0.82	N	730	0.83	1248	0.66	N	1615	0.92	Q	T	9.8	7.61	V	R
66551	UNIVERSITY	NORTH OF SUNPORT/UNIVERSITY	199711	8377	4267	N	4110	S	816	0.84	N	715	0.77	926	0.69	S	1630	0.81	T	T	9.74	11.05	V	R
66551	UNIVERSITY	NORTH OF SUNPORT/UNIVERSITY	200212	9965	5294	N	4671	S	922	0.79	N	715	0.81	1037	0.71	S	1630	0.86	T	F	9.25	10.41	V	R
66551	UNIVERSITY	NORTH OF SUNPORT/UNIVERSITY	200612	8442	3942	S	4500	N	730	0.78	N	715	0.94	931	0.65	S	1600	0.95	T	T	8.65	11.03	C	R
66551	UNIVERSITY	NORTH OF SUNPORT/UNIVERSITY	200912	10654	5254	N	5400	S	1005	0.73	S	730	0.84	1144	0.7	N	1630	0.92	T	T	9.43	10.74	C	R
66552	UNIVERSITY	SOUTH OF RANDOLPH	199802	8279	4009	N	4270	S	957	0.65	N	715	0.89	824	0.64	S	1630	0.85	T	T	11.56	9.95	V	R
66660	SUNPORT/UNIVERSITY INTC	I-25 SBD. ON RAMP	199711	1055	0	-	0	-	46	1	S	800	0.72	155	1	S	1645	0.86	T	T	4.36	14.69	V	R
66660	SUNPORT/UNIVERSITY INTC	I-25 SBD. ON RAMP	199806	1198	0	-	0	-	53	1	S	800	0.74	158	1	S	1645	0.9	T	T	4.42	13.19	V	R
66660	SUNPORT/UNIVERSITY INTC	I-25 SBD. ON RAMP	200106	1738	0	-	0	-	63	1	S	900	0.68	325	1	S	1630	0.9	T	T	3.62	18.7	V	R
66660	SUNPORT/UNIVERSITY INTC	I-25 SBD. ON RAMP	200409	1975	0	-	0	-	75	1	S	900	0.89	347	1	S	1630	0.93	T	T	3.8	17.57	V	R
66660	SUNPORT/UNIVERSITY INTC	I-25 SBD. ON RAMP	200809	1730	0	-	0	-	68	1	S	900	0.85	290	1	S	1645	0.86	T	T	3.93	16.76	V	R
66702	SUNPORT BLVD.	WEST OF I-25 E. RAMPS	200310	10710	8888	E	1822	W	1151	0.95	E	630	0.83	729	0.65	E	1530	0.95	F	T	10.75	6.81	V	R
66702	SUNPORT BLVD.	WEST OF I-25 E. RAMPS	200607	12868	10776	E	2092	W	1061	0.96	E	645	0.92	833	0.71	E	1515	0.95	F	T	8.25	6.47	V	R
66702	SUNPORT BLVD.	WEST OF I-25 E. RAMPS	200907	12469	2987	W	9482	E	958	0.9	E	645	0.87	856	0.6	E	1515	0.87	Q	T	7.68	6.87	C	R
66711	SUNPORT BLVD.	EAST OF I-25 E. RAMPS	200108	18493	9023	E	9470	W	1230	0.77	E	700	0.94	1439	0.68	W	1645	0.91	T	T	6.65	7.78	V	R
66712	SUNPORT BLVD.	WEST OF SUNPORT/UNIVERSITY IN	200403	20759	10236	E	10523	W	1759	0.77	E	700	0.89	1698	0.7	W	1630	0.82	T	T	8.47	8.18	V	R
66712	SUNPORT BLVD.	WEST OF SUNPORT/UNIVERSITY IN	200803	24564	12002	W	12562	E	1567	0.76	W	645	0.94	1896	0.72	E	1630	0.81	T	T	6.38	7.72	V	R
66741	SUNPORT BLVD.	EAST OF SUNPORT/UNIVERSITY IN	200108	8679	4534	E	4145	W	530	0.76	E	700	0.94	727	0.59	W	1630	0.83	T	T	6.11	8.38	V	R
66742	SUNPORT BLVD.	WEST OF SUNPORT/UNIVERSITY IN	200310	8509	4243	E	4266	W	673	0.67	E	630	0.95	627	0.66	W	1530	0.78	T	T	7.91	7.37	V	R
66742	SUNPORT BLVD.	WEST OF SUNPORT/UNIVERSITY IN	200810	8629	4379	E	4250	W	649	0.69	E	630	0.87	580	0.65	W	1615	0.82	T	T	7.52	6.72	V	R
66760	I-25 SBD	SUNPORT ON RAMP - SUNPORT OFF	199204	26051	0	-	0	-	1271	1	S	715	0.97	3210	1	S	1630	0.9	T	T	4.88	12.32	V	R
66760	I-25 SBD	SUNPORT ON RAMP - SUNPORT OFF	199806	31852	0	-	0	-	1337	1	S	845	0.93	3694	1	S	1630	0.95	T	T	4.2	11.6	V	R

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COGID	Route	Location	Date	Raw Count Vol.	Dir. 1 Vol.	Dir. 1 Direction	Dir. 2 Vol.	Dir. 2 Direction	AM Pk. Hr. Vol.	AM D.S.	Dir. of AM D.S.	AM Pk. Hr.	AM Pk. Hr. Fac.	PM Pk. Hr. Vol.	PM D.S.	Dir. of PM D.S.	PM Pk. Hr.	PM Pk. Hr. Fac.	MRGCOG Standard	NMSHTD Standard	AM Peak %	PM Peak %	Count Type	Loop of Road Tube
66960	RIO BRAVO INTCH.	I-25 NBD ON RAMP	200508	12686	0	-	0	-	1046	1	N	630	0.92	830	1	N	1615	0.89	T	T	8.25	6.54	V	R
66960	RIO BRAVO INTCH.	I-25 NBD ON RAMP	200801	13983	0	-	0	-	1313	1	N	700	0.98	1054	1	N	1545	0.91	T	T	9.39	7.54	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	199204	12054	1474	L	10580	R	734	1	S	715	0.93	1231	1	S	1630	0.96	T	T	6.09	10.21	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	199207	11050	0	-	0	-	587	1	S	730	0.89	1160	1	S	1630	0.87	T	T	5.31	10.5	C	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	199504	13928	0	-	0	-	1507	1	S	700	0.85	1052	1	S	1515	0.87	T	T	10.82	7.55	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	199804	12452	0	-	0	-	663	1	S	715	0.91	1139	1	S	1630	0.96	T	T	5.32	9.15	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	200104	10528	0	-	0	-	570	1	S	745	0.82	1003	1	S	1600	0.94	T	T	5.41	9.53	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	200205	11054	0	-	0	-	598	1	S	715	0.92	1107	1	S	1530	0.98	T	T	5.41	10.01	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	200501	12109	0	-	0	-	752	1	S	715	0.86	1217	1	S	1515	0.88	T	T	6.21	10.05	V	R
67000	RIO BRAVO INTCH.	I-25 SBD OFF RAMP	200801	12266	0	-	0	-	778	1	S	645	0.83	1209	1	S	1515	0.9	T	T	6.34	9.86	V	R
67081	RIO BRAVO BLVD.	EAST OF BROADWAY	199110	23066	11327	W	11739	E	2011	0.7	E	715	0.8	2098	0.63	W	1630	0.9	T	T	8.72	9.1	V	R
67081	RIO BRAVO BLVD.	EAST OF BROADWAY	199808	29016	15183	E	13833	W	2356	0.73	E	700	0.83	2286	0.6	W	1630	0.9	T	T	8.12	7.88	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	199104	27930	12652	E	15278	W	2349	0.69	E	700	0.82	2453	0.71	W	1645	0.86	Q	T	8.41	8.78	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	199404	26113	12971	W	13142	E	2114	0.73	E	700	0.84	2279	0.64	W	1630	0.92	T	T	8.1	8.73	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	199703	22149	11381	E	10768	W	2102	0.7	E	700	0.95	2158	0.57	W	1600	0.92	Q	T	9.49	9.74	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	200003	27246	14794	E	12452	W	2287	0.73	E	645	0.88	2208	0.53	W	1500	0.89	T	T	8.39	8.1	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	200205	26172	12897	W	13275	E	2627	0.76	E	700	0.98	2047	0.64	W	1630	0.94	T	T	10.04	7.82	V	R
67082	RIO BRAVO BLVD.	WEST OF I-25 W. RAMPS	200505	30820	15831	E	14989	W	2338	0.66	E	700	0.9	2453	0.6	W	1545	0.91	T	T	7.59	7.96	V	R
67200	I-25 SBD	RIO BRAVO ON RAMP - RIO BRAVO	199204	14011	0	-	0	-	569	1	S	715	0.86	2007	1	S	1645	0.88	T	T	4.06	14.32	V	R
67200	I-25 SBD	RIO BRAVO ON RAMP - RIO BRAVO	199504	17411	0	-	0	-	706	1	S	715	0.86	2427	1	S	1645	0.91	T	T	4.05	13.94	V	R
67200	I-25 SBD	RIO BRAVO ON RAMP - RIO BRAVO	199804	21366	0	-	0	-	885	1	S	830	0.93	2832	1	S	1645	0.92	T	T	4.14	13.25	V	R
67200	I-25 SBD	RIO BRAVO ON RAMP - RIO BRAVO	200508	19051	0	-	0	-	860	1	S	800	0.96	2202	1	S	1645	0.95	T	T	4.51	11.56	V	R
67200	I-25 SBD	RIO BRAVO ON RAMP - RIO BRAVO	200903	21150	0	-	0	-	1038	1	S	830	0.92	2416	1	S	1645	0.96	T	T	4.91	11.42	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	199204	18420	2410	W	16010	E	2239	0.96	E	700	0.83	1563	0.83	E	1515	0.89	F	T	12.16	8.49	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	199504	19800	17199	E	2601	W	1880	0.96	E	645	0.91	1629	0.77	E	1545	0.99	F	T	9.49	8.23	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	199804	17911	14360	E	3551	W	1626	0.92	E	700	0.94	1184	0.7	E	1645	0.81	F	T	9.08	6.61	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	200104	16515	13232	E	3283	W	1468	0.93	E	645	0.94	1113	0.73	E	1515	0.91	F	T	8.89	6.74	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	200205	16571	2785	W	13786	E	2135	0.96	E	700	0.97	1169	0.77	E	1515	0.94	F	T	12.88	7.05	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	200508	19554	15339	E	4215	W	1748	0.91	E	715	0.94	1535	0.67	E	1630	0.91	Q	T	8.94	7.85	V	R
67282	RIO BRAVO BLVD.	I-25 UNDERPASS	200808	20170	16618	E	3552	W	1767	0.93	E	700	0.9	1426	0.73	E	1500	0.91	F	T	8.76	7.07	V	R
67481	RIO BRAVO	EAST OF I-25 E. RAMPS	199112	6237	3324	E	2913	W	641	0.83	E	700	0.71	624	0.73	W	1630	0.76	T	T	10.28	10	V	R
67481	RIO BRAVO	EAST OF I-25 E. RAMPS	199406	8697	4782	E	3915	W	811	0.82	E	715	0.73	808	0.71	W	1600	0.83	T	T	9.33	9.29	C	R
67481	RIO BRAVO	EAST OF I-25 E. RAMPS	199707	7815	4540	E	3275	W	854	0.82	E	715	0.76	584	0.69	W	1630	0.78	Q	T	10.93	7.47	V	R

APPENDIX B

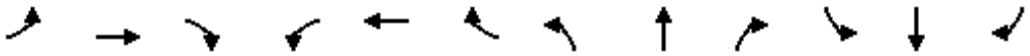
INTERSECTION OPERATIONAL ANALYSIS 2008 AM & PM
(SYNCHRO)

I-25 & Sunport Blvd 2008 AM Peak_NoBuild_Revised

7/8/2010

I-25 & Sunport Blvd 2008 AM Peak_NoBuild_Revised

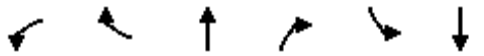
5/24/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1055	0	0	67	489	1	0	126	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	2	1147	0	0	73	532	1	0	137	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	73			1147			1224	1224	573	651	1224	73
vC1, stage 1 conf vol							1151	1151		73	73	
vC2, stage 2 conf vol							73	73		578	1151	
vCu, unblocked vol	73			1147			1224	1224	573	651	1224	73
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	70	100	100	100
cM capacity (veh/h)	1503			605			186	236	462	293	236	974

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	2	573	573	73	266	266	1	137
Volume Left	2	0	0	0	0	0	1	0
Volume Right	0	0	0	0	266	266	0	137
cSH	1503	1700	1700	1700	1700	1700	186	462
Volume to Capacity	0.00	0.34	0.34	0.04	0.16	0.16	0.01	0.30
Queue Length 95th (ft)	0	0	0	0	0	0	0	31
Control Delay (s)	7.4	0.0	0.0	0.0	0.0	0.0	24.5	16.0
Lane LOS	A						C	C
Approach Delay (s)	0.0			0.0			16.1	
Approach LOS							C	

