

**Spaghetti Bowl Project**

**Draft Environmental Impact Statement**

**Review**

Prepared by Analytical Environmental Services



**ANALYTICAL ENVIRONMENTAL SERVICES**  
1801 7TH STREET, SUITE 100  
SACRAMENTO, CA 95811  
(916) 447-3479 | FAX (916) 447-1665  
www.analyticalcorp.com

# **SPAGHETTI BOWL PROJECT**

## **DRAFT ENVIRONMENTAL IMPACT STATEMENT REVIEW**

**To:** Reno Tahoe Airport Authority  
Attn: Dan Bartholomew and Lissa Butterfield

**FROM:** Ryan Sawyer, AICP, Vice President  
Analytical Environmental Services

**DATE:** December 12, 2018

**RE:** Spaghetti Bowl Project Draft EIS Review

The purpose of this memorandum is to provide a review of the November 2018 Draft Environmental Impact Statement (DEIS) for the Spaghetti Bowl Transportation Project (Proposed Project) for the Reno Tahoe Airport Authority (RTAA). The DEIS was prepared by Nevada Department of Transportation (NDOT) and Federal Highway Administration (FHWA). It should be noted that the below comments are very similar to the comments provided on the August 2018 agency review version of the DEIS (ADEIS), as the majority of our previously submitted comments were not addressed in the November DEIS.

The Proposed Project evaluated in the DEIS would reconstruct the interchange that connects Interstate 80 (I-80), Interstate 580 (I-580), and US Highway 395 (US 395), known locally as the Spaghetti Bowl. The scope of the project also includes proposed improvements to segments of these freeways, including various local interchanges, that lead into and out of the Spaghetti Bowl. Of special concern to the RTAA, the Proposed Project includes modifications to the Plumb Lane-Villanova Drive/I-580 interchange (referred to herein as the Plumb Lane Interchange), and the Preferred Alternative identified in the DEIS (herein referred to as the EIS Preferred Alternative or Alternative #2) would eliminate the existing direct-access ramps between the Reno-Tahoe International Airport (Airport) and I-580. The RTAA has expressed concern to the NDOT and FHWA that the proposed alternatives to the Plumb Lane Interchange identified in the DEIS do not meet the needs of the Airport and are not consistent with the Federal Aviation Administration (FAA) approved forecast projections provided in the Airport Master Plan. To alleviate these concerns, the RTAA has requested that the EIS Preferred Alternative for the Plumb Lane Interchange be revised to incorporate Airport Access Design Option B3 and A1.2 w/o northbound (NB) Direct Ramp cited on page 2-12 of the DEIS (herein referred to as the RTAA Preferred Alternative). As discussed in detail below, this modification would better meet the purpose and need of the Proposed Project and result in fewer environmental impacts including, but not limited to, impacts to the effective future operation of the Airport.

## BACKGROUND

### Spaghetti Bowl Transportation Project DEIS

As shown in the **Timeline** below, the EIS process began on March 15, 2017, when a Notice of Intent (NOI) was published in the Federal Register for the Proposed Project. Following this, on March 22, 2017, NDOT (the lead agency) and FHWA (co-lead agency) identified federal, state, and local agencies, affected Indian tribes, and any other interested person who “may have an interest in the project”. These identified entities were invited to attend the initial agency scoping meeting in April 2017 and given further information on how to become either a participating or cooperating agency which allowed the entities to be further involved in the EIS process.

Following this invitation the participating and cooperating agencies were provided an opportunity to provide review and input for the Project Coordination Plan. This Coordination Plan outlines the roles of the lead/co-lead as well as the roles for both cooperating and participating agencies during the EIS review process. In review of Table 1 within the Coordination Plan, RTAA was not identified as a interested agency by NDOT or FHWA, and therefore was not invited to the initial agency scoping meeting (held April 12, 2017), nor included during development or review of the Coordination Plan.

The Coordination Plan is of importance as, in addition to identifying roles and responsibilities, it further identifies four “Concurrence Points” for the Proposed Project. These Concurrence Points identify a process that seeks incremental agreement from participating and cooperating agencies on different components of the DEIS as it is prepared. These Concurrence Points are as follows:

- Concurrence Point 1 – The Need for the Project.
- Concurrence Point 2 – Range of Alternatives.
- Concurrence Point 3 – Selection of Preferred Alternative.
- Concurrence Point 4 – Preliminary Mitigation Measures.

As shown in the **Timeline** below, Concurrence Point 1 – The Need for the Project, also referred to as “Why is the Project Needed” was prepared in June 2017 and included revisions of the document based on comments received during the public and agency scoping process. Based on the finalization of the purpose and need for the project, Concurrence Point 2 – Range of Alternatives was developed using input received at a public workshop for alternatives. This alternatives package was then shared with the participating and cooperating agencies (except for RTAA who was not yet a participating agency) in early spring 2018. As three alternatives were identified in the ADEIS, it was implied that this Concurrence Point 2 was complete, although the Coordination Plan did not explicitly state this as true.

In the spring of 2018, RTAA met with NDOT to discuss concerns regarding initial alternatives that had been developed as part of Concurrence Point 2. Specifically RTAA identified concerns with the proposed changes to the on- and off-ramps affecting the Airport, as well as the projected future traffic volumes utilized by NDOT, as these were not consistent with the Airport’s 2017 Airport Master Plan forecasts. Additionally RTAA provided alternative on- and off-ramp solutions to NDOT that reflect the Airport Master Plan forecasts (see **RTAA Preferred Alternative** below). As a result of this discussion with NDOT and the resulting concerns, in May 2018 RTAA requested inclusion as a participating agency for the EIS process. NDOT formally approved this request on June 7, 2018.

## Airport Master Plan

The Airport Master Plan provides a funding roadmap and addresses the dynamics of air service and cargo while balancing the needs of the community. The previous Airport Master Plan for the Airport was finalized in 1991 and as such was outdated as there have been large changes to local demographics, mandated safety and security measures, airline business models, and technological enhancements. Therefore, in October 2016, RTAA undertook an 18-month master planning process to address airport growth, aviation industry changes, and FAA standards for the next 20 years.

The Airport Master Plan consists of an introduction, an inventory of existing conditions, aviation forecasts, facility requirements to meet the forecasted demand, airport alternative projects to address the facility requirements, a feasibility analysis, and a facilities implementation plan. In June 2018 the Airport Master Plan was approved by the RTAA Board and, in December 2018, accepted by the FAA.

A primary component of the Airport Master Plan is the Aviation Analysis and Forecasts chapter. The Aviation Analysis Forecasts chapter was completed and approved by the RTAA Board of Trustees in April 2017, and approved by the FAA in May 2017. The chapter was made publicly available in April 2017 and was also the main topic of a public information meeting held on March 16, 2017.

In this chapter, an air service market evaluation, analysis of historical trends, and 20-year forecasts for commercial and noncommercial aviation activity is provided. The forecasts are a critical component of the Airport Master Plan as they provide the basis for subsequent analysis within the Airport Master Plan to determine facility requirements, demand/capacity analysis, capital improvements, and an environmental impact analysis. This chapter is approved by the FAA prior to finalization of the Airport Master Plan, as without these forecasts, the rest of the Airport Master Plan cannot be developed adequately.

The forecast data provides projections of boardings and aircraft operations at the Airport for the next 20 years. Specific forecasts have been identified using base-growth, low-growth, and high-growth scenarios for 2021, 2026, and 2036. For example, under the high-growth scenario, the compound annual growth rate for enplanements was forecasted to be 3.8 percent between 2016 and 2021.

The forecasting was prepared using a hybrid forecasting framework model that pulls data from various sources including, but not limited to, the RTAA, US Bureau of Transportation Statistics, FAA, the US Census Bureau, Moody's Analytics, Washoe County Consensus Forecast, the Reno-Carson City-Fernley Consolidated Statistical Area, and the 2015-2019 Northern Nevada Regional Growth Study. The forecasts were then compared with the latest FAA Terminal Area Forecast (TAF) for the Airport. Although the forecasts are anticipated to be representative of the growth over long periods of time, it should be noted that, between 2016 and 2017 the actual increase in total enplaned passengers was approximately 10 percent (RTIA, 2018c), which exceeded the approved forecasts under the high-growth scenario by approximately 6 percentage points. This exceedance only one year into the forecasts suggests that the projections included within the Airport Master Plan are at the very least conservative and may possibly be exceeded in the future.

Although not currently included within the DEIS, the FAA approved forecast data should be evaluated as this information provides additional traffic data that was not modeled during alternatives development, even though it has been publicly available since May 2017. Further discussion of this data is provided in the **Key Issues** section provided below.

## Timeline

As shown in the timeline below, although RTAA has only recently been added as a participating agency, this is through no fault of their own as they were not initially identified by NDOT and FHWA as a potential interested party.

For ease in review, **bolded** text identifies the Airport Master Plan timing, while non-bolded text identifies DEIS timing.

- **October 2016: RTAA begins undertaking 18-month master planning process for Airport Master Plan.**
- January 23, 2017: NDOT sends an initial coordination letter to the Reno Sparks Indian Colony and to the various federal, state, and local agencies to notify them of the beginning of the study. RTAA was not included.
- February 17, 2017: NDOT notified FHWA in writing of intent to prepare EIS
- March 15, 2017: The EIS process began with the publication of the NOI in the Federal Register.
- March 22, 2017: NDOT emailed invitations to agencies inviting them to participate in the project as a cooperating or participating agency, as well as inviting them to the agency scoping meeting. RTAA was not included.
- March, 2017:<sup>1</sup> a draft Coordination Plan and Concurrence Process was prepared by NDOT and provided to participating agencies for a review and comment.
- April 12, 2017: an agency scoping meeting was held by NDOT which provided information regarding the scope and necessity for the Proposed Project. RTAA was neither invited nor directly notified of this meeting.
- April 12-13, 2017: Public Scoping meetings held.
- **April 13, 2017: Airport Master Plan Aviation Forecasts approved at RTAA Board Meeting.**
- May 9, 2017: RTAA first approached by NDOT with a request to meet after June 7, 2017 to discuss the project.
- **May 15, 2017: Airport Master Plan Aviation Forecasts approved by FAA.**
- June 15, 2017: First NDOT briefing to the RTAA<sup>2</sup>.
- June 19, 2017: Concurrence Point 1, Identification of the purposes and need for the project was completed.
- **December 14, 2017: Approval by the RTAA Board of the Preferred Alternative Development Plan for the Airport Master Plan.**

---

<sup>1</sup> The Coordination Plan has since been updated in November 2017 and March 2018.

<sup>2</sup> Additional meetings between NDOT and RTAA occurred on August 23, 2017, October 31, 2017, December 20, 2017, March 29, 2018, April 9, 2018, and April 27, 2018.

- April 2018:<sup>3</sup> Concurrence Point 2, Identification of range of alternatives anticipated completion date.
- May 15, 2018: RTAA meets with NDOT to provide proposed alternatives<sup>4</sup>
- May 16, 2018: the RTAA submitted a letter to NDOT requesting inclusion as a participating agency.
- June 7, 2018: NDOT approved the request for RTAA to become a participating agency
- **June 14, 2018: Airport Authority Board of Trustees approved Airport Master Plan and approved submittal of Airport Master Plan to FAA.**
- June 14, 2018: RTAA Board adopts resolution in support of retaining convenient freeway access for the Reno-Tahoe International Airport.
- July 24, 2018: NDOT provides an Agency DEIS (ADEIS) to agencies, including RTAA for review.
- August 24, 2018: RTAA submits 41 pages of comments on the ADEIS to NDOT
- September 11, 2018: NDOT meets with RTAA to discuss ADEIS comments and suggests that RTAA should pursue its preferred access alternative as a separate project to paid for with local funds.
- November 2018: NDOT releases public review DEIS. (The majority of the comments submitted by RTAA on the ADEIS have not been addressed.)
- **December 2018: Airport Master Plan accepted by the FAA.**

## RTAA Preferred Alternative

Access to the airport is currently provided by directional interchange ramps to/from the north via I-580 and surface streets via the Plumb Lane-Villanova Drive/I-580 service interchange. A one-lane southbound (SB) off-ramp allows traffic to directly access the drop-off/pick-up location for the airport terminal, and a one-lane NB on-ramp allows traffic to directly travel from the airport drop-off/pick-up location back onto I-580. This configuration is convenient for travelers to/from the Airport, and does not require vehicles to travel on surface streets to access the Airport terminal.

Access to Plumb Lane is currently provided by a two-lane off-ramp from NB I-580 and a one-lane on-ramp to SB I-580. Access to Villanova Drive is provided by a one-lane off-ramp from SB I-580 and a one-lane on-ramp to NB I-580. Villanova Drive and Plumb Lane provide secondary access (via surface streets) to the Airport.

The DEIS currently analyzes the following alternative configurations to this interchange, as shown on page 2-21 of the DEIS:

- **Alternative 1:** Keep Mill Street interchange as is and consolidate access to Plumb Lane with a single point diamond interchange similar to I-80 at Pyramid Way and remove the direct connect ramps.
- **Alternative 2 (EIS Preferred Alternative):** Keep Mill Street interchange as is and consolidate access to Plumb Lane with a diverging diamond interchange similar to the I-580/Moana Lane interchange and remove the direct connect ramps.

<sup>3</sup> Per the Coordination Plan, this Concurrence Point was to be completed in April 2018, however an actual completion date has not yet been updated within the Plan, although it is assumed that with ADEIS provided on July 24, 2018 that this step is complete.

<sup>4</sup> Additional meetings between NDOT and RTAA occurred on May 29, 2018 and June 12, 2018.

- **Alternative 3:** Keep the Plumb Lane Interchange as is and rebuild the direct connect ramps and combine the Mill Street and Second Street interchanges.

In order to meet the growth forecasted in the Airport Master Plan described above, RTAA has recommended that EIS Preferred Alternative (Alternative 2) as analyzed in the DEIS be modified with the Airport Access Option (Design Option B3 and A1.2 without the NB Direct Ramp) as shown on page 2-12 of the DEIS. This recommended alternative would provide access to Plumb Lane with a diverging diamond interchange similar to the 1-580/Moana Lane interchange, remove the direct connect ramp to NB I-580, and maintain the direct connect ramp from I-580 SB to the Airport. This recommended alternative would ensure that the Airport can function effectively into the future.

## COMMENTS ON DEIS

As discussed above, this memo has been prepared for the RTAA, and thus the review focusses on the proposed changes to the Plumb Lane Interchange and associated environmental effects. It should be noted that the below comments are nearly identical to the comments provided on the August 2018 agency review version of the DEIS, as the majority of our previously submitted comments were not addressed in the November DEIS.

## Key Issues

As described within the attached traffic engineering memorandum prepared by Kittelson & Associates (KAI Memo; **Attachment A**), an examination of the July 2018 ADEIS identified the following key issues that are in direct conflict with the NDOT's identified project need to reduce travel delay, improve safety, improve bridges, and optimize system connections, and thus should be resolved in the Final EIS prior to publication. The Traffic Analysis Report (Appendix C of the ADEIS and DEIS) has not been updated since release of the ADEIS, therefore, the following traffic comments are still valid:

- **Underestimation of Year 2040 Forecast Projections between Airport and I-580** – The traffic analysis in the DEIS and documented in Appendix C currently fails to adequately account for any increase in traffic between the Airport and I-580 (i.e., the total weekday a.m. and p.m. traffic as measured by the directional freeway ramps and via the Plumb Lane/Terminal Way intersection). In fact, the DEIS year 2040 Alternative 2 projections showed a reduction in total (inbound/outbound) weekday a.m. and p.m. peak hour volumes from the Base Year 2015 volumes of 676 and 585, respectively, to 636 and 544, respectively. This approximate 5 percent reduction in traffic volumes significantly underestimates the expected traffic volumes and delay along the Plumb Lane corridor and doesn't properly reflect the estimated 25.4 percent growth in employment at the airport terminal (Transportation Analysis Zone [TAZ] #725) as documented in the RTC Travel Demand Model nor the 66.8 percent growth in passenger boardings as documented in the Airport Master Plan. The proper inclusion of this traffic would result in approximately 172 (RTC Employment Data) to 452 (Airport Master Plan) additional trips during the critical weekday a.m. peak hour trip compared to the DEIS Plumb Lane forecasts between the Airport and I-580. These additional trips combined with the removal of the directional ramps would increase the cited 1 to 2 minutes of additional travel time from I-580 to the airport to potentially over 3 minutes. Additional detail regarding the growth projections is provided in **Attachment A**.

- **EIS Preferred Alternative 2 & Removal of Directional Ramps for the Airport** – The removal of the directional SB ramp between I-580 and the Airport increases the number of conflict points from 4 to 10 and intersections traversed from zero to 3, resulting in increased delay and reducing the overall connectivity and safety of travelers accessing the airport. In addition the lack of alternative ingress options to the terminal can reduce the overall safety and security of the airport as emergency responders could be potentially blocked by a singular accident or event from efficiently accessing the facility (see **Emergency Access and Safety** below).

The two issues identified above result in an underestimation of the increase in travel delay, reduction in safety, and de-optimization of system connections between I-580 and the Airport. These are the exact needs the Proposed Project is trying to address in regard to the most critical surface transportation asset (the I-80/I-580/US 395 interchange) in the Reno-Sparks region; however, EIS Preferred Alternative (Alternative 2) as currently proposed does the opposite to the region's most critical air transportation asset. As such, it is recommended that the Airport Access Option (Design Option B3 and A1.2 w/o NB Direct Ramp) cited on page 2-12 of the DEIS which addresses these needs be incorporated into Alternative 2 (RTAA Preferred Alternative) to ensure that the Airport can function effectively into the future.

## **Purpose and Need Statement (Why is this Project Needed?)**

### **Summary/Background:**

As required by the National Environmental Policy Act (NEPA), an EIS must "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action," (40 Code of Federal Regulations [CFR] §1502.13). The purpose and need of the proposed action dictates the range of reasonable alternatives that must be considered in an EIS. Agencies may not define the purpose and need in unreasonably narrow terms so as to limit the range of reasonable alternatives, but they need not craft a statement so broad that it requires consideration of alternatives inconsistent with the overall purpose of the proposal.

Because RTAA was not previously designated as a participating agency, it was not provided with an opportunity to participate in the concurrence process for Concurrence Point 1 (Purpose and Need).

The DEIS indicates that the purpose of the Proposed Project is to address the obsolete design of the study area freeway system and interchanges in order to:

1. Improve traffic operations
2. Reduce fatal and injury crashes

The DEIS further indicates that the following factors demonstrate the need for transportation improvements in the Proposed Project:

1. Travel delay caused by high traffic volumes and outdated freeway design
2. Crash rates higher than other urban freeways in Nevada
3. Bridges that are near the end of their planned service life and have obsolete design
4. Importance of I-80/I-580/US 395 in the regional transportation system



### **Comments/Recommendations:**

The general purpose for the Proposed Action to improve traffic operations and address safety issues appears to be well defined; however, it appears that several factors demonstrating the need for the Proposed Action have not been considered or are not sufficiently defined within the purpose and need statement in the DEIS. The omission or lack of consideration of these factors has led to an insufficient range of alternatives considered for the Plumb Lane Interchange. We provide the following specific comments:

*Factor 1: Reduce Travel Delay.* It is recommended that the discussion within the DEIS describing traffic growth projections should be expanded to consider the increase in Airport travel as defined in the Airport Master Plan and associated increase in traffic volumes and demands on the regional transportation system. Refer to the discussion of **Cumulative Impacts** and **Traffic and Transportation** below.

*Factor 4: Importance of I-80/I-580/US 395 in the regional transportation system.* Under this need factor, the DEIS recognizes the importance that the Airport plays as a driving force in the local economy and the need to maintain travel time reliability to the Airport as follows:

The impact of the growing Reno-Sparks economy on the Airport and the importance of the Airport in serving the area's economy can be seen in the growth in the number of passengers served and cargo shipped. The Airport served more than 3.65 million passengers in 2016, an increase of 6.4 percent. In 2015, the Airport reported serving 3.43 million passengers, a 4 percent increase from the previous year and the first year-over-year growth in passenger numbers since 2005. The Airport handled nearly 138.3 million pounds of air cargo last year. The amount, which represents a 7.1 percent increase from 2014, is also the highest ever recorded for the airport. The presence of major warehousing, pharmaceutical, e-commerce and distribution facilities in the region play a key role in cargo growth (Hidalgo, 2016). I-580 provides the only freeway access to the airport; reliable travel times to the airport are critical for both passenger and cargo arriving at the airport. Currently the bottlenecks, congestion, and higher-than-average crash rate reduce travel time reliability to the airport. (DEIS, page 1-20)

We recommend that this discussion be updated to note that in 2017, the Airport served more than 4.02 million passengers, a 10 percent increase from 2016 (RTAA, 2018b), and that the Airport handled approximately 156.4 million pounds of air cargo in 2016 (an increase of over 13 percent from 2015 and the highest volume recorded for the Airport); this amount remained relatively consistent in 2017 with just a slight decrease to 152.3 million pounds of air cargo. Additionally, this discussion should be expanded to acknowledge the Airport Master Plan growth projections that have been publicly available since May 2017 and associated increase in traffic volumes at the Plumb Lane Interchange.