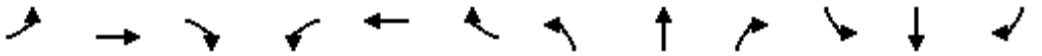
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	39.5%	ICU Level of Service		A
Analysis Period (min)	15			



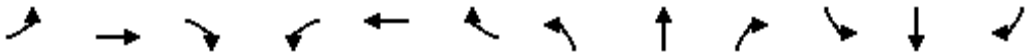
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	68	0	0	0	1057	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	0	0	0	1149	0

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total (vph)	74	574	574
Volume Left (vph)	74	574	574
Volume Right (vph)	0	0	0
Hadj (s)	0.23	0.53	0.53
Departure Headway (s)	6.0	5.3	5.3
Degree Utilization, x	0.12	0.84	0.84
Capacity (veh/h)	591	676	676
Control Delay (s)	9.8	28.6	28.6
Approach Delay (s)	9.8	28.6	
Approach LOS	A	D	

Intersection Summary			
Delay	27.5		
HCM Level of Service	D		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		



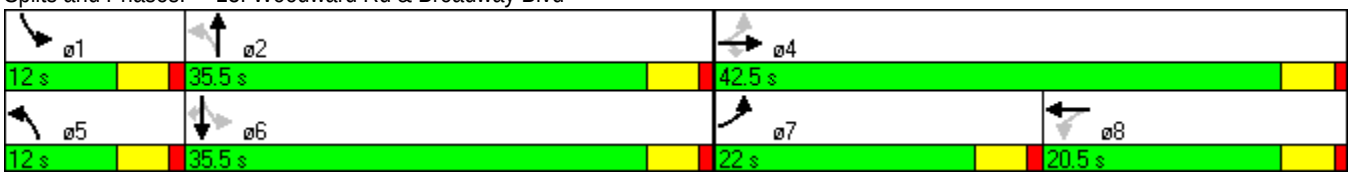
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	283	0	7	0	0	2	10	639	1	11	316	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		40	0		0	100		0	75		75
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.865							0.850
Flt Protected		0.950					0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1611	0	1770	3539	0	1719	3539	1583
Flt Permitted		0.757					0.546			0.327		
Satd. Flow (perm)	0	1410	1583	0	1611	0	1017	3539	0	592	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			5		305							214
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		406			1458			828			703	
Travel Time (s)		9.2			33.1			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	308	0	8	0	0	2	11	695	1	12	343	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	308	8	0	2	0	11	696	0	12	343	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			0			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	20.5	20.5	20.5	20.5		11.5	20.5		11.5	20.5	20.5
Total Split (s)	22.0	42.5	42.5	20.5	20.5	0.0	12.0	35.5	0.0	12.0	35.5	35.5
Total Split (%)	24.4%	47.2%	47.2%	22.8%	22.8%	0.0%	13.3%	39.4%	0.0%	13.3%	39.4%	39.4%
Maximum Green (s)	17.5	38.0	38.0	16.0	16.0		7.5	31.0		7.5	31.0	31.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0			0			0	0
Act Effct Green (s)		23.0	23.0		23.0		33.6	32.6		33.6	32.6	32.6
Actuated g/C Ratio		0.35	0.35		0.35		0.50	0.49		0.50	0.49	0.49
v/c Ratio		0.63	0.01		0.00		0.02	0.40		0.03	0.20	0.24
Control Delay		24.3	10.4		0.0		11.0	14.3		11.1	12.8	3.6
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		24.3	10.4		0.0		11.0	14.3		11.1	12.8	3.6
LOS		C	B		A		B	B		B	B	A
Approach Delay		23.9			0.0			14.3			9.3	
Approach LOS		C			A			B			A	
Queue Length 50th (ft)		93	1		0		2	79		2	34	0
Queue Length 95th (ft)		204	9		0		12	222		13	107	46
Internal Link Dist (ft)		326			1378			748			623	
Turn Bay Length (ft)			40				100			75		75
Base Capacity (vph)		827	931		768		602	1732		430	1732	884
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.37	0.01		0.00		0.02	0.40		0.03	0.20	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 47.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: Woodward Rd & Broadway Blvd



I-25 & Sunport Blvd 2008 PM Peak_NoBuild_Revised

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I-25 & Sunport Blvd 2008 PM Peak_NoBuild_Revised

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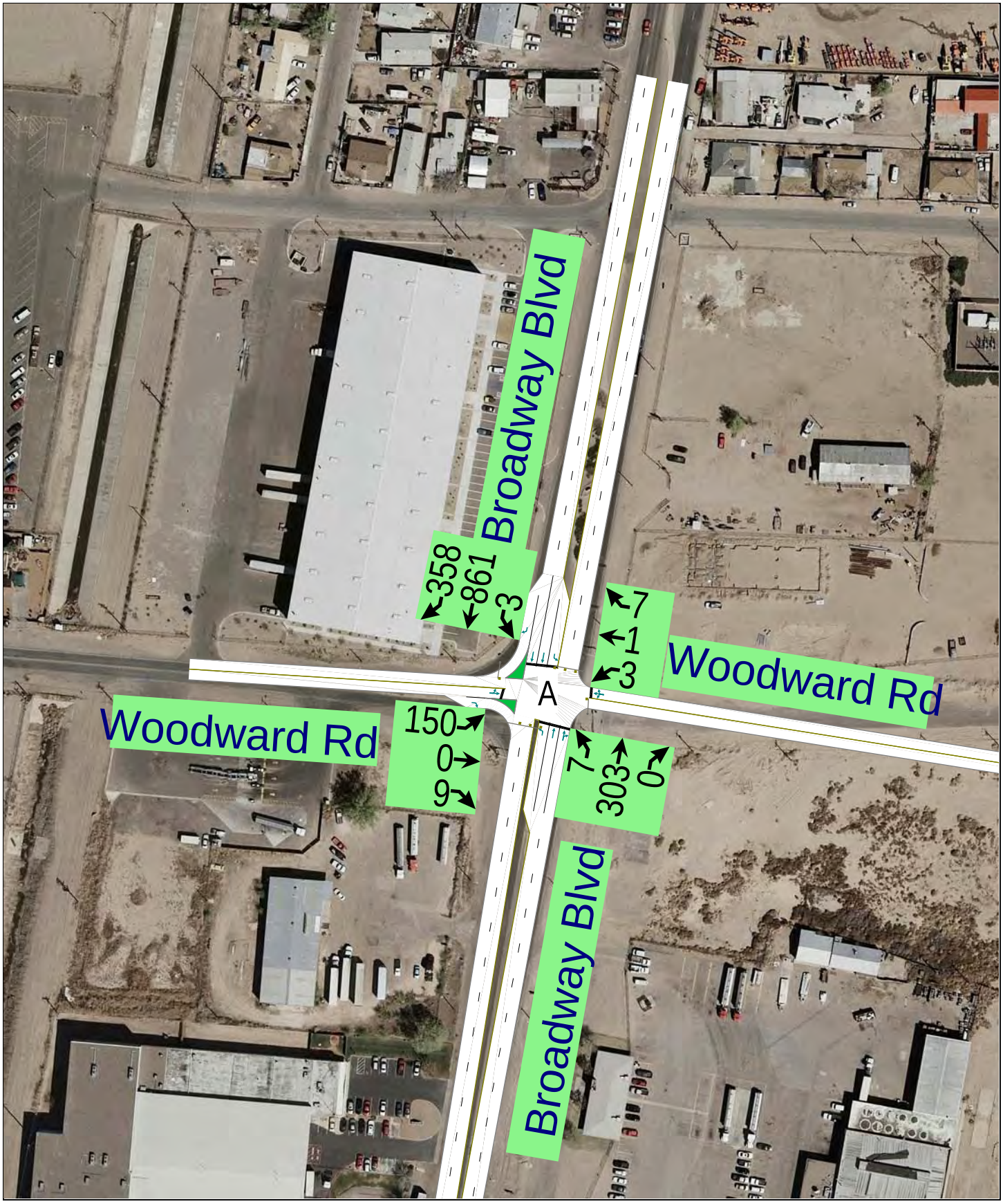
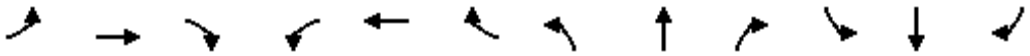
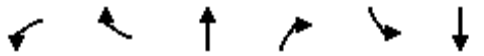




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	517	0	0	289	1047	1	0	59	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	562	0	0	314	1138	1	0	64	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			Raised							
Median storage veh)		2			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	314			562			880	880	281	599	880	314
vC1, stage 1 conf vol							566	566		314	314	
vC2, stage 2 conf vol							314	314		285	566	
vCu, unblocked vol	314			562			880	880	281	599	880	314
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	91	100	100	100
cM capacity (veh/h)	1221			1005			427	453	716	538	453	682

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	2	281	281	314	569	569	1	64
Volume Left	2	0	0	0	0	0	1	0
Volume Right	0	0	0	0	569	569	0	64
cSH	1221	1700	1700	1700	1700	1700	427	716
Volume to Capacity	0.00	0.17	0.17	0.18	0.33	0.33	0.00	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	0	7
Control Delay (s)	8.0	0.0	0.0	0.0	0.0	0.0	13.5	10.5
Lane LOS	A						B	B
Approach Delay (s)	0.0			0.0			10.6	
Approach LOS							B	

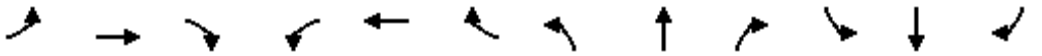
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	36.3%	ICU Level of Service		A
Analysis Period (min)	15			



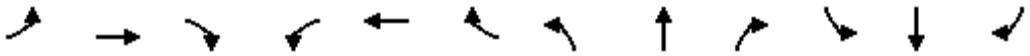
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	318	0	0	0	519	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	346	0	0	0	564	0

Direction, Lane #	WB 1	SB 1	SB 2
Volume Total (vph)	346	282	282
Volume Left (vph)	346	282	282
Volume Right (vph)	0	0	0
Hadj (s)	0.23	0.53	0.53
Departure Headway (s)	5.5	6.1	6.1
Degree Utilization, x	0.53	0.47	0.47
Capacity (veh/h)	634	580	580
Control Delay (s)	14.4	13.2	13.2
Approach Delay (s)	14.4	13.2	
Approach LOS	B	B	

Intersection Summary			
Delay	13.7		
HCM Level of Service	B		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		



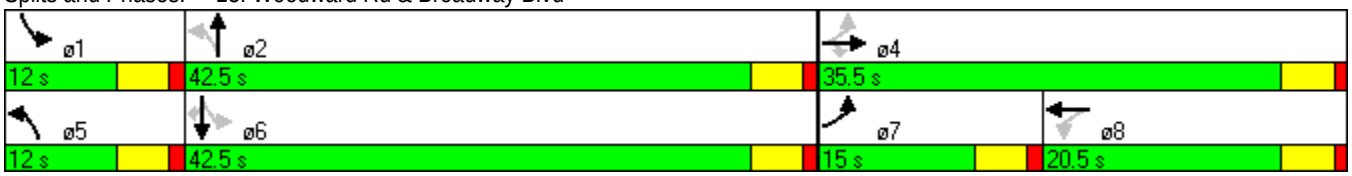
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	0	9	3	1	7	7	303	0	3	861	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		40	0		0	100		0	75		75
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.910							0.850
Flt Protected		0.950			0.988		0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1675	0	1770	3539	0	1719	3539	1583
Flt Permitted		0.750			0.937		0.261			0.553		
Satd. Flow (perm)	0	1397	1583	0	1588	0	486	3539	0	1001	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			10		8							219
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		406			1467			828			703	
Travel Time (s)		9.2			33.3			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	163	0	10	3	1	8	8	329	0	3	936	389
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	10	0	12	0	8	329	0	3	936	389
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	20.5	20.5	20.5	20.5		11.5	20.5		11.5	20.5	20.5
Total Split (s)	15.0	35.5	35.5	20.5	20.5	0.0	12.0	42.5	0.0	12.0	42.5	42.5
Total Split (%)	16.7%	39.4%	39.4%	22.8%	22.8%	0.0%	13.3%	47.2%	0.0%	13.3%	47.2%	47.2%
Maximum Green (s)	10.5	31.0	31.0	16.0	16.0		7.5	38.0		7.5	38.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0			0			0	0
Act Effct Green (s)		13.9	13.9		13.9		44.5	43.3		44.5	43.3	43.3
Actuated g/C Ratio		0.20	0.20		0.20		0.65	0.63		0.65	0.63	0.63
v/c Ratio		0.57	0.03		0.04		0.02	0.15		0.00	0.42	0.36
Control Delay		32.1	11.9		14.5		5.3	6.8		5.3	8.5	4.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		32.1	11.9		14.5		5.3	6.8		5.3	8.5	4.7
LOS		C	B		B		A	A		A	A	A
Approach Delay		30.9			14.5			6.7			7.4	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		54	0		1		1	21		0	73	21
Queue Length 95th (ft)		124	12		14		6	72		3	221	110
Internal Link Dist (ft)		326			1387			748			623	
Turn Bay Length (ft)			40				100			75		75
Base Capacity (vph)		640	731		402		460	2243		733	2243	1083
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.25	0.01		0.03		0.02	0.15		0.00	0.42	0.36