## **Alternatives**

### **Summary/Background:**

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.1) direct that an EIS "...shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." NEPA further requires that an EIS

“rigorously explore and objectively evaluate all reasonable alternatives”, including alternatives that are technically and economically practical or feasible and meet the purpose and need of the proposed action.

The DEIS indicates that alternatives were evaluated for the following:

1. Ability to meet project purpose and need
2. Construction cost
3. Ability to avoid and minimize impacts to the natural and built environment
4. Input from local governments, resource agencies, and the public

**Comments/Recommendations:**

Based on the CEQ regulations and evaluation criteria identified in the DEIS, it is strongly recommended that the EIS Preferred Alternative (Alternative #2) for the Plumb Lane Interchange and Airport access be modified to include the RTAA Preferred Alternative, which is briefly described on page 2-12 of the DEIS and summarized above. The justification for these proposed changes is as follows:

***Compliance with CEQ Guidance***

In several locations within the DEIS, including page 2-12, the document states that airport access options continue to be evaluated and “the direct connect ramps may be added into the preferred alternative after the Draft EIS comment period.” The exclusion of this alternative from the public DEIS is eliminating the public’s ability to comment on an alternative which, as discussed elsewhere in this memo, would avoid or minimize adverse impacts and enhance the quality of the human environment by providing more convenient access to the Airport. In order to comply with CEQ regulations (40 CFR 1502.1), the EIS should include the RTAA Preferred Alternative.

***DEIS Evaluation Criteria 1: Ability to meet project purpose and need.***

As described below, the alternatives addressed in the DEIS for the Plumb Lane Interchange and airport access do not meet the purpose and need for the Proposed Action and thus fail to comply with NEPA requirements.

***Proposed Action Purpose: To Improve Traffic Operations***

The DEIS indicates on page 3.6-7 that assuming the underestimated 2040 traffic volumes, Alternatives 1 and 2 would actually increase delays by 1-2 minutes at the Plumb Lane Interchange as a result of eliminating the airport flyover ramps. As described in **Attachment A** and summarized below, when the 2040 traffic volumes are corrected to include the growth forecasted in the Airport Master Plan, the delays at the Plumb Lane Interchange have the potential to increase to over 3 minutes. Further, while Alternative 2 for the Plumb Lane Interchange removes the 4 existing conflict points from the intersection, it introduces 10 new conflict points and 3 delay points for traffic traveling to the Airport from SB I-580. Therefore, the alternatives evaluated in the DEIS do not improve traffic operations at the Plumb Lane Interchange, but rather worsen them.

In contrast, the RTAA Preferred Alternative for the Plumb Lane Interchange would only introduce 1 new conflict point to the 4 existing and would maintain the number of delay points (0) for traffic traveling to the Airport from SB I-580. Consequently, the RTAA Preferred Alternative better meets the purpose of the proposed action to improve traffic operations.

*Proposed Action Purpose: Reduce Fatal and Injury crashes*

A factor in determining the probability for crashes is the number of conflict points that exist in a given area. A conflict point is the point at which a highway user crossing, merging with, or diverging from a road or driveway conflicts with another highway user using the same road or driveway. It is any point where the paths of two through or turning vehicles diverge, merge, or cross. As described above, while Alternative 2 for the Plumb Lane Interchange removes the 4 existing conflict points from the intersection, it introduces 10 new conflict points for traffic traveling to the Airport from SB I-580. This increase in the number of conflict points increases the probability for crashes to occur. In contrast, the RTAA Preferred Alternative for the Plumb Lane Interchange would only introduce 1 new conflict point to the 4 existing for traffic traveling to the Airport from SB I-580. Consequently, the RTAA Preferred Alternative better meets the purpose of the proposed action to reduce fatal and injury crashes.

Further, it should be noted that many travelers using the Airport are tourists or new visitors to the region, and thus are unfamiliar with traffic routes which increases the propensity for accidents. The addition a diverging diamond intersection, which is a relatively uncommon traffic control method that many tourists and area visitors may not be familiar with, could exacerbate safety issues.

*Proposed Action Need: Importance of I-80/I-580/US 395 in the Regional Transportation System*

One of the reasons that the I-80/I-580/US 395 is important to the regional transportation system is because it provides regional access to the Airport, which brings in visitors from 22 national and international destinations to the Reno/Tahoe area. As noted on page 3.6-7 of the DEIS, RTAA opposes the removal of the two direct ramps under Alternatives 1 and 2 because of concerns it would increase travel time to the Airport from I-580 and make airport access less convenient from SB I-580. The RTAA also opposes removal of the ramps because it would eliminate ground access redundancy for first responders and the fastest route between the airport and area hospitals, putting airport users and employees at increased risk. Disregarding the expertise of RTAA on the best access options for the Airport, could have negative effects on travel and potential economic growth in the region.

**DEIS Evaluation Criteria 2: Construction Cost.**

As disclosed on Page 2-28 of the DEIS, Alternative #2 is anticipated to cost approximately \$2,400,000,000 (year-of-expenditure dollars), one of the least costly of the three alternatives considered within the DEIS. Kittelson & Associates has estimated that the requested SB Flyover Ramp would cost approximately \$18,800,000, while other improvements to the Plumb Lane Interchange under the RTAA Preferred Alternative, including circulation roads, aviation roads, and rental car roads, would be approximately \$4,160,000. Assuming the latter is already included in the cost for Alternative #2, the only additional cost to the project would be the SB Flyover ramp, a 0.78 percent increase in the total cost of Alternative #2. In return for the less than one percent increase in cost, the RTAA Preferred Alternative improves traffic operations, reduces the potential for crashes to occur, and addresses critical emergency access requirements compared to Alternative #2 (see discussion above and in **Traffic and Transportation** below). Further, with the incorporation of the SB Flyover Ramp, the new cost of Alternative #2 would be approximately \$2,418,800,000, which is well within the range of costs considered within the DEIS as it is only 0.77 percent more than the cost of Alternative #3 (\$2,400,000,000) and 41 percent less than Alternative #1 (\$4,100,000,000).

**DEIS Evaluation Criteria 3: *Ability to avoid and minimize impacts to the natural and built environment***

As shown in Table ES-1 of the DEIS, Alternative #2 has less of an impact to the natural and built environment than Alternatives #1 and #3 in regards to commercial displacements, publicly owned and social service agency buildings affected, potential contaminated sites, and stream impacts. Alternative #2 has slightly greater or equal impacts compared to Alternative #3 in regards to property acquired, property acquired from Reno-Sparks Indian Colony, residential displacements, parkland acquired, historic sites affected, water quality impacts, 100-year floodplain filled, and whether threatened and endangered species are affected. It does not appear that the RTAA Preferred Alternative will increase impacts in any of these issue areas above the impacts anticipated under Alternative #2. In particular, the planned water quality detention basins near the Plumb Lane Interchange (shown on Figure 3.8-5 of the DEIS) do not appear to conflict with the improvements recommended in the RTAA Preferred Alternative. Therefore, the Proposed Project would continue to avoid and minimize impacts to the natural and built environment.

Further, it should be noted that with the additional growth forecasted in the Airport Master Plan the EIS Preferred Alternative actually exacerbates environmental impacts associated with traffic, safety, air, and noise in the area of the Plumb Lane Interchange, and the RTAA Preferred Alternative would lessen these effects.

**DEIS Evaluation Criteria 4: *Input from Local Governments, Resource Agencies, and the public***

In several locations within the DEIS, it notes that RTAA opposes the elimination of the direct connect ramps at the Plumb Lane Interchange. Based on the DEIS evaluation criteria, that should weigh heavily on why Alternatives #1, #2, and #3 should not continue to be considered.

## **Separating the Plumb Lane Interchange from the Spaghetti Bowl Transportation Project**

In a meeting between NDOT and RTAA on September 11, 2018, NDOT suggested that RTAA should pursue its preferred access alternative as a separate project that would be implemented through the Airport's Master Plan. The DEIS at page 2-12 states "NDOT is currently working with the airport authority, Washoe Regional Transportation Commission and the City of Reno to develop this option [to reconstruct the ramps] **as part of the airport authority's master plan** in coordination with the Spaghetti Bowl reconstruction." RTAA strongly opposes this piecemealing of the project and environmental analysis for the following reasons.

As noted in the DEIS, FHWA 23 Code of Federal Regulations Part 771.111(f) requires that an action (1) be of sufficient length, (2) have independent utility, and (3) does not limit consideration of alternatives. The DEIS appropriately addressed this issue in Chapter 1 under Logical Termini and Independent Utility (see DEIS page 1-21) where it defines the study area as being from Parr Boulevard/US 395 in the north, Meadowood Mall Way/I-580 in the south, Keystone Avenue/I-80 to the west, and McCarran Boulevard/I-80 to the east. RTAA agrees that the study area evaluated in the DEIS is appropriate and to eliminate the Plumb Lane Interchange from the study area would result in the action not meeting the FHWA requirements as discussed below.

- **Be of sufficient length to address environmental matters on a broad scope.** Eliminating the Plumb Land Interchange from the study area would consequently eliminate the three additional

service interchanges to the south, effectively eliminating approximately 2.3 miles of the I-580 from the study area. This would not be of sufficient length to address environmental matters on a broad scope.

- **Have independent utility or independent significance (i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made):** The concept of “independent utility” examines the inter-relationship and dependency issue of actions. Independent utility exists for a project provided that the project under consideration is not dependent on subsequent phases or approvals. CEQ uses the term “unconnected single actions” to describe this concept. If an action 1) does not automatically trigger other actions which may require environmental analysis, 2) does not require that other actions are taken previously or simultaneously in order to proceed, and 3) is not an interdependent part of a larger action and depend on the larger action for its justification, then the action demonstrates “independent utility” and the scope of the environmental analysis may be for the direct, indirect, and cumulative impacts of that action only (40 CFR 1508). Improvements to the Plumb Lane Interchange are essential to fulfill the purpose and need of the Spaghetti Bowl Transportation Project as the Airport is a major generator of traffic in the area. If the Plumb Lane Interchange is not improved, the bottlenecks, congestion, and higher-than-average crash rate would continue to reduce travel time reliability to the airport, which may affect the ability of the Airport to serve the area’s economy (DEIS, page 1-20). Therefore, the Plumb Lane Interchange does not have independent utility and should remain a part of the overall action.
- **Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements:** Not including the RTAA Preferred Alternative, or worse eliminating the Plumb Lane Interchange from the overall project, would actively limit consideration of alternatives that would better meet the Proposed Project’s purpose and need with less environmental consequences.