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 68.3			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 9.5		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 13: Woodward Rd & Broadway Blvd



APPENDIX C

CRASH HISTORY
(BROADWAY BOULEVARD / NM 47 & I-25)

INTERSECTION REPORT
FOR ACCIDENTS AT THE INTERSECTION OF BROADWAY BLVD NE AND

ACC NUM / DATE / TIME	PSTD RTE / MILEPST / MILELOG / MILEPNT	D I R	CITY / STREET / INTERSECT	SEVERITY / LIGHTING / WEATHER / ALCOHOL	VEHICLES INVOLVED / CLASSIFICATION / ANALYSIS	CONTRIBUTING FACTORS	INJ	FATAL
680576	NM0047	P	ALBUQUERQUE	PROPERTY DAMAGE	2 VEHICLES INVOLVED			
02/05/07			BROADWAY BLVD NE	DAY LIGHT	OTHER VEHICLE			
15:08			00 MI. 9999 FT	CLEAR	FROM SAME DIR/ONE RIGHT TURN			
	0.018		UNKNOWN - NOT GIVEN					
VEHICLE: 01	TRAVELING SOUTH ON DRY ROAD			TRUCK/RV	HAD NOT BEEN DRINKING	DRIVER INATTENTION		
	NAME NOT AVAILABLE DOB: 05/11/44					OTHER IMPROPER DRIVING		
VEHICLE: 02	TRAVELING SOUTH ON DRY ROAD				HAD NOT BEEN DRINKING	DRIVER INATTENTION		
	NAME NOT AVAILABLE DOB: 02/10/80					OTHER IMPROPER DRIVING		
716523	NM0047	P	ALBUQUERQUE	NON-FATAL	2 VEHICLES INVOLVED			
04/03/07			BROADWAY BLVD NE	DAY LIGHT	OTHER VEHICLE_HWY ELEM			
07:41			00 MI. 0225 FT NORTH OF	CLEAR	ONE CAR/STOPPED IN TRAFFIC			
	0.018		UNKNOWN - NOT GIVEN					
VEHICLE: 01	TRAVELING SOUTH ON DRY ROAD			TRUCK/RV	HAD NOT BEEN DRINKING	VEH SKIDDED BEFORE BRAKE	1	
	NAME NOT AVAILABLE DOB: 05/25/60							
VEHICLE: 02	TRAVELING SOUTH ON DRY ROAD			PASSENGER VEHICLE	HAD NOT BEEN DRINKING	DRIVER INATTENTION		
	NAME NOT AVAILABLE DOB: 06/14/84					OTHER IMPROPER DRIVING		
670684	NM0047	P	ALBUQUERQUE	PROPERTY DAMAGE	2 VEHICLES INVOLVED			
06/01/07			BROADWAY BLVD NE	DAY LIGHT	OTHER VEHICLE_HWY ELEM			
16:18			00 MI. 0200 FT NORTH OF	CLEAR	ONE CAR/STOPPED IN TRAFFIC			
	0.018		WOODWARD RD SE					
VEHICLE: 01	TRAVELING NORTH ON DRY ROAD			TRUCK/RV	HAD NOT BEEN DRINKING	VEH SKIDDED BEFORE BRAKE		
	NAME NOT AVAILABLE DOB: 03/03/75							
VEHICLE: 02	TRAVELING NORTH ON DRY ROAD			PASSENGER VEHICLE	HAD NOT BEEN DRINKING	DRIVER INATTENTION		
	NAME NOT AVAILABLE DOB: 01/18/69					OTHER IMPROPER DRIVING		

---------- ACCIDENT SUMMARY TOTALS ----------

TOTAL ACCIDENTS : 124

FATAL ACCIDENTS : 0 TOTAL FATALITIES: 0
INJURY ACCIDENTS : 38 TOTAL INJURIES : 63
PROPERTY DAMAGE : 86

JOB REQUESTED BY : LINDA MONTOYA
DATE OF REPORT : 02/08/10

ROUTE I00025 FROM MILEPOINT 223.058 to 223.758 (MILEPOST 221.8-222.5) -- BETWEEN 01-JAN-06 & 31-DEC-08

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
594286	I00025	P	Albuquerque	property damage only accident	fixed objects		
0022594286	221.8		I-25 North-Bd Fw Se	day light	guard rail		
09/05/06	223.1		00 mi. 1000 ft. south	clear			
1150	223.06		Mm 213	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				passenger vehicle	sobriety unknown too fast for cond driver inattention other improper driving		
610453	I00025	P	Albuquerque	property damage only accident	other vehicle		
0022610453	221.85		I-25 North-Bd Fw Se	day light	sideswipe coll/same dir		
04/26/06	223.15		00 mi. 0900 ft. south	clear			
0810	223.11		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				trailer/freight t	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		
733939	I00025	M	Albuquerque	property damage only accident	other vehicle		
0022733939	221.85		I-25 South-Bd Fw Se	day light	one car/stopped in traffic		
10/19/06	223.15		00 mi. 1900 ft. north	clear			
1649	221.85		Sunport Blvd	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				truck/rv	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling south on dry road				truck/rv	had not consumed alcohol driver inattention other improper driving		
383550	I00025	M	Albuquerque	property damage only accident	fixed objects		
0010383550	221.9		I-25 South-Bd Fw Ne	day light	light standard (light pole)		
07/05/06	0		01 mi. 0000 ft. south	clear			
0830	221.9		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				passenger vehicle	had not consumed alcohol avoid no contact ped,anim driver inattention other improper driving		

Total Accidents:23 with injury: 8 with fatality: 0 property damage only: 15 *Injuries: 13 Fatalities:0*

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
610506	I00025	P	Albuquerque	property damage only accident	other vehicle		
0022610506	221.97		I-25 North-Bd Fw Ne	day light	rear end coll/same dir		
02/21/07	0		00 mi. 0000 ft. south	clear			
0715	223.23		Exit 222	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				unknown	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				passenger vehicle	had not consumed alcohol driver inattention other improper driving		
014114	I00025	P	Albuquerque	property damage only accident	other vehicle		
0022014114	222		I-25 North-Bd Fw Se	day light	sideswipe coll/same dir		
01/22/07	223.3		00 mi. 9999 ft. unknown	clear			
1550	223.26		Unknown - Not Given	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				truck/rv	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		
023283	I00025	P	Albuquerque	property damage only accident	other vehicle		
0022023283	222		I-25 North-Bd Fw Ne	day light	one car/stopped in traffic		
01/05/06	223.1		00 mi. 1300 ft. south	clear			
0821	223.26		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				passenger vehicle	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
044088	I00025	M	Albuquerque	non-fatal accident (injury)	other vehicle		
0023044088	222		I-25 South-Bd Fw Se	dark (lighted)	rear end coll/same dir		
11/21/07	223.3		00 mi. 0022 ft. north	clear			
1704	222		Unknown - Not Given	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention	2	
Vehicle: 02 Traveling south on dry road				truck/rv	had not consumed alcohol veh skidded before brake	1	
Vehicle: 03 Traveling south on dry road				truck/rv	had not consumed alcohol following too close driver inattention		
103851	I00025	P	Albuquerque	property damage only accident	fixed objects		
0022103851	222		I-25 North-Bd Fw Se	day light	guard rail		
01/08/06	223.3		00 mi. 9999 ft. unknown	clear			
1336	223.26		Mm 222b	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				passenger vehicle	had not consumed alcohol other mech defect traff cntrl not functioning		
386504	I00025	P	Albuquerque	property damage only accident	fixed objects		
	222		I 25	day light	guard rail		
06/17/08	223.3		00 mi. 0100 ft. north	clear			
1238	223.26		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				passenger vehicle	had not consumed alcohol veh skidded before brake		
546341	I00025	P	Albuquerque	property damage only accident	fixed objects		
0022546341	222		I-25 North-Bd Fw Se	day light	light standard (light pole)		
04/09/06	223.3		00 mi. 9999 ft. unknown	clear			
1247	223.26		R-I25/Gibson Blvd-Ne	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				truck/rv	sobriety unknown too fast for cond driver inattention		

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
546908 **0022546908** 03/17/06 0937	I00025 222 223.3 222	M	Albuquerque I-25 South-Bd Fw Se 00 mi. 9999 ft. unknown Mm 222	property damage only accident day light clear Bernalillocounty	other vehicle rear end coll/same dir		
Vehicle: 01 Traveling south on dry road				truck/rv	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling south on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		
551600 **0022551600** 06/09/07 1030	I00025 222 0 223.26	P	Albuquerque I-25 North-Bd Fw Ne 00 mi. 9999 ft. unknown Mp 222	property damage only accident day light clear Bernalillocounty	other vehicle one car/stopped in traffic		
Vehicle: 01 Traveling north on dry road				passenger vehicle	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		
591058 **0022591058** 03/14/06 1757	I00025 222 223.3 223.26	P	Albuquerque I 25 00 mi. 0000 ft. south Mm 222	non-fatal accident (injury) day light clear Bernalillocounty	fixed objects light standard (light pole)		
Vehicle: 01 Traveling south on dry road				truck/rv	consumed alcohol driver inattention under influence alcohol other improper driving	1	

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
599336	I00025	M	Albuquerque	non-fatal accident (injury)	other vehicle		
0022599336	222		I-25 South-Bd Fw Se	day light	rear end coll/same dir		
03/13/06	223.3		00 mi. 9999 ft. unknown	clear			
1710	222		Mm 222 B	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				truck/rv	sobriety unknown veh skidded before brake	1	
Vehicle: 02 Traveling south on dry road				truck/rv	had not consumed alcohol following too close driver inattention		
715980	I00025	M	Albuquerque	non-fatal accident (injury)	fixed objects		
0022715980	222		I-25 South-Bd Fw Se	day light	roadway divider - concrete jersey bounce		
05/13/06	223.3		00 mi. 0100 ft. south	clear			
1850	222		Gibson	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				passenger vehicle	had not consumed alcohol avoid no contact ped,anim traff cntrl not functioning	3	
734804	I00025	M	Albuquerque	non-fatal accident (injury)	other vehicle		
0022734804	222		I-25 South-Bd Fw Se	dark (lighted)	rear end coll/same dir		
10/16/06	223.3		00 mi. 9999 ft. unknown	clear			
1901	222		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				truck/rv	had not consumed alcohol driver inattention other improper driving	1	
Vehicle: 02 Traveling south on dry road				passenger vehicle	had not consumed alcohol driver inattention other improper driving		
Vehicle: 03 Traveling south on dry road				truck/rv	had not consumed alcohol veh skidded before brake		
Vehicle: 04 Traveling south on dry road				truck/rv	had not consumed alcohol veh skidded before brake		
Vehicle: 05 Traveling south on dry road				truck/rv	had not consumed alcohol following too close driver inattention		

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
757856	I00025	M	Albuquerque	property damage only accident	other vehicle		
0022757856	222		I-25 South-Bd Fw Ne	day light	rear end coll/same dir		
12/18/06	0		00 mi. 9999 ft. unknown	clear			
1500	222		Mm 222	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				passenger vehicle	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling south on dry road				passenger vehicle	sobriety unknown driver inattention other improper driving		
827839	I00025	M	Albuquerque	property damage only accident	other vehicle		
0022827839	222		I-25 South-Bd Fw Se	dark (lighted)	one car/stopped in traffic		
01/18/07	223.3		00 mi. 9999 ft. unknown	clear			
1740	222			Bernalillocounty			
Vehicle: 01 Traveling south on dry road				police	had not consumed alcohol avoid no contact veh veh skidded before brake		
Vehicle: 02 Traveling south on not stated				unknown	sobriety not stated		
547451	I00025	M	Albuquerque	property damage only accident	fixed objects		
0022547451	222.15		I-25 South-Bd Fw Se	day light	guard rail		
04/03/07	223.45		00 mi. 0784 ft. north	clear			
0710	222.15		Gibson Blvd Se	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				trailer/freight t	consumed medication too fast for cond following too close driver inattention		
614955	I00025	P	Albuquerque	non-fatal accident (injury)	other vehicle		
0022614955	222.15		I-25 North-Bd Fw Se	day light	rear end coll/same dir		
11/21/06	223.45		00 mi. 0826 ft. north	clear			
1341	223.41		Uk	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				unknown	had not consumed alcohol veh skidded before brake		
Vehicle: 02 Traveling north on dry road				unknown	had not consumed alcohol failed to yeild row	1	

ROUTE I00025 FROM MILEPOINT 223.058 to 223.758 (MILEPOST 221.8-222.5) --- BETWEEN 01-JAN-06 & 31-DEC-08

Accident numbers / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersection	Severity / Lighting / Weather	Classification / Analysis / Sobriety / Contributing Factors	INJURY	FATAL
760392	I00025	M	Albuquerque	non-fatal accident (injury)	other vehicle		
0022760392	222.15		I-25 South-Bd Fw Se	day light	rear end coll/same dir		
05/18/07	223.45		00 mi. 9999 ft. unknown	clear			
1545	222.15		R-I25/Gibson Blvd-Sw	Bernalillocounty			
Vehicle: 01 Traveling south on dry road				passenger vehicle	had not consumed alcohol veh skidded before brake	1	
Vehicle: 02 Traveling south on dry road				passenger vehicle	had not consumed alcohol following too close driver inattention		
730927	I00025	M	Albuquerque	non-fatal accident (injury)	other vehicle		
0022730927	222.5		I-25 South-Bd Fw Se	day light	one car/stopped in traffic		
09/27/06	223.8		00 mi. 0500 ft. south	clear			
1606	222.5		Unknown - Not Given	Bernalillocounty			
Vehicle: 01 Traveling north on dry road				passenger vehicle	sobriety unknown veh skidded before brake	2	
Vehicle: 02 Traveling north on dry road				passenger vehicle	sobriety unknown following too close driver inattention		

APPENDIX D

ADJUSTED AND ADOPTED TRAFFIC VOLUMES

Sunport Extension Volume Adjustments

		Actual Volume Count Data												No Build									Build								
																	Modeled and Adjusted 2030 Traffic Volumes														
Roadway Segment	**Direction**	**Year of Actual Count**	**Actual Count**	**Year of Actual Count**	**Actual Count**	**Year of Actual Count**	**Actual Count**	**Year of Actual Count**	**Actual Count**	**Year of Actual Count**	**Actual Count**	**Model 2006**	**Representative Count "2008"**	**NoBuild Model 2030 ADT**	**Growth Factor Between 2006 and 2030 (24 years) (I={(F/P) ^1/n} -1)**	**New 2030 ADT (F=P(1+I)^n**	**Revised and Smoothed NoBuild 2030 ADT**	**NoBuild Model 2030 AM Peak**	**NoBuild Model 2030 AM Peak %**	**Revised and Smoothed NoBuild 2030 AM Peak**	**NoBuild Model 2030 PM Peak**	**NoBuild Model 2030 PM Peak %**	**Revised and Smoothed NoBuild 2030 PM Peak**	**Build Model 2030 ADT**	**Revised and Smoothed Build 2030 ADT**	**Build Model 2030 AM Peak**	**Build Model 2030 AM Peak %**	**Revised and Smoothed Build 2030 AM Peak**	**Build Model 2030 PM Peak**	**Build Model 2030 PM Peak %**	**Revised and Smoothed Build 2030 PM Peak**	**Comments**
Sunport Blvd. (East of I-25)*	EB					Aug-01	9,023	Mar-03	10,236	Mar-08	12,562	4,679	12,562	9,767	0.031138508	24,662	18,400	1,608	0.16	3029	596	0.06	1,123	14,313	20,400	2,051	0.14	2,923	1,100	0.08	1,568	Models under-represent
	WB						9,470		10,523		12,002	5,437	12,002	10,516	0.027867502	21,972	21,972	241	0.02	504	1,609	0.15	3,362	13,291	23,700	344	0.03	613	1,952	0.12	2,844	future traffic growth.
Sunport Blvd. (West of I-25)	EB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,224	11,224	1,070	0.10	1,070	876	0.08	876	Use model results for
	WB																							9,747	9,747	397	0.04	397	875	0.09	875	Sunport "Build".
Sunport / I-25 NB On Ramp	NB	Nov-97	6,956	Jun-98	7,925	Jun-01	7,280	Sep-04	11,565	Sep-08	9,640	2,540	9,640	3,766	0.01654578	13,832	15,900	116	0.03	490	649	0.17	2,740	6,585	19,200	278	0.04	811	627	0.10	1,828	Airport traffic under-represented by model.
Sunport / I-25 NB Off Ramp	NB	Nov-97	624	Jun-98	928	Jun-01	1,281	Sep-04	1,367	Sep-08	1,039	1,792	1,039	4,248	0.036617662	2,292	4,248	860	0.20	860	294	0.07	294	4,043	6,000	724	0.18	1,074	217	0.05	322	Use of ramp expected to increase in Build condition.
Sunport / I-25 SB On Ramp	SB	Nov-97	1,055	Jun-98	1,198	Jun-01	1,738	Sep-09	1,975	Sep-08	1,730	2,896	1,730	6,750	0.035887798	3,758	6,750	125	0.02	125	960	0.14	960	4,653	4,653	143	0.03	143	837	0.18	837	
Sunport / I-25 SB Off Ramp	SB	Nov-97	6,903	Jun-98	7,785	Jun-01	6,750	Sep-04	11,403	Sep-08	10,032	2,887	10,032	5,518	0.027359138	18,167	17,200	747	0.11	1892	302	0.05	941	6,741	18,063	730	0.11	1,790	393	0.06	1,053	Airport traffic under-represented by model.
Broadway North of Woodward	NB	Aug-92	5,219	Aug-95	6,087	Aug-98	6,081	Oct-03	6,331	Sep-09	7,331	5,374	7,331	12,498	0.035792159	15,891	12,498	1,596	0.13	1596	1,013	0.08	1,013	5,995	5,995	1,080	0.18	1,080	549	0.09	549	Use model results
	SB		6,138		11,169		7,276		7,491		10,820	7,391	10,820	12,306	0.021469894	17,266	12,306	612	0.05	612	1,620	0.13	1,620	6,479	6,479	353	0.05	353	1,269	0.20	1,269	Use model results
Broadway South of Woodward	NB	Jan-93	3,068	Jan-96	4,067	Jun-00	3,854	Jul-03	5,026	Jul-08	5,286	3,211	5,286	6,959	0.032752144	10,741	7,786	1,278	0.18	1430	596	0.09	667	9,449	10,329	1,421	0.15	1,553	815	0.09	891	Use model segment
	SB		4,082		4,987		5,995		7,358		6,715	5,153	6,715	6,380	0.008939262	8,167	7,243	254	0.04	288	1,221	0.19	1,386	8,490	9,407	267	0.03	296	1,407	0.17	1,559	Use model segment
Woodward West of Broadway	EB	Jul-94	2,149	Jul-97	2,182	Jul-00	1,886	Jul-03	1,296	Jul-08	3,124	2,262	3,124	6,107	0.042250963	7,764	6,107	403	0.07	403	538	0.09	538	7,017	8,000	641	0.09	731	532	0.08	607	Increase build volume
	WB		1,733		3,954		3,825		2,050		3,431	2,338	3,431	6,494	0.043484872	8,752	6,494	443	0.07	443	519	0.08	519	7,058	8,000	434	0.06	492	649	0.09	736	Increase build volume
Gibson, Broadway to I-25	EB	Apr-95	8,847	Apr-98	9,023	May-98	8,535	Dec-02	8,492	Dec-06	7,553	9,660	7,553	15,205	0.019081038	11,448	15,205	1,517	0.10	1517	1,217	0.08	1,217	9,421	9,421	1,121	0.12	1,121	828	0.09	828	Use model results
	WB		8,429		9,258		9,923		9,540		8,908	12,960	8,908	16,266	0.009512011	10,971	16,266	935	0.06	935	1,671	0.10	1,671	10,844	10,844	683	0.06	683	1,427	0.13	1,427	Use model results
Rio Bravo, Broadway to I-25	EB	Apr-94	13,142	Mar-97	11,381	Mar-00	14,794	May-02	13,275	May-05	15,831	15,791	16,154	18,560	0.006754735	18,733	21,000	1,898	0.10	2148	1,286	0.07	1,455	16,135	18,135	1,749	0.11	1,966	1,119	0.07	1,258	Minor adjustment
	WB		12,971		10,768		12,452		12,897		14,989	14,303	15,614	19,829	0.013704567	21,065	21,065	1,191	0.06	1265	1,870	0.09	1,987	18,186	19,000	1,182	0.06	1,235	1,726	0.09	1,803	Minor adjustment
Sunport Blvd. Between Ramps	EB					Oct-03	8,888	Jul-06	10,776	Jul-09	9,482	2,887	9,482	5,518	0.027359138	17,171	17,200	747	0.11	1892	302	0.05	941	14,089	25,200	1,514	0.11	2,708	1,085	0.07	1,764	Airport traffic under-represented by model.
	WB						1,822		2,092		2,987	2,896	2,987	6,750	0.035887798	6,488	6,750	125	0.02	125	960	0.12	837	10,525	10,525	253	0.02	253	1,529	0.15	1,529	

Extrapolation Methodology: Using the 2006 and 2030 Model volumes, a growth rate is derived for the 24 year span. This growth rate is then applied to the latest actual count to arrive at the New 2030 Volume.

* Total daily volume for Sunport Blvd. east of I-25 (40,372 No-Build) compares favorably with 2030 forecast volume from *Interstate 25 South Corridor Study* volume of 35,700; within 13%.

APPENDIX E

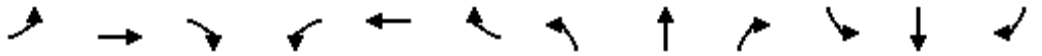
INTERSECTION OPERATIONAL ANALYSIS 2030 NO BUILD AM& PM *(SYNCHRO)*

I-25 & Sunport Blvd 2030 AM Peak_NoBuild_Final

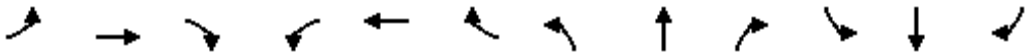
7/8/2010

I-25 & Sunport Blvd 2030 AM Peak_NoBuild_Final

6/3/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	1781	0	0	109	408	11	4	841	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	340		0	0		0	0		0
Storage Lanes	1		0	1		2	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950							0.964				
Satd. Flow (prot)	1719	3438	0	0	1863	2787	0	1796	1583	0	0	0
Flt Permitted	0.654							0.964				
Satd. Flow (perm)	1183	3438	0	0	1863	2787	0	1796	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						443			174			
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		357			717			367			285	
Travel Time (s)		5.4			10.9			7.1			4.3	
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
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	111	1936	0	0	118	443	12	4	914	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	1936	0	0	118	443	0	16	914	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			30			0			0	
Link Offset(ft)		18			-18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		20	15		9
Number of Detectors	1	2			2	1	1	2	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	6			6	20	20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt					Free	Perm		Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					Free	8		Free			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	14.5	21.5			21.5		20.5	20.5				
Total Split (s)	16.0	129.0	0.0	0.0	113.0	0.0	21.0	21.0	0.0	0.0	0.0	0.0
Total Split (%)	10.7%	86.0%	0.0%	0.0%	75.3%	0.0%	14.0%	14.0%	0.0%	0.0%	0.0%	0.0%
Maximum Green (s)	11.5	123.5			107.5		16.5	16.5				
Yellow Time (s)	3.5	4.5			4.5		3.5	3.5				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.0	4.0	5.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Recall Mode	None	C-Max			C-Max		Max	Max				
Act Effct Green (s)	124.5	123.5			109.0	150.0		16.5	150.0			
Actuated g/C Ratio	0.83	0.82			0.73	1.00		0.11	1.00			
v/c Ratio	0.11	0.68			0.09	0.16		0.08	0.58			
Control Delay	0.1	0.9			6.2	0.1		61.2	1.5			
Queue Delay	0.0	0.3			0.0	0.0		0.0	0.0			
Total Delay	0.1	1.2			6.2	0.1		61.2	1.5			
LOS	A	A			A	A		E	A			
Approach Delay		1.1			1.4			2.6				
Approach LOS		A			A			A				
Queue Length 50th (ft)	1	0			31	0		14	0			
Queue Length 95th (ft)	m1	0			50	0		39	0			
Internal Link Dist (ft)		277			637			287			205	
Turn Bay Length (ft)	100											
Base Capacity (vph)	1023	2831			1354	2787		198	1583			
Starvation Cap Reductn	0	286			0	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.11	0.76			0.09	0.16		0.08	0.58			

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 47 (31%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 1.5		Intersection LOS: A	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

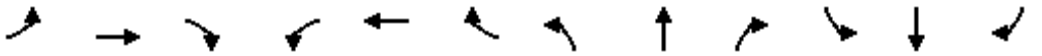
Splits and Phases: 1: Sunport Blvd & I-25 NB On-Ramp

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	120	0	0	0	1883	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt						
Flt Protected	0.950				0.950	0.953
Satd. Flow (prot)	1770	0	0	0	1681	1686
Flt Permitted	0.950				0.950	0.953
Satd. Flow (perm)	1770	0	0	0	1681	1686
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			35
Link Distance (ft)	357		462			1500
Travel Time (s)	5.4		7.0			29.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	0	0	0	2047	10
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	130	0	0	0	1023	1034
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	24		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type					Perm	
Protected Phases	1					4
Permitted Phases					4	
Minimum Split (s)	20.5				20.5	20.5
Total Split (s)	25.0	0.0	0.0	0.0	125.0	125.0
Total Split (%)	16.7%	0.0%	0.0%	0.0%	83.3%	83.3%
Maximum Green (s)	20.5				120.5	120.5
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0	4.0	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	20.5				120.5	120.5
Actuated g/C Ratio	0.14				0.80	0.80
v/c Ratio	0.54				0.76	0.76
Control Delay	68.2				12.0	12.2
Queue Delay	0.0				0.0	0.0
Total Delay	68.2				12.0	12.2
LOS	E				B	B