In regards to potential concerns regarding the cost of the RTAA Preferred Alternative as a rational for reducing the study area of the Spaghetti Bowl Transportation Project, please see the discussion above regarding DEIS Evaluation Criteria 2: Construction Cost, which shows that the RTAA Preferred Alternative is well within the cost of alternatives evaluated in the DEIS.

## Cumulative Impacts

The purpose of cumulative impact analysis, as stated by the CEQ, “is to ensure that federal decisions consider the full range of consequences” (CEQ, 1997). As stated in the DEIS, cumulative impacts are defined as those effects to the environment resulting from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7). CEQ identifies “the first step in identifying future actions is to investigate the plans of the proponent agency and other agencies in the area” going on to say that “local government planning agencies [like the RTAA] can provide useful information on the likely future development of the region, such as master plans” (CEQ, 1997).

As stated in Section 3.12 of the DEIS, “the timeframe for the analysis of future cumulative effects often coincides with a project’s design year ... is typically consistent with the planning horizons used for regional land use and transportation planning purposes...[and] should be long enough for cumulative impacts to unfold, but not so far into the future that the effects become too difficult to reasonably anticipate. With those objectives in mind, NDOT considered potential future cumulative effects to 2035 for [the DEIS] analysis in order to be consistent with the Regionally Adopted Consensus Forecast with a forecast year of 2035.” The forecasts of the Airport Master Plan fall well within NDOT’s timeframe for projects that should be considered in the cumulative analysis of the DEIS as the forecasted data provides projections of boardings and aircraft operations at the Airport for the next 20 years (to 2036), with specific forecasts identified using base-growth, low-growth, and high-growth scenarios for 2021, 2026, and 2036. Although, three projects at the Airport are included on Table 3.12-2 – Past, Present, and Reasonably Foreseeable Actions, no timeline was provided for them, merely stating that the project would be “dictated by demand; project schedule to be determined [TBD]”. While the exact dates of the project would be determined based on the rate of increased demand, a range of 2021 – 2036 from the Airport Master Plan could have been used. This range of years is consistent with other “Future projects” listed in Table 3.12-2.

Section 3.12 of the DEIS notes that the analysis of future cumulative effects is “influenced by the availability of reliable data.” Although the Airport Master Plan was only provided to the FAA in June 2018 for final review, the Aviation Analysis Forecasts chapter, which includes the forecasted data that provides projections of aircraft operations at the Airport for the next 20 years, was completed and approved by the RTAA Board of Trustees in April 2017, and approved by the FAA in May 2017 (provided as **Attachment B**). Therefore, this data was available at least 12 months before Concurrence Point 2 – Range of Alternatives was anticipated to be completed and 14 months before the ADEIS was provided to agencies for review. Further, the RTAA Board approved the Preferred Alternative for the Airport Master Plan in December 2017, 4 months before Concurrence Point 2 was anticipated to be completed, and 6 months before the ADEIS was provided to agencies for review.

It may be argued that the Airport Master Plan should not be considered because the facility improvements and developments recommended therein have not yet been reviewed under NEPA or implemented. However, as noted by CEQ in Considering Cumulative Effects Under the National Environmental Policy Act, the inclusion of only those actions which are funded or for which other NEPA analysis is being prepared “does not meet the letter or intent of CEQ’s regulations. It underestimates the number of future projects, because many viable actions may be in the early planning stages” (CEQ, 1997). The facility improvements and developments within the Airport Master Plan are a viable action as they are designed to meet the anticipated demands outlined in the Aviation Analysis Forecasts chapter of the Airport Master Plan which was prepared using a hybrid forecasting framework model that pulls data from various sources including, but not limited to, the RTAA, US Bureau of Transportation Statistics, FAA, the US Census Bureau, Moody’s Analytics, and the 2015-2019 Northern Nevada Regional Growth Study. Further, as described in **Airport Master Plan** above, first year projections included within the Aviation Analysis Forecasts have already been exceeded, which demonstrates the possibility that the projections are at the very least conservative and may possibly be exceeded in the future.

Additionally, the DEIS seems to omit consideration of the planned Aloft Hotel to be located at the southwest quadrant of the Plumb Lane and Terminal Way intersection. This project, began construction in December 2018, is projected to add 1,372 weekday trips and 98 peak hour trips to the Plumb Lane

Interchange (Traffic Works, 2018). These additional trips would further exacerbate the issues regarding traffic delay and safety discussed further in the **Traffic and Transportation** section below.

As explained in detail below, the omission of the data within the Aviation Analysis Forecasts chapter as well as the planned hotel development from consideration during the development of traffic projections resulted in alternative design deficiencies and false conclusions regarding the impact that removal of the ramps will have on airport operations. This erroneous conclusion results in a failure to adequately consider and document environmental impacts commiserate with the potential for them to occur, which FHWA guidance has asserted “can limit full compliance of essential NEPA requirements and could have serious implications in the ultimate quality of project decisions” (FHWA, 2003).

## **Traffic & Transportation**

Issues associated with the DEIS analysis of traffic and transportation impacts are described in detail in the KAI memo included as **Attachment A** and summarized below.

### **Traffic Delay / Vehicles Per mile**

To assess the potential for impacts resulting from the project alternatives, KAI adjusted the traffic model to account for the anticipated increase in traffic volumes resulting from the growth projections in the Airport Master Plan. At the Plumb Lane Interchange during the weekday AM peak hour, 280 additional trips would occur, and during the weekday PM peak hour, 242 additional trips would occur under the EIS Preferred Alternative 2 after properly accounting for the estimated 2040 RTC employment numbers. The results of the corrected traffic modeling indicate that the EIS Preferred Alternative 2 would increase delay and result in unacceptable operations as follows:

- Increases the number of delay points to 3 (from 0 in no-build conditions) for traffic to the Airport from SB I-580 (see **Attachment A**). The 3 delay points will likely increase SB motorist arrival by 2 to 3 minutes due to the anticipated increased airport traffic not currently accounted for in the DEIS and the introduction of 3 signalized intersections between I-580 and the airport for SB arrivals.
- Increases the number of delay points to 2 (from 0 in no-build conditions) for traffic to NB I-580 from the Airport (see **Attachment A**).

The increase in delay points will slow the flow of traffic, further exacerbated by increased trips to and from the Airport due to anticipated growth, which would result in exceedances of significance thresholds (expressed in delay and in vehicles per mile). Refer to **Attachment A**.

### **Traffic Safety**

Considering the corrected anticipated growth scenario described above, the currently analyzed Alternative 2 within the DEIS would result in the following traffic safety issues:

- Increases the number of conflict points to 10 (from 4 in no-build conditions) for traffic to the Airport from SB I-580 (see **Attachment A**). Further, inbound Airport traffic would be forced to navigate 3 signalized intersection between the I-580 SB off-ramp and the airport terminal.
- Increases the number of conflict points to 7 (from 3 in no-build conditions) for traffic to NB I-580 from the Airport (see **Attachment A**).

The above increases in conflict points will increase the probability for crashes in the future compared to the existing off-ramp configuration. Chapter 1, page 1-19, Figure “Total Crash Rates Along the Freeways in the Study Area” shows that average crash rates in the vicinity of the Airport are currently only at 50-100 percent of Statewide Average. Removal of the Airport direct ramps will actually introduce new hazards in a location that is currently operating effectively from a safety perspective, which is in direct contrast with the purpose and need for the Proposed Project.

### **Traffic Impacts of the RTAA Preferred Alternative**

The recommended alternative described above would result in the following:

- Increases the number of existing conflict points (4) by one to account for the dual off-ramp at Plumb Lane that also supports replacement SB flyover ramp.
- Maintains the number of delay points (0) for SB motorists.
- Effectively maintain approximately the same relative level of travel delay, safety, and optimization of system connections between I-580 and the RTAA without compromising any of the benefits of the current alternative to the overall surface transportation system.

The RTAA Preferred Alternative for the Plumb Lane Interchange would reduce the delay and conflict points, which would in turn reduce the anticipated delay and vehicle per mile values, as well as anticipated crash rates, at roadways providing access to the Airport. Therefore, once the growth rate analysis is corrected within the traffic impact analysis, the RTAA Preferred Alternative for the Plumb Lane Interchange would result in lesser traffic impacts to area roadways and alleviate anticipated traffic congestion issues.

### **Traffic Volumes at the Proposed Plumb Lane Diverging Diamond**

As described in Appendix 1 to **Attachment A**, the June 2018 traffic impact study model shows the I-580 and Plumb Lane Interchange as two different intersections, and has significant discrepancies within the eastbound (EB) traffic totals, which resulted in an understatement of the traffic impacts at this interchange. The additional travel time is stated as 1-2 minutes; however, on correction of the issue the additional travel time would be over 3 minutes as drivers navigate the three signalized intersections and traverse the slower off-ramp, Plumb Lane, and internal airport circulatory roadways to access the terminal compared to the directional ramp serving it under existing and no-build conditions. The AM EB volume shows 247 fewer EB vehicles within the proposed diverging diamond interchange, and the PM EB volume shows 531 fewer vehicles within the proposed diverging diamond interchange. This is shown in more detail within **Attachment A**. During the weekday AM peak hour, 1,722 vehicles are headed EB when they leave the SB terminal intersection, but only 1,475 vehicles enter the NB terminal intersection heading EB. During the weekday PM peak hour, 2,267 vehicles are headed EB when they leave the SB terminal intersection, but only 1,736 vehicles enter the other side heading EB. This is a self-contained intersection where vehicles cannot leave the system. This issue needs to be corrected within the traffic impact study, and it should also be confirmed that this issue did not occur at other proposed diverging diamond interchanges.

### **Emergency Access and Safety**

Maintaining reliable emergency access and response time to the Airport is a homeland security issue and a critical priority for the RTAA and FAA. The EIS Preferred Alternative would eliminate direct access for



emergency responders to the terminal, and will negatively affect response times. In addition to increasing the number of conflicts (and potential for crashes) and delay for the predominant southbound ingress movement from I-580, the removal of the directional southbound ramp under the EIS Preferred Alternative would reduce the overall options for accessing the terminal to a single point via the Plumb Avenue/Terminal Way intersection. The lack of alternative ingress options to the terminal can reduce the overall safety and security of the airport as emergency responders could be potentially blocked by a singular accident or event from efficiently accessing the facility.

An emergency response exercise was performed on October 29, 2018, with an After Action Report documenting the results (**Attachment C**). Participating in this exercise were the Chief of Public Safety from the Tucson Airport Authority Police Department, the Reno-Tahoe Airport Authority, Nevada Air National Guard Fire Department, Reno Police Department, Washoe County Sheriff's Department, Remsa, Reno Fire Department, and Sparks Fire Department. The exercise was designed to analyze entry and egress points for emergency response vehicles traveling in three different roadway configurations leading into the airport: current 2018 roadway systems, the EIS Preferred Alternative, and the RTAA Preferred Alternative. The After Action Report found that the configuration of the EIS Preferred Alternative was the least likely to be successful during an emergency, severely impacting public safety and potentially resulting in unintended life safety consequences. Although the After Action Report stated that the current 2018 roadway system was the most ideal configuration, the RTAA Preferred Alternative was found to be the best compromise for changing some of the I-580 entry and exit ramps while still maintaining a safe southbound entry and exit route during an emergency.

Further, removal of the southbound flyover ramp would remove one of the two ingress points for the Nevada Air National Guard Base within the Airport.

Impacts associated with emergency services and access are described in the DEIS, Section 3.2, Community Resources, Table 3.2-5 (page 3.2-18). This discussion of impacts associated with the EIS Preferred Alternative 2 should acknowledge that emergency service response time to the Airport terminal will be reduced as result of elimination of the direct access ramp.

## **Air Quality**

The air quality model used for the analysis of the Proposed Project used traffic projections provided from the traffic model. Currently the traffic model for the Proposed Project does not include the projected increases of traffic and operations identified in the Airport Master Plan. Without these projections included in the air quality model, air quality impacts are currently underestimated within the DEIS in the vicinity of the Airport. The corrected growth assumptions will result in an increase in total vehicles on local roadways, which in turn increases congestion and traffic delays. The DEIS's Preferred Alternative for access to the Airport will increase delay and travel time at this interchange. Idling time for vehicles in this area would be greater than that assumed within the DEIS, and as a result mobile air quality emissions would be greater than those stated within the DEIS. The increase in idling at this interchange would result in increased carbon monoxide (CO) emissions; therefore, the CO Hot Spot Analysis should be revised to evaluate if there would be any adverse effects to sensitive receptors in the area, including the nearby high school.

The RTAA Preferred Alternative for the Plumb Lane Interchange, as described in detail above, would reduce the delay and subsequent idling time of vehicles travelling to and from the Airport. Therefore, the RTAA Preferred Alternative would reduce these potential impacts.

## Noise

The Preliminary Highway Traffic Noise Technical Report (Appendix D.5 of the DEIS), states that noise sources within the project study area are identified as predominantly occurring from traffic on I-80 and I-50/US 395. In the vicinity of the Airport, this may not be the case due to airport operations and in fact, existing noise levels may be higher than those identified in the text (55.2 to 72.7 A-weighted decibels). Consider updating text to reflect noise conditions near the Airport. The RTAA Preferred Alternative configuration for the Plumb Lane Interchange will aid in reducing potential ambient noise impacts by alleviating traffic congestion and idling times that would occur under the interchange alternative currently analyzed in the DEIS.

## Other Comments

In addition to the Key Issues identified above, please see below for additional issues that may be worth considering prior to the release of the public Final EIS.

- Community Resources, Section 3.2. Land use conflicts may occur from altered traffic patterns at the Plumb Lane Interchange. The Earl Wooster High School is located adjacent to this interchange and would be indirectly impacted by changes to traffic patterns from the EIS Preferred Alternative 2 modifications to traffic flow. This potential impact needs to be addressed within the EIS. While Section 3.2 does broadly describe changes in access to public facilities, including schools, specific impacts are not identified or described and the analysis is inadequate for this reason.
- Water Resources, Section 3.8. Inclusion of the RTAA Preferred Alternative flyover ramp may impact the man-made ditch located near the Airport as identified in Figure 3.8-1. If the ramp is included as part of DEIS Alternative 2, recommend addressing this potential impact in Table 3.8-2. Additionally, the planned water quality basin shown in Figure 3.8-5 in the vicinity of the flyover ramp may also need to be moved if the RTAA Preferred Alternative is included.
- Vegetation, Wildlife, and Fish – It is unclear from Appendix D.11, Spaghetti Bowl Project Vegetation, Wildlife, and Fish Technical Report if the vegetated area near the man-made ditch identified in Figure 3.8-1 was surveyed or analyzed for any biological effects associated with the Proposed Project.

## REFERENCES

Council on Environmental Quality (CEQ), 1997. Considering Cumulative Effects Under the National Environmental Policy Act. Available online at:  
[https://ceq.doe.gov/publications/cumulative\\_effects.html](https://ceq.doe.gov/publications/cumulative_effects.html).

Federal Highway Administration (FHWA), 2003. Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process. Available online at:  
<https://www.environment.fhwa.dot.gov/nepa/QAimpact.aspx>

Reno Tahoe Airport Authority (RTAA), 2018a. <https://www.renoairport.com/airport-authority> Accessed August 16, 2018.

RTAA, 2018b. Email communication between L. Butterfield and AES. August 22, 2018.

Nevada Department of Transportation (NDOT), March 2017. Agency Coordination Plan. [http://ndotspaghettibowl.com/wp-content/uploads/2018/03/RSB-Agency-Coordination-Plan\\_March2018.pdf](http://ndotspaghettibowl.com/wp-content/uploads/2018/03/RSB-Agency-Coordination-Plan_March2018.pdf). Accessed August 14, 2018.

Reno-Tahoe International Airport (Airport), 2018a. Reno-Tahoe International Airport Master Plan website. <http://www.renoairport.com/airport-authority/supporting-community/airport-plans/master-plan>. Accessed August 14, 2018)

Airport, 2018b. Reno-Tahoe International Airport Master Plan Chapters website. Reno-Tahoe International Airport Master Plan website. <http://www.renoairport.com/airport-authority/supporting-community/airport-plans/master-plan>. Accessed August 14, 2018.

Airport, 2018c. Passenger and Cargo Statistics Report dated May 2018.

Traffic Works, 2018. Draft Trip Generation Letter for Aloft Hotel at Plumb/Terminal dated May 17, 2018.

# **Attachment A**

Traffic Volume Projections Review

Prepared by Kittelson & Associates




851 SW 6th AVENUE, SUITE 600  
PORTLAND, OR 97204  
P 503.228.5230 F 503.273.8169

## MEMORANDUM

---

Date: August 20, 2018 Project #: 22850

To: Ryan Lee Sawyer  
Analytical Environmental Services  
1801 7th Street, Suite 100  
Sacramento, CA 95811

From: Marc Butorac, PE, PTOE, PMP, and Russ Doubleday 

Project: Reno-Tahoe Airport I-580 Access Ramps

Subject: Administrative Draft of the Spaghetti Bowl Project Draft Environmental Impact Statement (DEIS) Examination

---

This memorandum examines the future traffic volume projections and access modifications to/from the Reno-Tahoe International Airport (RTIA) under the Nevada Department of Transportation (NDOT) Preferred Alternative #2 documented in the Administrative Draft of the Spaghetti Bowl project Draft Environmental Impact Statement (DEIS) dated July 2018. Based on this examination and the identified project need to reduce travel delay, improve safety, improve bridges, and optimize system connections, we have identified the following key issues that negatively impact RTIA and that should be resolved in the DEIS prior to publication.

**Underestimation of Year 2040 Forecast Projections between Airport and I-580** – The traffic analysis in the DEIS and documented in Appendix “C” currently fails to adequately account for any increase in traffic between the airport and I-580 (i.e., the total weekday a.m. and p.m. traffic as measured by the directional freeway ramps and via the Plumb Avenue/Terminal Way intersection). In fact, the DEIS year 2040 Alternative #2 projections showed a reduction in total (inbound/outbound) weekday a.m. and p.m. peak hour volumes from the Base Year 2015 volumes of 676 and 585, respectively, to 636 and 544, respectively. This approximate 5 percent reduction in traffic volumes significantly underestimates the expected traffic volumes and delay along the Plumb Avenue corridor and doesn’t properly reflect the estimated 25.4 percent growth in employment at the airport terminal [Transportation Analysis Zone (TAZ) #725] as documented in the RTC Travel Demand Model nor the 66.8 percent growth in passenger boardings as documented in the Airport Master Plan. The proper inclusion of this traffic would result in approximately 172 (RTC Employment Data) to 452 (Airport Master Plan) additional trips during the critical weekday a.m. peak hour trip compared to the DEIS Plumb Avenue forecasts between the airport and I-580. These additional trips combined with the removal of the directional ramps would increase the cited 1 to 2 minutes of additional travel time from I-580 to the airport to potentially over 3 minutes.

**Preferred Alternative #2 & Removal of Directional Ramps for RTIA** – The removal of the directional southbound ramp between I-580 and the airport increases the number of conflict points from 4 to 10 and intersections traversed from zero to 3, resulting in increased delay (1 to 2 minutes as cited in the DEIS) and reduces the overall connectivity and safety of travelers accessing the airport.

In addition to increasing the number of conflicts (and potential for crashes) and delay for the predominant southbound ingress movement from I-580, the removal of the directional southbound ramp reduces the overall options for accessing the terminal to a single point via the Plumb Avenue/Terminal Way intersection. The lack of alternative ingress options to the terminal can reduce the overall safety and security of the airport as emergency responders could be potentially blocked by a singular accident or event from efficiently accessing the facility.

The two issues identified above result in an underestimation of the *increase in travel delay, reduction in safety, and de-optimization of system connections* between I-580 and the Reno Tahoe International Airport. These are the exact needs the Spaghetti Bowl project is trying to address in regard to the most critical surface transportation asset (the I-80/I-580/US 395 interchange) in the Reno-Sparks region; however, Preferred Alternative #2 as currently proposed does the opposite to the region's most critical air transportation asset. As such, it is recommended that the Airport Access Option (Design Option B3 and A1.2 w/o NB Direct Ramp) cited on page 2-12 of the DEIS which addresses these needs be incorporated into Alternative #2 to ensure that airport can function effectively into the future.