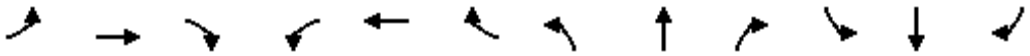
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach Delay	68.2					12.1
Approach LOS	E					B
Queue Length 50th (ft)	119				449	460
Queue Length 95th (ft)	191				631	646
Internal Link Dist (ft)	277		382			1420
Turn Bay Length (ft)						
Base Capacity (vph)	242				1350	1354
Starvation Cap Reductn	0				0	0
Spillback Cap Reductn	0				0	0
Storage Cap Reductn	0				0	0
Reduced v/c Ratio	0.54				0.76	0.76

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 1:WBL, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Sunport Blvd & I-25 SB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	365	1	32	1	1	2	135	1273	3	7	268	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		40	0		0	100		0	75		75
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.932							0.850
Flt Protected		0.952			0.988		0.950			0.950		
Satd. Flow (prot)	0	1773	1583	0	1715	0	1770	3539	0	1719	3539	1583
Flt Permitted		0.725			0.956		0.529			0.115		
Satd. Flow (perm)	0	1350	1583	0	1660	0	985	3539	0	208	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			9		2							353
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		406			1432			828			703	
Travel Time (s)		9.2			32.5			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	397	1	35	1	1	2	147	1384	3	8	291	353
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	35	0	4	0	147	1387	0	8	291	353
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Perm			pm+pt			pm+pt		Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	20.5	20.5	20.5	20.5		11.5	20.5		11.5	20.5	20.5
Total Split (s)	37.8	58.3	58.3	20.5	20.5	0.0	12.0	75.2	0.0	11.5	74.7	74.7
Total Split (%)	26.1%	40.2%	40.2%	14.1%	14.1%	0.0%	8.3%	51.9%	0.0%	7.9%	51.5%	51.5%
Maximum Green (s)	33.3	53.8	53.8	16.0	16.0		7.5	70.7		7.0	70.2	70.2
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0	5.0	5.0			5.0			5.0	5.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0			0			0	0
Act Effct Green (s)		45.1	45.1		45.1		81.8	80.4		77.5	70.5	70.5
Actuated g/C Ratio		0.33	0.33		0.33		0.60	0.59		0.57	0.52	0.52
v/c Ratio		0.89	0.07		0.01		0.23	0.67		0.04	0.16	0.36
Control Delay		66.4	24.1		23.2		14.3	23.2		13.9	18.9	3.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		66.4	24.1		23.2		14.3	23.2		13.9	18.9	3.0
LOS		E	C		C		B	C		B	B	A
Approach Delay		63.0			23.3			22.3			10.3	
Approach LOS		E			C			C			B	
Queue Length 50th (ft)		334	16		1		57	427		3	73	0
Queue Length 95th (ft)		#487	41		10		100	667		11	109	53
Internal Link Dist (ft)		326			1352			748			623	
Turn Bay Length (ft)			40				100			75		75
Base Capacity (vph)		534	631		549		633	2081		196	1825	987
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.75	0.06		0.01		0.23	0.67		0.04	0.16	0.36

Intersection Summary			
Area Type:	Other		
Cycle Length: 145			
Actuated Cycle Length: 136.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 79.3%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

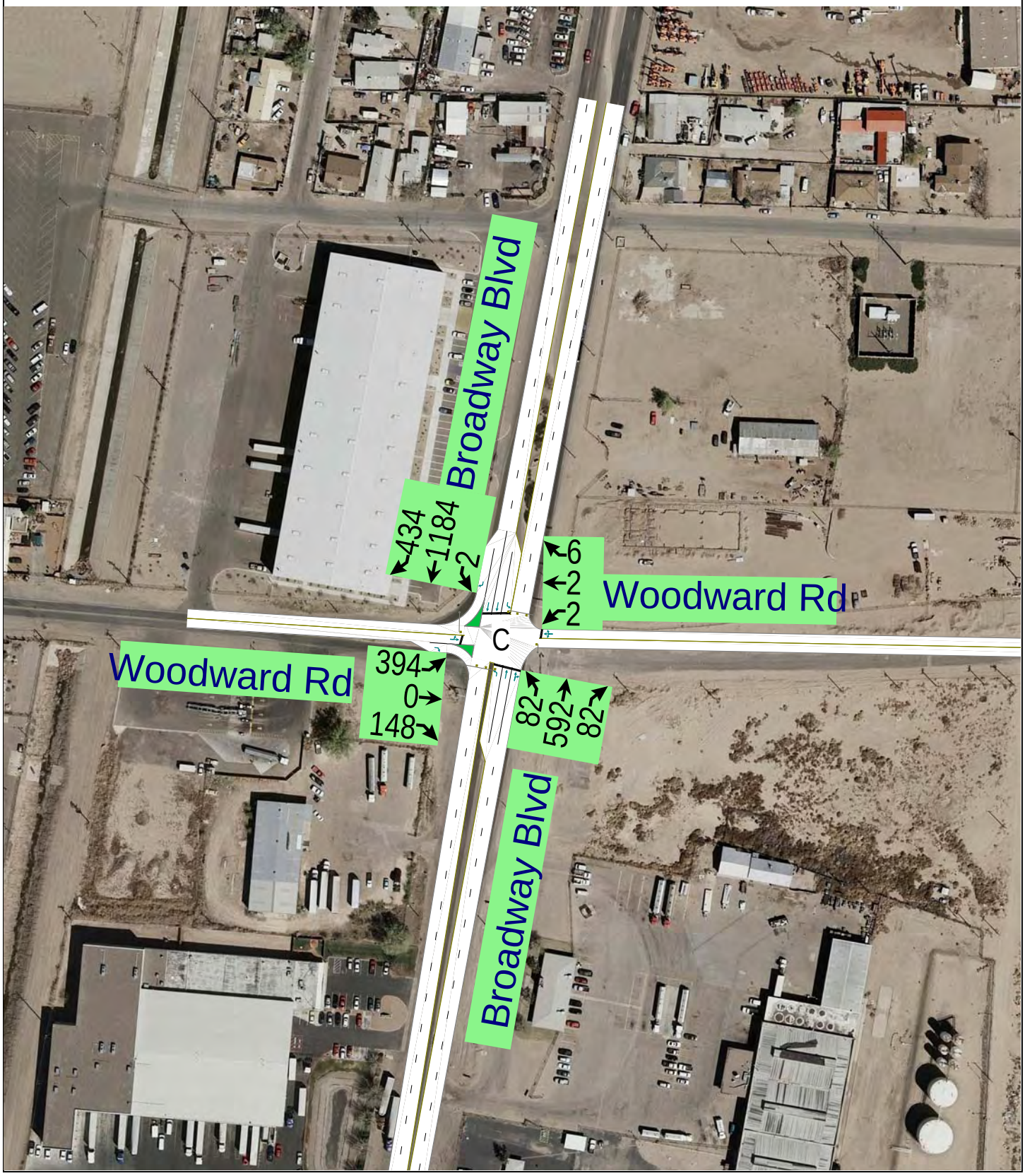
Splits and Phases: 13: Woodward Rd & Broadway Blvd

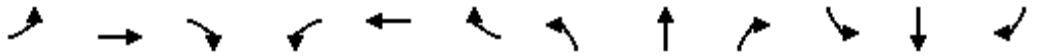
Map - I-25 & Sunport Blvd 2030 PM Peak_NoBuild_Final

7/8/2010

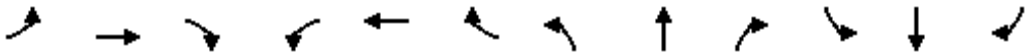
Map - I-25 & Sunport Blvd 2030 PM Peak_NoBuild_Final

6/3/2010





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	785	0	0	820	2465	19	5	276	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	340		0	0		0	0		0
Storage Lanes	1		0	1		2	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950							0.961				
Satd. Flow (prot)	1719	3438	0	0	1863	2787	0	1790	1583	0	0	0
Flt Permitted	0.190							0.961				
Satd. Flow (perm)	344	3438	0	0	1863	2787	0	1790	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1035			300			
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		357			717			367			277	
Travel Time (s)		5.4			10.9			7.1			4.2	
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
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	164	853	0	0	891	2679	21	5	300	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	853	0	0	891	2679	0	26	300	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			30			0			0	
Link Offset(ft)		18			-18			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		20	15		9
Number of Detectors	1	2			2	1	1	2	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	6			6	20	20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt					Free	Perm		Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					Free	8		Free			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	14.5	21.5			21.5		20.5	20.5				
Total Split (s)	14.6	94.5	0.0	0.0	79.9	0.0	20.5	20.5	0.0	0.0	0.0	0.0
Total Split (%)	12.7%	82.2%	0.0%	0.0%	69.5%	0.0%	17.8%	17.8%	0.0%	0.0%	0.0%	0.0%
Maximum Green (s)	10.1	89.0			74.4		16.0	16.0				
Yellow Time (s)	3.5	4.5			4.5		3.5	3.5				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.0	4.0	5.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Recall Mode	None	C-Max			C-Max		Max	Max				
Act Effct Green (s)	90.0	89.0			74.4	115.0		16.0	115.0			
Actuated g/C Ratio	0.78	0.77			0.65	1.00		0.14	1.00			
v/c Ratio	0.42	0.32			0.74	0.96		0.10	0.19			
Control Delay	13.1	8.4			18.5	11.5		44.6	0.3			
Queue Delay	0.0	0.9			0.0	0.0		0.0	0.0			
Total Delay	13.1	9.3			18.5	11.5		44.6	0.3			
LOS	B	A			B	B		D	A			
Approach Delay		9.9			13.3			3.8				
Approach LOS		A			B			A				
Queue Length 50th (ft)	43	127			411	0		17	0			
Queue Length 95th (ft)	m63	m182			578	#46		44	0			
Internal Link Dist (ft)		277			637			287			197	
Turn Bay Length (ft)	100											
Base Capacity (vph)	390	2661			1205	2787		249	1583			
Starvation Cap Reductn	0	1433			0	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.42	0.69			0.74	0.96		0.10	0.19			

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 9 (8%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

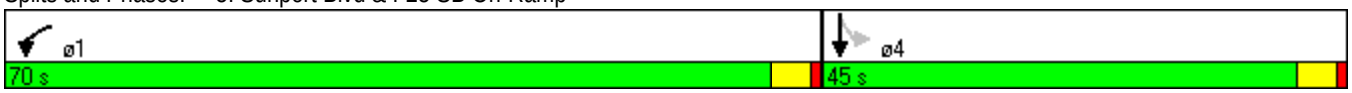
Splits and Phases: 1: Sunport Blvd & I-25 NB On-Ramp

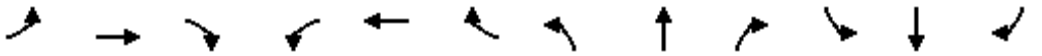
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	839	0	0	0	936	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt						
Flt Protected	0.950				0.950	0.953
Satd. Flow (prot)	1770	0	0	0	1681	1686
Flt Permitted	0.950				0.950	0.953
Satd. Flow (perm)	1770	0	0	0	1681	1686
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			35
Link Distance (ft)	357		462			1500
Travel Time (s)	5.4		7.0			29.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	912	0	0	0	1017	10
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	912	0	0	0	508	519
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	24		12			12
Link Offset(ft)	24		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1				1	2
Detector Template	Left				Left	Thru
Leading Detector (ft)	20				20	100
Trailing Detector (ft)	0				0	0
Detector 1 Position(ft)	0				0	0
Detector 1 Size(ft)	20				20	6
Detector 1 Type	Cl+Ex				Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0				0.0	0.0
Detector 1 Queue (s)	0.0				0.0	0.0
Detector 1 Delay (s)	0.0				0.0	0.0
Detector 2 Position(ft)						94
Detector 2 Size(ft)						6
Detector 2 Type						Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)						0.0
Turn Type					Perm	
Protected Phases	1					4
Permitted Phases					4	
Detector Phase	1				4	4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	10.0				10.0	10.0
Minimum Split (s)	14.5				20.5	20.5
Total Split (s)	70.0	0.0	0.0	0.0	45.0	45.0
Total Split (%)	60.9%	0.0%	0.0%	0.0%	39.1%	39.1%
Maximum Green (s)	65.5				40.5	40.5
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0	4.0	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0				3.0	3.0
Recall Mode	C-Max				Max	Max
Act Effct Green (s)	65.5				40.5	40.5
Actuated g/C Ratio	0.57				0.35	0.35
v/c Ratio	0.90				0.86	0.87
Control Delay	21.1				50.4	52.1
Queue Delay	0.0				0.0	0.0
Total Delay	21.1				50.4	52.1
LOS	C				D	D
Approach Delay	21.1					51.3
Approach LOS	C					D
Queue Length 50th (ft)	161				364	375
Queue Length 95th (ft)	#858				#565	#583
Internal Link Dist (ft)	277		382			1420
Turn Bay Length (ft)						
Base Capacity (vph)	1008				592	594
Starvation Cap Reductn	0				0	0
Spillback Cap Reductn	0				0	0
Storage Cap Reductn	0				0	0
Reduced v/c Ratio	0.90				0.86	0.87