## PROJECT BACKGROUND

The Nevada Department of Transportation (NDOT) has created the Spaghetti Bowl Project, which is a draft plan to rebuild I-80, I-580, and US 395 in the greater Reno metropolitan area. The Spaghetti Bowl Project is designed to better accommodate existing and future traffic volumes and to address safety concerns from outdated freeway designs. The Administrative Draft Environmental Impact Statement (DEIS) examines four scenarios out to 2040, including a no-build scenario. NDOT's preferred Alternative #2 would remove the two direct access ramps between I-580 and the Reno-Tahoe International Airport and consolidate freeway interchanges to Plumb Lane around a diverging diamond intersection (see DEIS Page 2-21).

## YEAR 2040 FORECAST PROJECTIONS BETWEEN AIRPORT AND I-580

NDOT worked with the Regional Transportation Commission – Washoe County (RTC) metropolitan planning organization to build travel demand models for the Spaghetti Bowl Project. RTC travel demand models show employment growth for every transportation analysis zone (TAZ) inside its jurisdiction.

Table 1 shows employment growth at Reno-Tahoe International Airport through 2040. The five combined TAZs at the airport are modeled to see 15.1 percent growth in employment by 2040, and the TAZ that covers the terminal is forecast to see 25.4 percent employment growth.<sup>1</sup>

**Table 1: RTC Travel Demand Forecast Percentage Growth by Employment in Reno Airport TAZs**

TAZ	2015	2020	2025	2030	2035	2040	Percentage Growth 2015-2040
725 (airport terminal)	701	709	767	783	856	879	25.4%
All five airport TAZs	2,192	2,212	2,312	2,354	2,468	2,523	15.1%

RTIA recently completed a Master Plan with projected boardings out to 2036. This Master Plan has been approved by the Federal Aviation Administration. Table 2 shows three growth scenarios projected out to 2040 (the average annual growth in boardings was used to calculate projected 2040 boardings). The airport expects to see a 66.8 percent increase in boardings in 2040.<sup>2</sup>

**Table 2: Reno-Tahoe International Airport Master Plan Forecast Passenger Boardings**

Plan Forecast	2016	2021	2026	2036	2040 (projected)	Percentage Growth 2016-2036
Low Growth	1,824,000	1,949,000	2,063,000	2,304,000	2,400,000	31.6%
<b>Master Plan Forecast</b>	<b>1,824,000</b>	<b>2,178,000</b>	<b>2,417,000</b>	<b>2,839,000</b>	<b>3,042,000</b>	<b>66.8%</b>
High Growth	1,824,000	2,315,000	2,622,000	3,168,000	3,436,800	88.4%

Throughout the DEIS, NDOT relies on traffic volumes that reflect the travel demand model, not the airport's growth projections in the Master Plan. However, under further examination it was discovered that the DEIS and specifically Appendix C – Traffic Analysis did not properly account for specific level of growth in traffic between I-580 and the airport as measured via the directional ramps and the Plumb Avenue/Terminal Way intersection. Table 3 below shows the summation of the weekday p.m. peak hour total (inbound/outbound) traffic volumes from the DEIS.

**Table 3 – Comparison of Total Peak Hour Volumes**

Condition	Volumes via Plumb Lane/Terminal Way		Volumes via Directional Ramps		Total Traffic Volume		Source
	AM	PM	AM	PM	AM	PM	
Existing 2015	389	374	287	211	676	585	DEIS, Appendix C, Pages 55 and 180

<sup>1</sup> Map Library. RTC: Metropolitan Planning. <https://www.rtcwashoe.com/metropolitan-planning/map-library/>

<sup>2</sup> Reno-Tahoe International Airport Master Plan: Aviation Activity Analysis and Forecast. [https://www.renoairport.com/sites/default/files/PDFs/Other/Reduced\\_RNO%20MP\\_Aviation%20Forecast\\_Draft0618.pdf](https://www.renoairport.com/sites/default/files/PDFs/Other/Reduced_RNO%20MP_Aviation%20Forecast_Draft0618.pdf)

Condition	Volumes via Plumb Lane/Terminal Way		Volumes via Directional Ramps		Total Traffic Volume		Source
	AM	PM	AM	PM	AM	PM	
No Build 2040	403	334	303	296	706 (4.4%)	630 (7.7%)	DEIS, Appendix C, Pages 70 and 186
Alternative #2 2040	636	554	-	-	636 (-5.9%)	554 (-5.3%)	DEIS, Appendix C, Page 99

- See Attachment A for background information.

As shown in Table 3, the 2040 No-Build Forecast showed only a 4.4 percent and 7.7 percent increase in total airport traffic between year 2015 and 2040 during the weekday a.m. and p.m. peak hour, respectively. These increases are significantly lower than the 25.4 percent increase in employment numbers shown in the RTC model for the airport and the 66.8 percent increase in passenger boardings shown in the airport masterplan. While employment and boardings don't always track identically to trip generations, they should be at the same level of magnitude as they drive the productions and attractions of the airport land use.

Conversely to the 2040 No-Build, Alternative #2 showed approximately a 5 percent decrease in traffic to/from the airport during the peak periods. Based on a review of the DEIS traffic work, it appears that while mainline volumes on I-580 were grown per the RTC models, the cross-streets and specifically the traffic between I-580 and the airport does not appear to have been properly forecasted. Therefore, the need for the directional ramps and the amount of increased delays for travelers accessing the airport from the north was significantly underestimated in the DEIS.

## PREFERRED ALTERNATIVE #2 & REMOVAL OF DIRECTIONAL RAMPS FOR RTIA

Alternative 2 in the DEIS, NDOT's preferred alternative, removes the I-580 southbound flyover off-ramp to the airport and the I-580 northbound on-ramp from the airport, and it moves the I-580 interchange from Mill Street to Plumb Lane and reconfigure the intersection under the freeway as a diverging diamond.

For traffic coming into the airport from southbound I-580, using Plumb Lane introduces 10 conflict points and 3 delay points (see Exhibit A), compared with 4 conflict and 0 delay points (see Exhibit B) with the existing flyover ramp. Additionally, inbound airport traffic needs to navigate 3 separate weaving and merging concerns between the I-580 southbound off-ramp and the airport terminal. For traffic leaving the airport headed for northbound I-580, using Plumb Lane introduces 7 conflict points and 2 delay points, compared with 3 conflict and 0 delay points with the existing northbound flyover ramp. This increase in conflict points will likely increase the number of crashes in the future compared to the existing off-ramp configuration. In addition, the three delay points will increase southbound motorist arrival by two to three minutes due to the anticipated increased airport traffic not currently accounted for in the DEIS and the introduction of three signalized intersections between I-580 and the airport for southbound arrivals.



Exhibit A – Alternative #2 Southbound Conflict Points

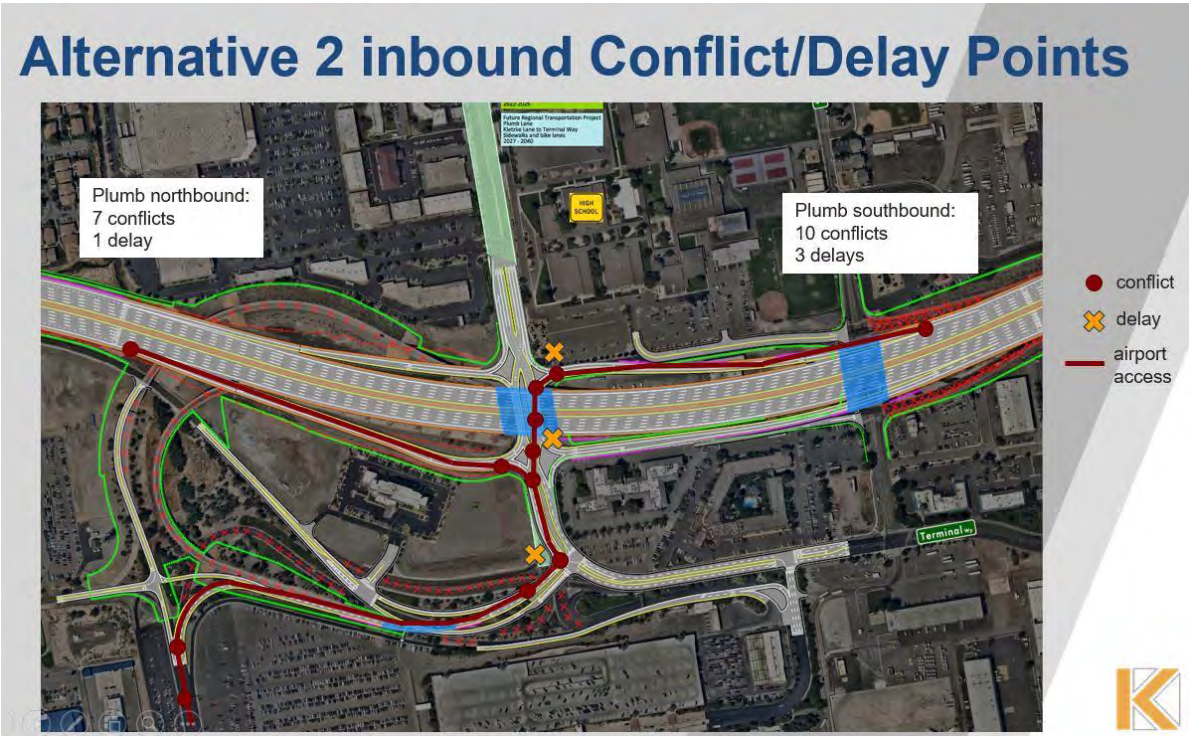
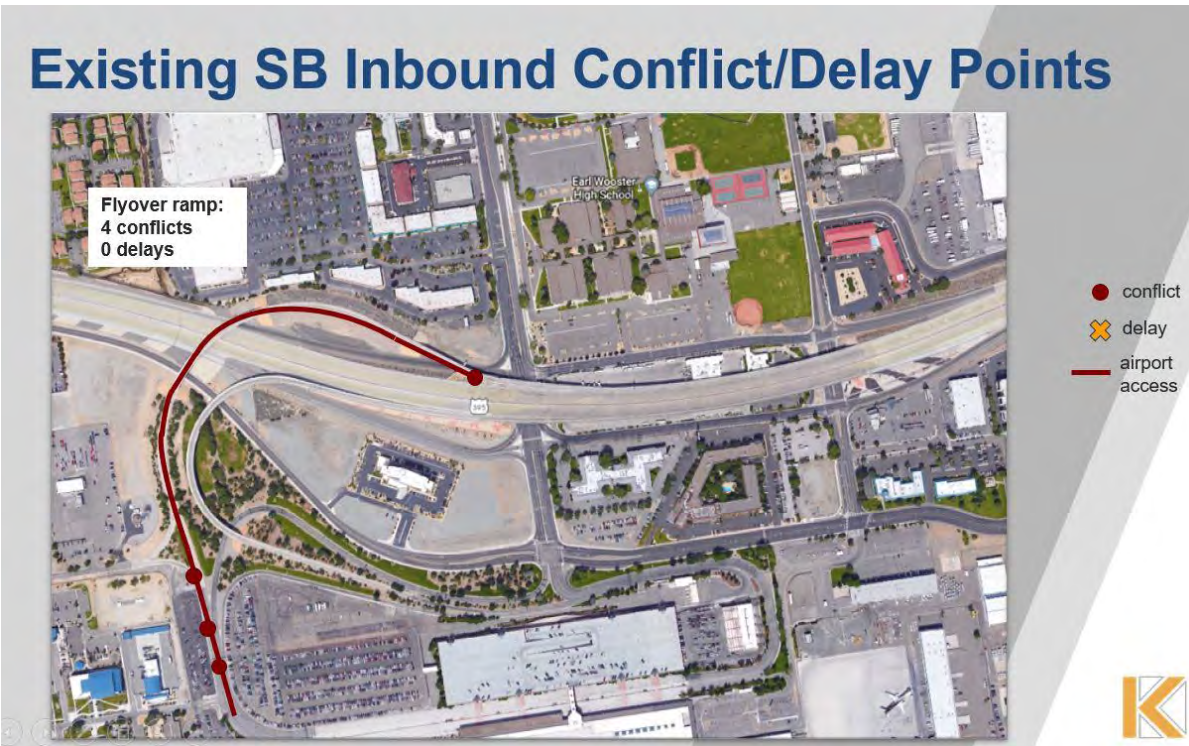


Exhibit B – Existing Southbound Conflict Points



The Airport Access Option (Design Option B3 and A1.2 w/o NB Direct Ramp) cited on page 2-12 of the DEIS increases number of existing conflict points (4) by one to account for the dual off-ramp at Plumb Avenue that also supports replacement southbound flyover ramp and maintains the number of delay points (0) for southbound motorists. This modification to Preferred Alternative #2 as cited in the DEIS should effectively maintain approximately the same relative level of *travel delay, safety, and optimization of system connections* between I-580 and the RTIA without compromising any of the benefits of the current alternative to the overall surface transportation system.

## Attachment A – Background Information

### 2015 EXISTING CONDITIONS

**Table A-1: Existing Traffic Volumes to and from Reno-Tahoe International Airport**

	AM Peak Hour			PM Peak Hour		
	Plumb	Airport Ramps	Total	Plumb	Airport Ramps	Total
In	213	233	446	145	83	228
Out	176	54	230	229	128	357
Total	389	287	676	374	211	585

- See Appendix 2 for Existing traffic volumes

### 2040 NO-BUILD CONDITIONS

**Table A-2: 2040 No-Build Traffic Volumes to and from Reno-Tahoe International Airport**

	AM Peak Hour			PM Peak Hour		
	Plumb	Airport Ramps	Total	Plumb	Airport Ramps	Total
In	249	249	498	174	90	264
Out	154	54	208	160	206	366
Total	403	303	706	334	296	630

- See Appendix 3 for 2040 No-Build traffic volumes

### 2040 ALTERNATIVE #2 CONDITIONS

**Table A-3: Alternative #2 Traffic Volumes to and from Reno-Tahoe International Airport**

	AM Peak Hour			PM Peak Hour		
	Plumb	Airport Ramps	Total	Plumb	Airport Ramps	Total
In	443	-	443	243	-	243
Out	193	-	193	311	-	311
Total	636	-	636	554	-	554

- See Appendix 4 for Alternative 2 traffic volumes

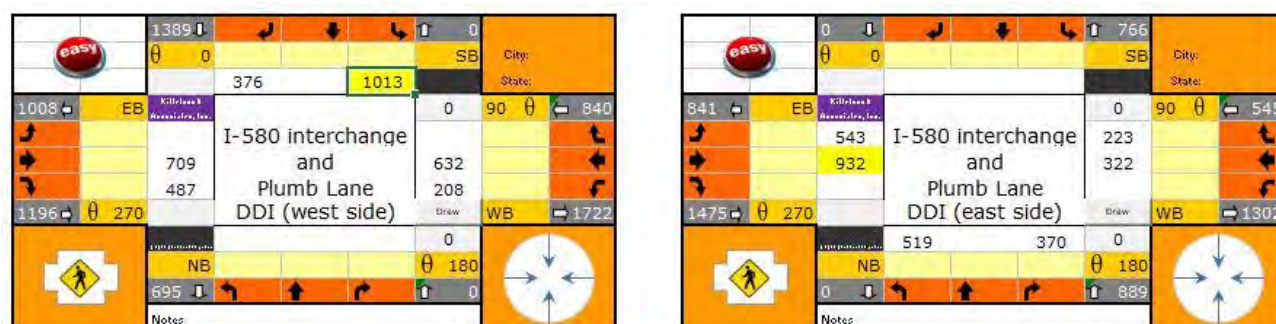
## Appendix 1   Discussion of Traffic Volume Inconsistencies in DEIS



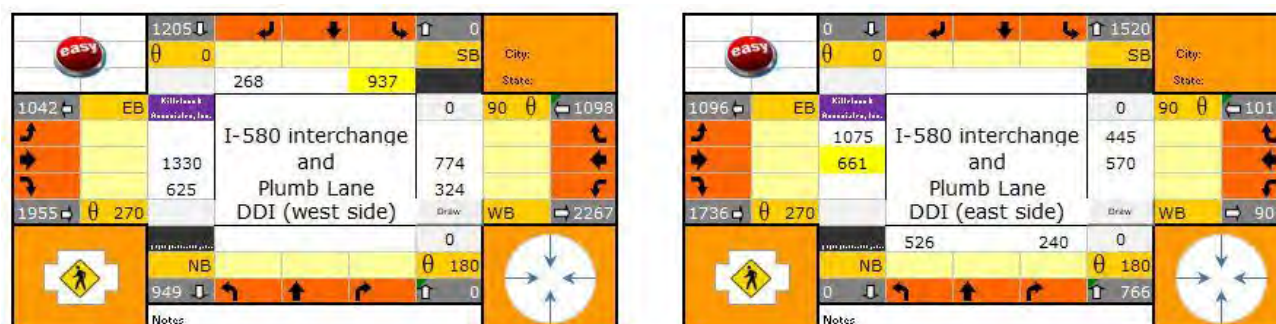
As documented in the *Administrative Draft of the Spaghetti Bowl Project Draft Environmental Impact Statement (DEIS) Examination* memorandum, the DEIS did not incorporate forecasted growth from either the travel demand model nor the Reno-Tahoe International Airport's own Master Plan growth forecast. In addition, the DEIS also had some fundamental issues with the traffic volume assignments along Plumb Lane and heading into the airport.

In NDOT's Alternative 2, the I-580 interchange and Plumb Lane intersection will become a diverging diamond interchange. In the DEIS traffic impact study model, this is shown as two different intersections, one for the southbound and northbound interchange terminals. The traffic volumes on Plumb Lane should not differ between the two interchange terminals that represent the diverging diamond, and this is the case for westbound traffic. Eastbound traffic, however, has significant issues, with 247 fewer cars moving eastbound between the two interchange terminals during the AM peak period (see Figure A-1), and 531 fewer vehicles moving eastbound between the two interchange terminals during the PM peak period (see Figure A-2).

**Figure A-1: AM Eastbound Volume Balancing Issues at I-580 Interchange and E Plumb Lane**



**Figure A-2: PM Eastbound Volume Balancing Issues at I-580 Interchange and E Plumb Lane**



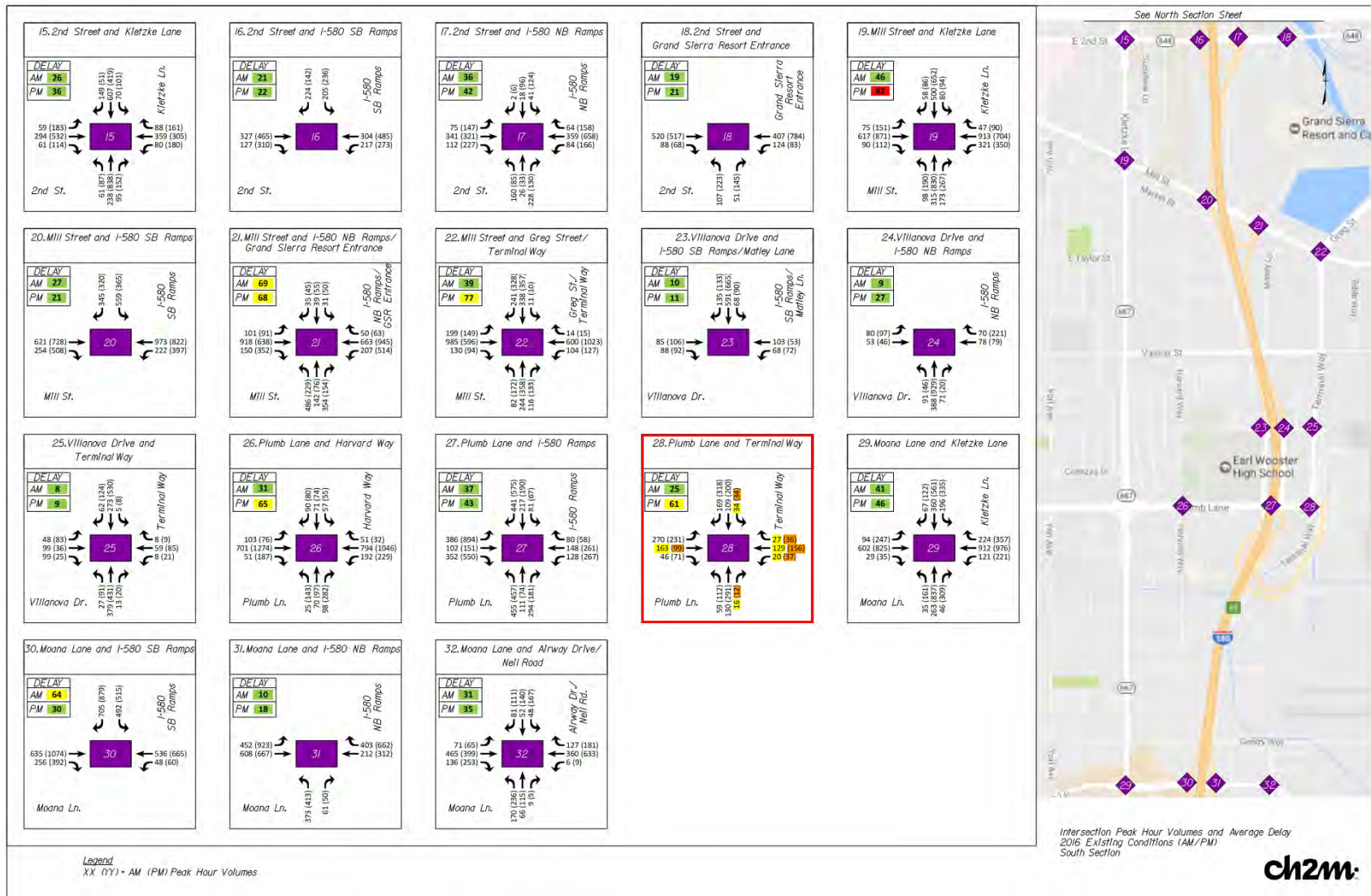
During the weekday AM peak hour, 1,722 vehicles are headed eastbound when they leave the southbound terminal intersection, but only 1,475 vehicles enter the northbound terminal intersection heading eastbound. During the weekday PM peak hour, 2,267 vehicles are headed eastbound when they