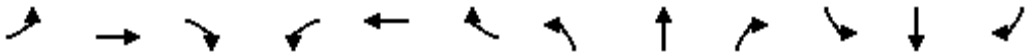
Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 0 (0%), Referenced to phase 1:WBL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 37.1		Intersection LOS: D	
Intersection Capacity Utilization 89.7%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Sunport Blvd & I-25 SB On-Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	0	148	2	2	6	82	592	82	2	1184	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		40	0		0	100		0	75		75
Storage Lanes	0		1	0		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.914			0.982				0.850
Flt Protected		0.950			0.991		0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1687	0	1770	3463	0	1719	3539	1583
Flt Permitted		0.750			0.954		0.108			0.357		
Satd. Flow (perm)	0	1397	1583	0	1624	0	201	3463	0	646	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37		7			15				138
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		406			1264			828			703	
Travel Time (s)		9.2			19.2			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	428	0	161	2	2	7	89	643	89	2	1287	472
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	428	161	0	11	0	89	732	0	2	1287	472
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	Prot			pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4				2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	20.5	20.5	11.5	20.5		11.5	20.5		11.5	20.5	20.5
Total Split (s)	35.0	44.0	44.0	11.5	20.5	0.0	13.0	68.0	0.0	11.5	66.5	66.5
Total Split (%)	25.9%	32.6%	32.6%	8.5%	15.2%	0.0%	9.6%	50.4%	0.0%	8.5%	49.3%	49.3%
Maximum Green (s)	30.5	39.5	39.5	7.0	16.0		8.5	63.5		7.0	62.0	62.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max		None	Max	Max
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0			0	0
Act Effct Green (s)		36.6	36.6		0.0		74.1	72.4		69.1	62.1	62.1
Actuated g/C Ratio		0.30	0.30		0.00		0.62	0.60		0.57	0.52	0.52
v/c Ratio		1.00	0.32		1.57		0.39	0.35		0.00	0.70	0.53
Control Delay		87.0	26.1		599.4		14.9	13.4		9.5	25.4	16.4
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		87.0	26.1		599.4		14.9	13.4		9.5	25.4	16.4
LOS		F	C		F		B	B		A	C	B
Approach Delay		70.4			599.4			13.5			22.9	
Approach LOS		E			F			B			C	
Queue Length 50th (ft)		335	73		~7		28	141		1	410	175
Queue Length 95th (ft)		#544	133		#48		50	226		4	495	277
Internal Link Dist (ft)		326			1184			748			623	
Turn Bay Length (ft)			40				100			75		75
Base Capacity (vph)		460	545		7		235	2090		434	1828	884
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.93	0.30		1.57		0.38	0.35		0.00	0.70	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 120.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 31.3		Intersection LOS: C	
Intersection Capacity Utilization 78.3%		ICU Level of Service D	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

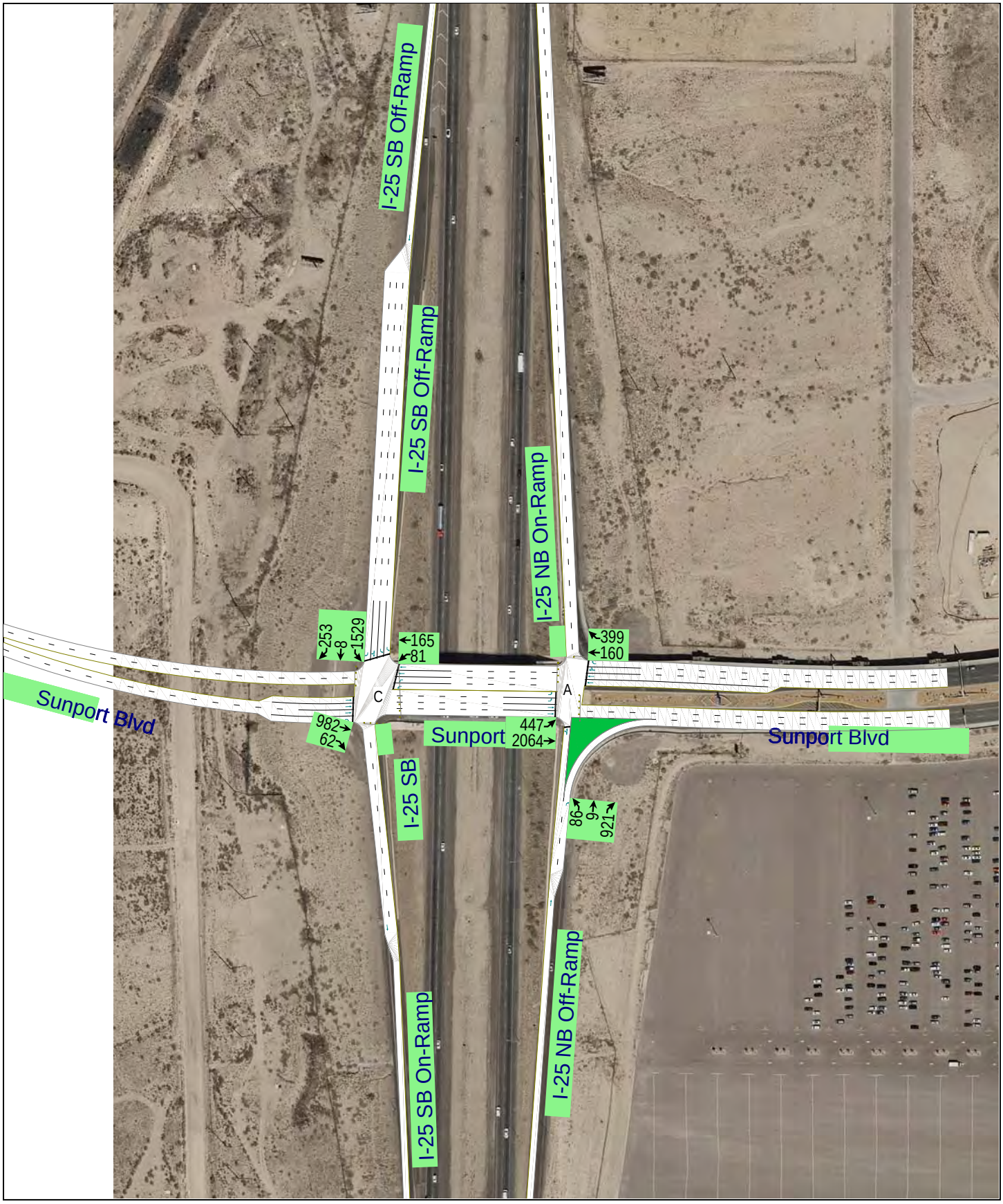
Splits and Phases: 13: Woodward Rd & Broadway Blvd

APPENDIX F

INTERSECTION OPERATIONAL ANALYSIS 2030 BUILD AM & PM *(SYNCHRO)*

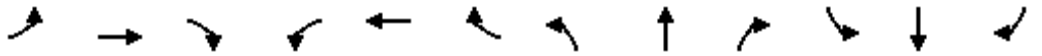
Map - I-25 & Sunport Blvd 2030 AM Peak_Build_Final - Added SBRT

7/8/2010

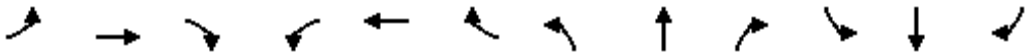


Map - I-25 & Sunport Blvd 2030 AM Peak_Build_Final - Added SBRT

7/8/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	447	2064	0	0	160	399	86	9	921	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	340		0	0		0	0		0
Storage Lanes	2		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	*1.00	*1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.917	0.850			0.850			
Flt Protected	0.950							0.957				
Satd. Flow (prot)	3438	3619	0	0	4407	1362	0	1783	1583	0	0	0
Flt Permitted	0.470							0.957				
Satd. Flow (perm)	1701	3619	0	0	4407	1362	0	1783	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					217	217			199			
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		357			717			367			1313	
Travel Time (s)		5.4			10.9			7.1			19.9	
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
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	486	2243	0	0	174	434	93	10	1001	0	0	0
Shared Lane Traffic (%)						50%						
Lane Group Flow (vph)	486	2243	0	0	391	217	0	103	1001	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			36			0			0	
Link Offset(ft)		18			-12			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		20	15		9
Number of Detectors	1	2			2	1	1	2	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	6			6	20	20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt					Perm	Perm		Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		Free			



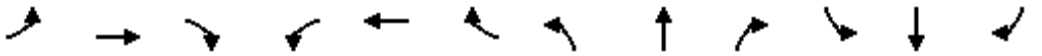
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2			6	6	8	8				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0	10.0	10.0	10.0				
Minimum Split (s)	14.5	21.5			21.5	21.5	20.5	20.5				
Total Split (s)	14.6	89.5	0.0	0.0	74.9	74.9	20.5	20.5	0.0	0.0	0.0	0.0
Total Split (%)	13.3%	81.4%	0.0%	0.0%	68.1%	68.1%	18.6%	18.6%	0.0%	0.0%	0.0%	0.0%
Maximum Green (s)	10.1	84.0			69.4	69.4	16.0	16.0				
Yellow Time (s)	3.5	4.5			4.5	4.5	3.5	3.5				
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.0	4.0	5.5	5.5	4.5	4.5	4.0	4.0	4.0	4.0
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Recall Mode	None	C-Max			C-Max	C-Max	Max	Max				
Act Effct Green (s)	85.0	84.0			69.5	69.5		16.0	110.0			
Actuated g/C Ratio	0.77	0.76			0.63	0.63		0.15	1.00			
v/c Ratio	0.33	0.81			0.14	0.23		0.40	0.63			
Control Delay	0.6	4.3			3.6	1.7		47.8	1.9			
Queue Delay	0.0	2.3			0.0	0.0		0.0	0.0			
Total Delay	0.6	6.6			3.6	1.7		47.8	1.9			
LOS	A	A			A	A		D	A			
Approach Delay		5.6			2.9			6.2				
Approach LOS		A			A			A				
Queue Length 50th (ft)	0	44			16	0		67	0			
Queue Length 95th (ft)	m0	20			30	31		122	0			
Internal Link Dist (ft)		277			637			287			1233	
Turn Bay Length (ft)												
Base Capacity (vph)	1474	2764			2863	940		259	1583			
Starvation Cap Reductn	0	377			0	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.33	0.94			0.14	0.23		0.40	0.63			

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 95.1%		ICU Level of Service F	
Analysis Period (min) 15			

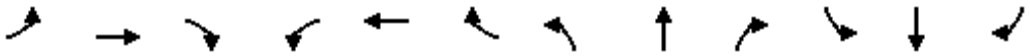
* User Entered Value

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Sunport Blvd & I-25 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	982	62	81	165	0	0	0	0	1529	8	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			0%			0%	
Storage Length (ft)	150		150	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	*1.00	*1.00	0.95
Frt			0.850								0.859	0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5239	1484	3433	3539	0	0	0	0	3438	1557	1461
Flt Permitted				0.164						0.950		
Satd. Flow (perm)	0	5239	1484	593	3539	0	0	0	0	3438	1557	1461
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57								135	140
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1010			357			475			825	
Travel Time (s)		15.3			5.4			7.2			16.1	
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
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%	2%	2%	2%	5%	2%	5%
Adj. Flow (vph)	0	1067	67	88	179	0	0	0	0	1662	9	275
Shared Lane Traffic (%)												49%
Lane Group Flow (vph)	0	1067	67	88	179	0	0	0	0	1662	144	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Right	Left	Right
Median Width(ft)		24			24			24			12	
Link Offset(ft)		-12			24			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type			Perm	pm+pt						Perm		Perm
Protected Phases		2		1	6						4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			2	6						4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.5	21.5	14.5	21.5					20.5	20.5	20.5
Total Split (s)	0.0	32.4	32.4	14.5	46.9	0.0	0.0	0.0	0.0	63.1	63.1	63.1
Total Split (%)	0.0%	29.5%	29.5%	13.2%	42.6%	0.0%	0.0%	0.0%	0.0%	57.4%	57.4%	57.4%
Maximum Green (s)		26.9	26.9	10.0	41.4					58.6	58.6	58.6
Yellow Time (s)		4.5	4.5	3.5	4.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5	4.5	5.5	4.0	4.0	4.0	4.0	4.5	4.5	4.5
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max	C-Max	None	C-Max					Max	Max	Max
Act Effct Green (s)		29.8	29.8	42.4	41.4					58.6	58.6	58.6
Actuated g/C Ratio		0.27	0.27	0.39	0.38					0.53	0.53	0.53
v/c Ratio		0.75	0.15	0.18	0.13					0.91	0.16	0.17
Control Delay		35.8	10.7	41.6	36.1					31.9	3.0	2.7
Queue Delay		0.0	0.0	0.0	0.0					0.3	0.0	0.0
Total Delay		35.8	10.7	41.6	36.1					32.2	3.0	2.7
LOS		D	B	D	D					C	A	A
Approach Delay		34.3			37.9						28.0	
Approach LOS		C			D						C	
Queue Length 50th (ft)		226	8	25	54					508	3	0
Queue Length 95th (ft)		m275	m10	46	85					#632	32	30
Internal Link Dist (ft)		930			277			395			745	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1419	444	487	1332					1832	893	844
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					17	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.75	0.15	0.18	0.13					0.92	0.16	0.17

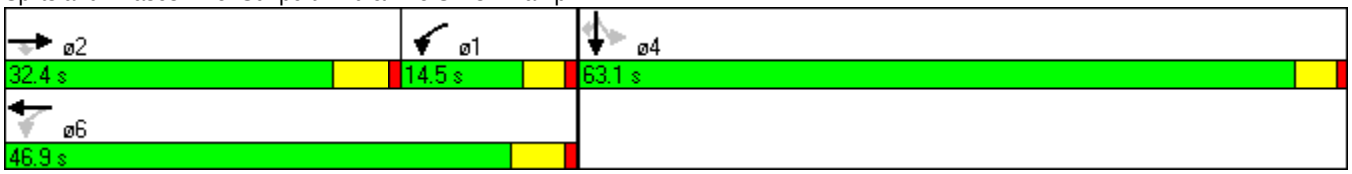
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 40 (36%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 30.9		Intersection LOS: C	
Intersection Capacity Utilization 95.1%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value

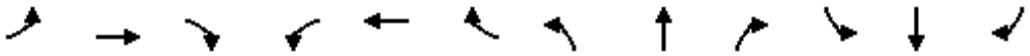
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Sunport Blvd & I-25 SB Off-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	398	135	109	150	159	268	757	500	146	98	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		125	175		125	225		0	225		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.940			0.926	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3288	0	1719	3277	0
Flt Permitted	0.445			0.176			0.566			0.090		
Satd. Flow (perm)	829	1863	1583	636	1863	1583	1054	3288	0	163	3277	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90			173		179			103	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		406			1491			828			703	
Travel Time (s)		9.2			22.6			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	208	433	147	118	163	173	291	823	543	159	107	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	433	147	118	163	173	291	1366	0	159	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		



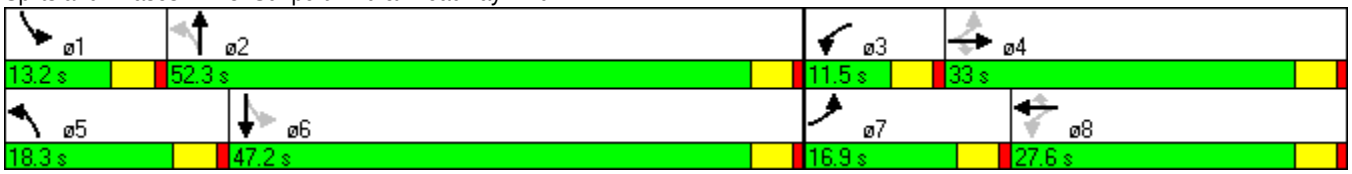
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	11.5	20.5	20.5	11.5	20.5	20.5	11.5	20.5		11.5	20.5	
Total Split (s)	16.9	33.0	33.0	11.5	27.6	27.6	18.3	52.3	0.0	13.2	47.2	0.0
Total Split (%)	15.4%	30.0%	30.0%	10.5%	25.1%	25.1%	16.6%	47.5%	0.0%	12.0%	42.9%	0.0%
Maximum Green (s)	12.4	28.5	28.5	7.0	23.1	23.1	13.8	47.8		8.7	42.7	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		5.0	5.0		5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	38.8	27.6	27.6	29.7	22.7	22.7	61.4	48.8		53.1	44.5	
Actuated g/C Ratio	0.35	0.25	0.25	0.27	0.21	0.21	0.56	0.44		0.48	0.40	
v/c Ratio	0.53	0.93	0.32	0.34	0.42	0.37	0.43	0.88		0.80	0.15	
Control Delay	31.1	67.6	15.8	25.6	31.4	4.0	15.1	32.1		51.0	11.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.1	67.6	15.8	25.6	31.4	4.0	15.1	32.1		51.0	11.2	
LOS	C	E	B	C	C	A	B	C		D	B	
Approach Delay		48.3			19.5			29.1			28.4	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	105	296	31	20	69	1	104	410		61	24	
Queue Length 95th (ft)	167	#478	85	46	116	0	158	#531		#175	50	
Internal Link Dist (ft)		326			1411			748			623	
Turn Bay Length (ft)	175		125	175		125	225			225		
Base Capacity (vph)	401	483	477	349	391	469	683	1559		202	1387	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.52	0.90	0.31	0.34	0.42	0.37	0.43	0.88		0.79	0.15	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 108 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 13: Sunport Blvd & Broadway Blvd

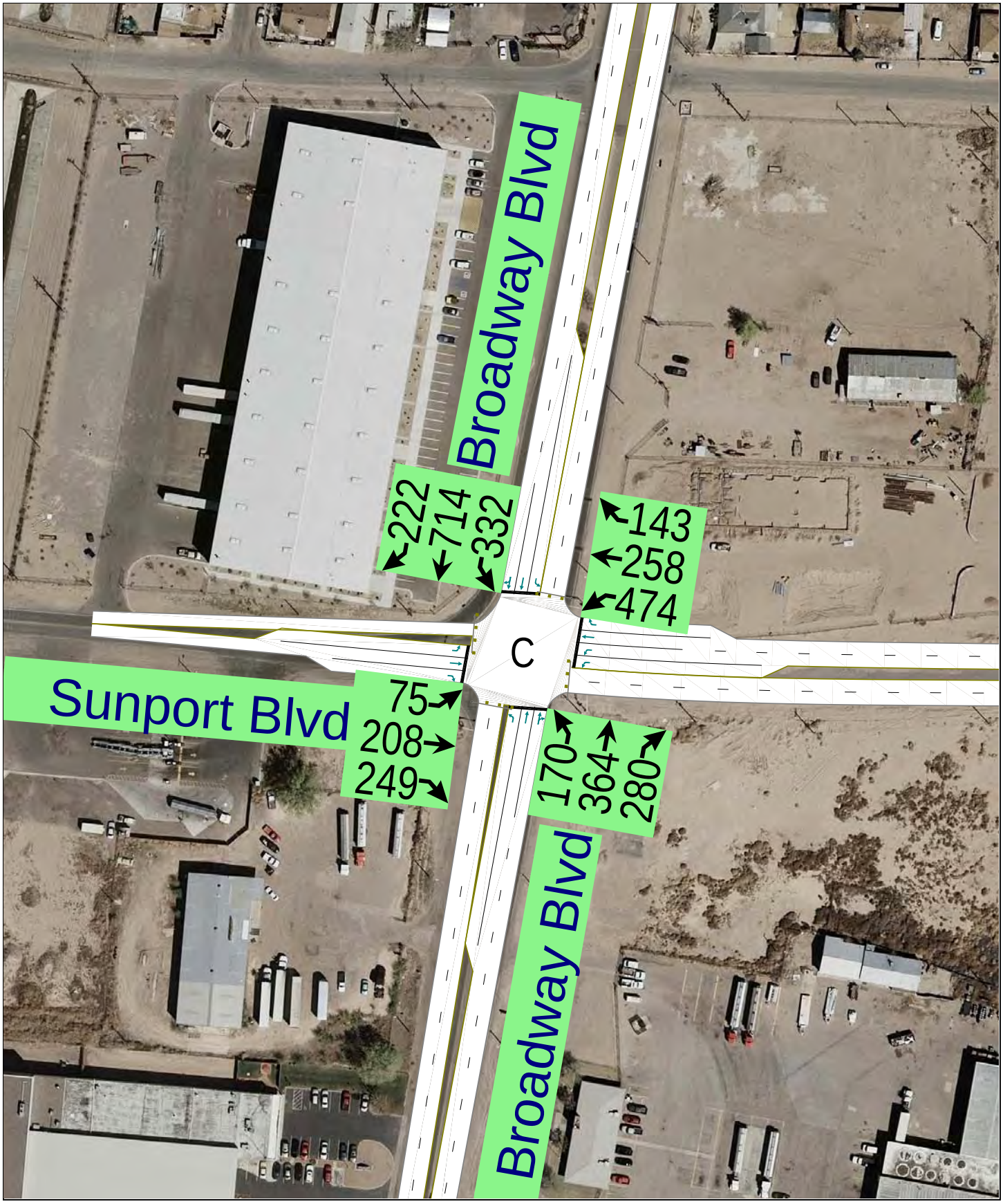


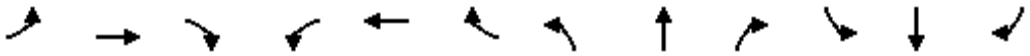
Map - I-25 & Sunport Blvd 2030 PM Peak_Build_Final - Added SBRT

7/8/2010

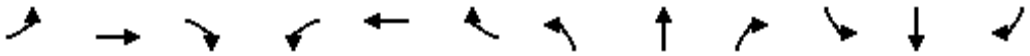
Map - I-25 & Sunport Blvd 2030 PM Peak_Build_Final - Added SBRT

7/8/2010





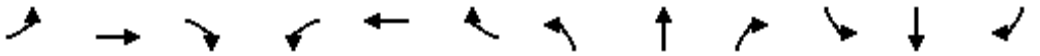
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	477	1291	0	0	1438	1351	73	6	247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	340		0	0		0	0		0
Storage Lanes	2		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	*1.00	*1.00	1.00	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.952	0.850			0.850			
Flt Protected	0.950							0.956				
Satd. Flow (prot)	3438	3619	0	0	4575	1362	0	1781	1583	0	0	0
Flt Permitted	0.075							0.956				
Satd. Flow (perm)	271	3619	0	0	4575	1362	0	1781	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					200	630			268			
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		357			717			367			1313	
Travel Time (s)		5.4			10.9			7.1			19.9	
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
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	518	1403	0	0	1563	1468	79	7	268	0	0	0
Shared Lane Traffic (%)						50%						
Lane Group Flow (vph)	518	1403	0	0	2297	734	0	86	268	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			36			0			0	
Link Offset(ft)		18			-12			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		20	15		9
Number of Detectors	1	2			2	1	1	2	1			
Detector Template	Left	Thru			Thru	Right	Left	Thru	Right			
Leading Detector (ft)	20	100			100	20	20	100	20			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Detector 1 Position(ft)	0	0			0	0	0	0	0			
Detector 1 Size(ft)	20	6			6	20	20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt					Perm	Perm		Free			
Protected Phases	5	2			6			8				
Permitted Phases	2					6	8		Free			



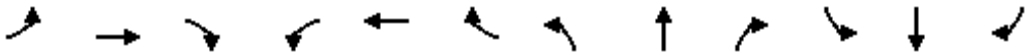
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2			6	6	8	8				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0	10.0	10.0	10.0				
Minimum Split (s)	14.5	21.5			21.5	21.5	20.5	20.5				
Total Split (s)	16.3	69.4	0.0	0.0	53.1	53.1	20.6	20.6	0.0	0.0	0.0	0.0
Total Split (%)	18.1%	77.1%	0.0%	0.0%	59.0%	59.0%	22.9%	22.9%	0.0%	0.0%	0.0%	0.0%
Maximum Green (s)	11.8	63.9			47.6	47.6	16.1	16.1				
Yellow Time (s)	3.5	4.5			4.5	4.5	3.5	3.5				
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.0	4.0	5.5	5.5	4.5	4.5	4.0	4.0	4.0	4.0
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?	Yes				Yes	Yes						
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Recall Mode	None	C-Max			C-Max	C-Max	Max	Max				
Act Effct Green (s)	64.9	63.9			47.6	47.6		16.1	90.0			
Actuated g/C Ratio	0.72	0.71			0.53	0.53		0.18	1.00			
v/c Ratio	0.85	0.55			0.91	0.72		0.27	0.17			
Control Delay	38.1	8.7			24.7	7.1		34.5	0.2			
Queue Delay	0.0	2.4			0.0	0.0		0.0	0.0			
Total Delay	38.1	11.2			24.7	7.1		34.5	0.2			
LOS	D	B			C	A		C	A			
Approach Delay		18.4			20.4			8.6				
Approach LOS		B			C			A				
Queue Length 50th (ft)	80	250			406	33		43	0			
Queue Length 95th (ft)	m#143	305			#499	161		85	0			
Internal Link Dist (ft)		277			637			287			1233	
Turn Bay Length (ft)												
Base Capacity (vph)	611	2569			2514	1017		319	1583			
Starvation Cap Reductn	0	995			0	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.85	0.89			0.91	0.72		0.27	0.17			

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 54 (60%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 115.4%		ICU Level of Service H	
Analysis Period (min) 15			
* User Entered Value			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Sunport Blvd & I-25 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	737	83	754	757	0	0	0	0	1031	7	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			0%			0%			0%	
Storage Length (ft)	150		150	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*1.00	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	0.95	0.95
Frt			0.850								0.868	0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5000	1417	3433	3539	0	0	0	0	3433	1536	1504
Flt Permitted				0.214						0.950		
Satd. Flow (perm)	0	5000	1417	773	3539	0	0	0	0	3433	1536	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90								60	68
Link Speed (mph)		45			45			45			35	
Link Distance (ft)		1010			357			475			825	
Travel Time (s)		15.3			5.4			7.2			16.1	
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
Heavy Vehicles (%)	2%	10%	10%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	801	90	820	823	0	0	0	0	1121	8	128
Shared Lane Traffic (%)												47%
Lane Group Flow (vph)	0	801	90	820	823	0	0	0	0	1121	68	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Right	Left	Right	Left	Left	Right	Right	Left	Right
Median Width(ft)		36			24			24			24	
Link Offset(ft)		-12			24			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type			Perm	pm+pt						Perm		Perm
Protected Phases		2		1	6						4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			2	6						4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0	10.0	10.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.5	21.5	14.5	21.5					20.5	20.5	20.5
Total Split (s)	0.0	25.8	25.8	25.1	50.9	0.0	0.0	0.0	0.0	39.1	39.1	39.1
Total Split (%)	0.0%	28.7%	28.7%	27.9%	56.6%	0.0%	0.0%	0.0%	0.0%	43.4%	43.4%	43.4%
Maximum Green (s)		20.3	20.3	20.6	45.4					34.6	34.6	34.6
Yellow Time (s)		4.5	4.5	3.5	4.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5	4.5	5.5	4.0	4.0	4.0	4.0	4.5	4.5	4.5
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max	C-Max	None	C-Max					Max	Max	Max
Act Effct Green (s)		22.0	22.0	46.4	45.4					34.6	34.6	34.6
Actuated g/C Ratio		0.24	0.24	0.52	0.50					0.38	0.38	0.38
v/c Ratio		0.65	0.22	0.86	0.46					0.85	0.11	0.11
Control Delay		31.2	8.2	14.6	5.6					32.9	6.5	5.3
Queue Delay		0.0	0.0	1.6	0.9					0.5	0.0	0.0
Total Delay		31.2	8.2	16.2	6.5					33.4	6.5	5.3
LOS		C	A	B	A					C	A	A
Approach Delay		28.9			11.3						30.4	
Approach LOS		C			B						C	
Queue Length 50th (ft)		132	4	84	84					294	3	0
Queue Length 95th (ft)		165	m14	m130	m88					#381	30	27
Internal Link Dist (ft)		930			277			395			745	
Turn Bay Length (ft)			150									
Base Capacity (vph)		1224	415	1007	1785					1320	627	620
Starvation Cap Reductn		0	0	72	634					0	0	0
Spillback Cap Reductn		0	0	0	0					33	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.65	0.22	0.88	0.72					0.87	0.11	0.11

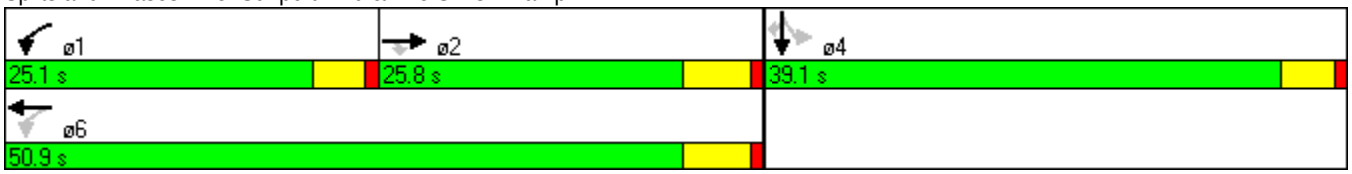
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 5 (6%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 115.4%		ICU Level of Service H	
Analysis Period (min) 15			

* User Entered Value

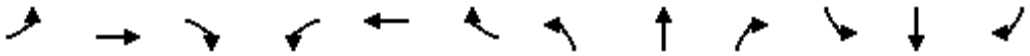
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Sunport Blvd & I-25 SB Off-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	208	249	474	258	143	170	364	280	332	714	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		125	175		125	225		0	225		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.935			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	3267	0	1719	3412	0
Flt Permitted	0.474			0.291			0.176			0.198		
Satd. Flow (perm)	883	1863	1583	1052	1863	1583	328	3267	0	358	3412	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			271			155		210			53	
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		406			1491			828			703	
Travel Time (s)		9.2			22.6			18.8			16.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	5%	5%	2%	2%
Adj. Flow (vph)	82	226	271	515	280	155	185	396	304	361	776	241
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	226	271	515	280	155	185	700	0	361	1017	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			18			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	11.5	20.5	20.5	11.5	20.5	20.5	11.5	20.5		11.5	20.5	
Total Split (s)	11.6	21.0	21.0	15.4	24.8	24.8	15.0	28.6	0.0	25.0	38.6	0.0
Total Split (%)	12.9%	23.3%	23.3%	17.1%	27.6%	27.6%	16.7%	31.8%	0.0%	27.8%	42.9%	0.0%
Maximum Green (s)	7.1	16.5	16.5	10.9	20.3	20.3	10.5	24.1		20.5	34.1	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Walk Time (s)		5.0	5.0		5.0	5.0		5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effct Green (s)	21.8	14.7	14.7	29.6	20.9	20.9	38.5	29.2		50.7	37.0	
Actuated g/C Ratio	0.24	0.16	0.16	0.33	0.23	0.23	0.43	0.32		0.56	0.41	
v/c Ratio	0.29	0.74	0.56	0.81	0.65	0.32	0.64	0.58		0.78	0.71	
Control Delay	23.3	50.7	9.1	17.7	21.6	6.2	26.1	20.8		26.9	24.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.3	50.7	9.1	17.7	21.6	6.2	26.1	20.8		26.9	24.9	
LOS	C	D	A	B	C	A	C	C		C	C	
Approach Delay		27.4			17.0			21.9			25.4	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	31	121	0	17	133	37	50	126		112	247	
Queue Length 95th (ft)	63	#200	65	#68	212	67	110	193		213	326	
Internal Link Dist (ft)		326			1411			748			623	
Turn Bay Length (ft)	175		125	175		125	225			225		
Base Capacity (vph)	285	342	512	634	443	494	313	1201		512	1433	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.29	0.66	0.53	0.81	0.63	0.31	0.59	0.58		0.71	0.71	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 84 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 76.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 13: Sunport Blvd & Broadway Blvd

APPENDIX G

TRUCK CLIMBING LANE / CAPACITY ANALYSIS *(HCM)*

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	URS Corporation
Agency/Co:	BERNCO
Date:	3/18/2010
Analysis Period:	AM Peak
Highway:	Sunport Blvd
From/To:	Broadway to I-25
Jurisdiction:	County
Analysis Year:	2030
Project ID:	Sunport Blvd Extension

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	2.0	ft	2.0	ft
Total lateral clearance	8.0	ft	8.0	ft
Access points per mile	2		2	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.9	mph	0.9	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	48.6	mph	48.6	mph

VOLUME

Direction	1		2	
Volume, V	1070	vph	397	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	297		110	
Trucks and buses	10	%	10	%
Recreational vehicles	0	%	0	%
Terrain type	Grade		Grade	
Grade	6.00	%	-6.00	%
Segment length	0.50	mi	0.50	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.870		0.952	
Flow rate, vp	683	pcphpl	231	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	683	pcphpl	231	pcphpl
Free-flow speed, FFS	48.6	mph	48.6	mph
Avg. passenger-car travel speed, S	48.6	mph	48.6	mph
Level of service, LOS	B		A	
Density, D	14.1	pc/mi/ln	4.8	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

Phone: Fax:
E-mail:

OPERATIONAL ANALYSIS

Analyst:	PARJ
Agency/Co:	URS Corporation
Date:	3/19/2010
Analysis Period:	PM Peak
Highway:	Sunport Blvd
From/To:	Broadway to I-25
Jurisdiction:	BERNCO
Analysis Year:	2030
Project ID:	Sunport Extension From I-25

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	2.0	ft	2.0	ft
Total lateral clearance	8.0	ft	8.0	ft
Access points per mile	2		2	
Median type	Divided		Divided	
Free-flow speed:	Base		Base	
FFS or BFFS	50.0	mph	50.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.9	mph	0.9	mph
Median type adjustment, FM	0.0	mph	0.0	mph
Access points adjustment, FA	0.5	mph	0.5	mph
Free-flow speed	48.6	mph	48.6	mph

VOLUME

Direction	1		2	
Volume, V	876	vph	875	vph
Peak-hour factor, PHF	0.90		0.90	
Peak 15-minute volume, v15	243		243	
Trucks and buses	10	%	10	%
Recreational vehicles	2	%	2	%
Terrain type	Grade		Grade	
Grade	6.00	%	-6.00	%
Segment length	0.55	mi	0.55	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	3.0		1.5	
Recreational vehicles PCE, ER	6.0		1.2	
Heavy vehicle adjustment, fHV	0.769		0.949	
Flow rate, vp	632	pcphpl	512	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	632	pcphpl	512	pcphpl
Free-flow speed, FFS	48.6	mph	48.6	mph
Avg. passenger-car travel speed, S	48.6	mph	48.6	mph
Level of service, LOS	B		A	
Density, D	13.0	pc/mi/ln	10.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

APPENDIX H

CONCEPTUAL LEVEL CONSTRUCTION COST ESTIMATES (ALTERNATIVES A, D, AND H)

NMDOT Item No.	Item Description	Unit of Measure	Unit Cost	ALT. A Total Quantity	ALT. A Total Cost	ALT. D Total Quantity	ALT. D Total Cost	ALT. H Total Quantity	ALT. H Total Cost
	EARTHWORK (BORROW)	CY	$8.00	36,500	$292,000.00	40,800	$326,400.00	48,100	$384,800.00
	ASPHALT	TONS	$65.00	5,575	$362,375.00	7,840	$509,600.00	6,475	$420,875.00
	CURB & GUTTER	LF	$16.00	9,275	$148,400.00	9,750	$156,000.00	10,070	$161,120.00
	BASE COURSE	TONS	$7.00	4,180	$29,260.00	4,390	$30,730.00	4,855	$33,985.00
	PAVING (PRIME COAT, TACK COAT, ASPHALT PLACEMENT)	SY	$6.00	13,967	$83,802.00	19,650	$117,900.00	16,224	$97,344.00
	BASECOURSE PLACEMENT 6" AGGREGATE (COMPLETE)	SY	$7.00	13,967	$97,769.00	19,650	$137,550.00	16,224	$113,568.00
	SUBGRADE PREPARATION 12" (95% COMPACTION)	SY	$2.00	3,492	$6,983.50	4,913	$9,825.00	4,056	$8,112.00
	BRIDGE (SOUTH DIVERSION) - ALT A	SF	$115.00	13,900	$1,598,500.00				
	BRIDGE (EDMUNDS) - ALT A	SF	$115.00	20,700	$2,380,500.00				
	BRIDGE (SOUTH DIVERSION) - ALT D	SF	$150.00			29,800	$4,470,000.00		
	BRIDGE (EDMUNDS) - ALT D	SF	$115.00			20,900	$2,403,500.00		
	BRIDGE (SOUTH DIVERSION) - ALT H	SF	$180.00					88,100	$15,858,000.00
	BRIDGE (EDMUNDS) - ALT H	SF	$115.00					21,600	$2,484,000.00
	RETAINING WALLS (MSE)	SF	$60.00	29,058	$1,743,498.00	37,944	$2,276,658.00	32,105	$1,926,318.00
	WALL BARRIER	LF	$70.00	1,980	$138,600.00	2,550	$178,500.00	6,500	$455,000.00
	SIGNALS	EA	$250,000.00	3	$750,000.00	3	$750,000.00	3	$750,000.00
	SUB TOTAL				**$7,631,687.50**		**$11,366,663.00**		**$22,693,122.00**
	DRAINAGE	LS			$500,000.00		$1,022,999.67		$2,042,380.98
	SIGNING & STRIPING	LS			$106,843.63		$159,133.28		$317,703.71
	LIGHTING	LS			$400,000.00		$500,000.00		$600,000.00
	MOT	LS			$300,000.00		$568,333.15		$1,134,656.10
	CONSTRUCTION STAKING	LS			$100,000.00		$100,000.00		$100,000.00
	UTILITY RELOCATIONS ALLOWANCE	LS			$300,000.00		$300,000.00		$300,000.00
	WELL RELOCATION / EXTENSION	LS			$200,000.00		$200,000.00		$200,000.00
	PRIVATE LINE SLEEVES / ENCASEMENTS ALLOWANCE	LS			$200,000.00		$200,000.00		$200,000.00
	LANDSCAPING	LS			$400,000.00		$1,136,666.30		$2,269,312.20
	RAILROAD REALIGNMENT	LS					$300,000.00		$1,000,000.00
	SUB TOTAL LUMP SUM ITEMS:				**$2,506,843.63**		**$4,487,132.40**		**$8,164,052.99**
	TOTAL:				**$10,138,531.13**		**$15,853,795.40**		**$30,857,174.99**
	RIGHT-OF-WAY	LS			$500,000.00		$750,000.00		$1,000,000.00
	MOBILIZATION (5%)	LS (%)			$381,584.38		$568,333.15		$1,134,656.10
	CONSTRUCTION ENGINEERING (5%):	LS (%)			$506,926.56		$792,689.77		$1,542,858.75
	CONTINGENCY (30%):	LS (%)			$3,041,559.34		$6,341,518.16		$3,265,621.20
	NMGRT (6.625%):	LS (%)			$671,677.69		$1,050,313.95		$540,868.51
	TOTAL:				**$15,240,279.08**		**$25,356,650.43**		**$38,341,179.54**