leave the southbound terminal intersection, but only 1,736 vehicles enter the other side heading eastbound. This is a self-contained intersection where vehicles cannot leave the system. Clearly, there is an issue in the modeling of this scenario of the traffic impact analysis that will likely impact operations into Reno-Tahoe International Airport.

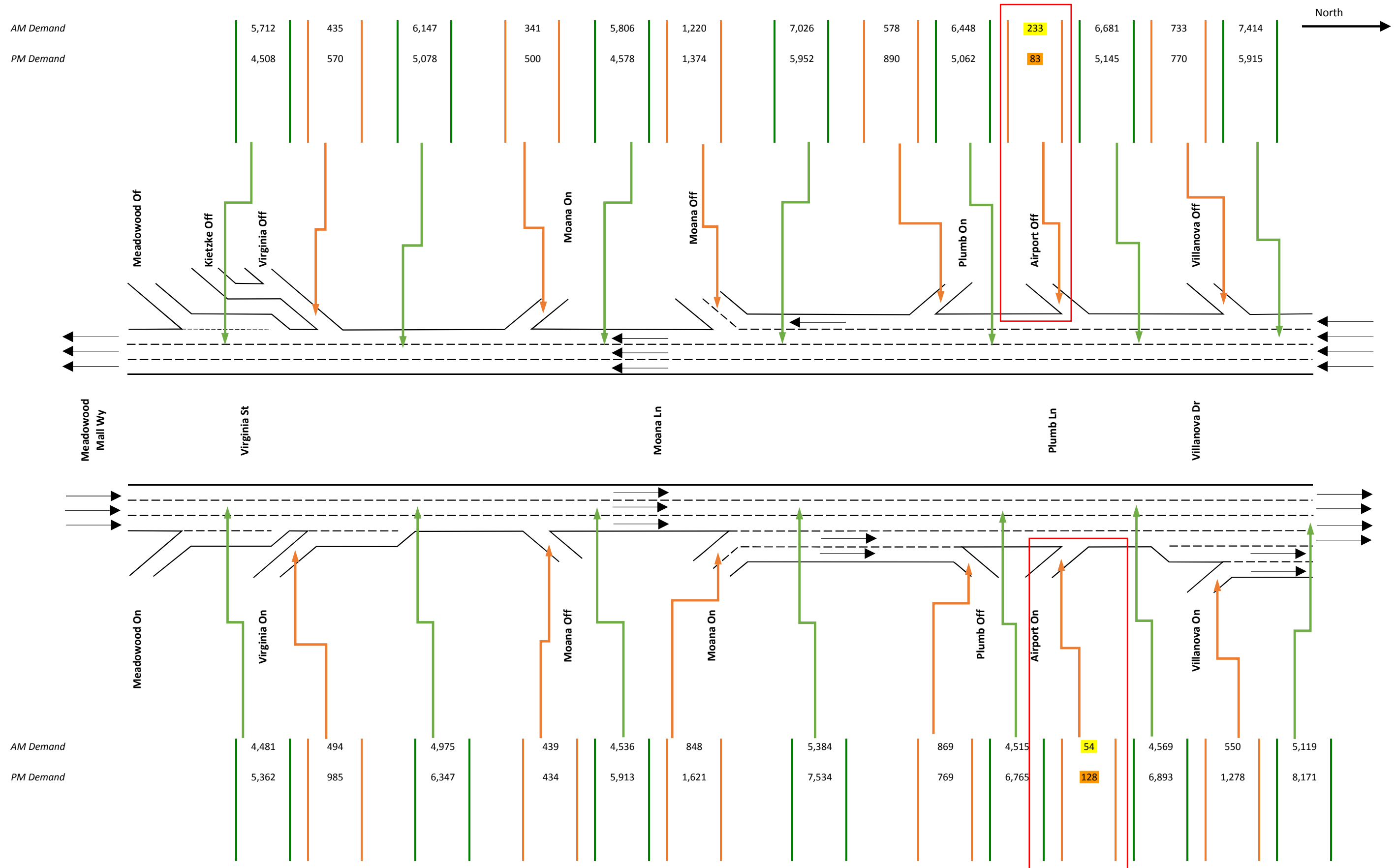
These missing volumes result in operations being reported in the DEIS that are underestimating the actual delay and congestion to southbound I-580 motorists trying to access the airport. Accounting for these volume levels could easily increase the expected additional travel time cited in the DEIS (1 to 2 minutes) to over three minutes as drivers navigate the three signalized intersections and traverse the slower offramp, Plumb Lane, and internal airport circulatory roadways to access the terminal compared to the directional ramp serving it today.

## Appendix 2 Existing Traffic Volumes

**FIGURE 3-5 (CONTINUED)**  
Existing Peak Hour Intersection Turning Movement Volumes and Average Delay Results



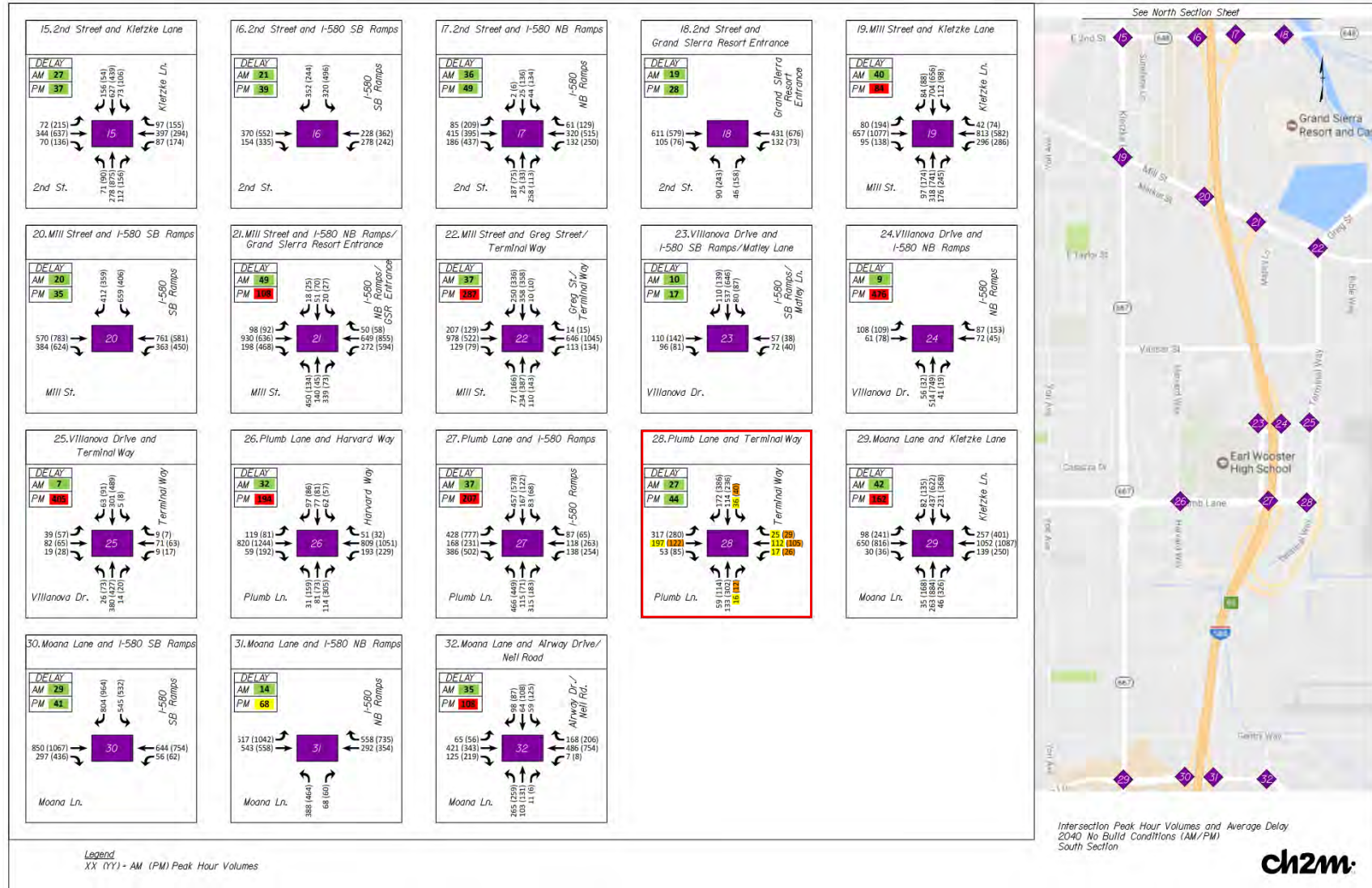


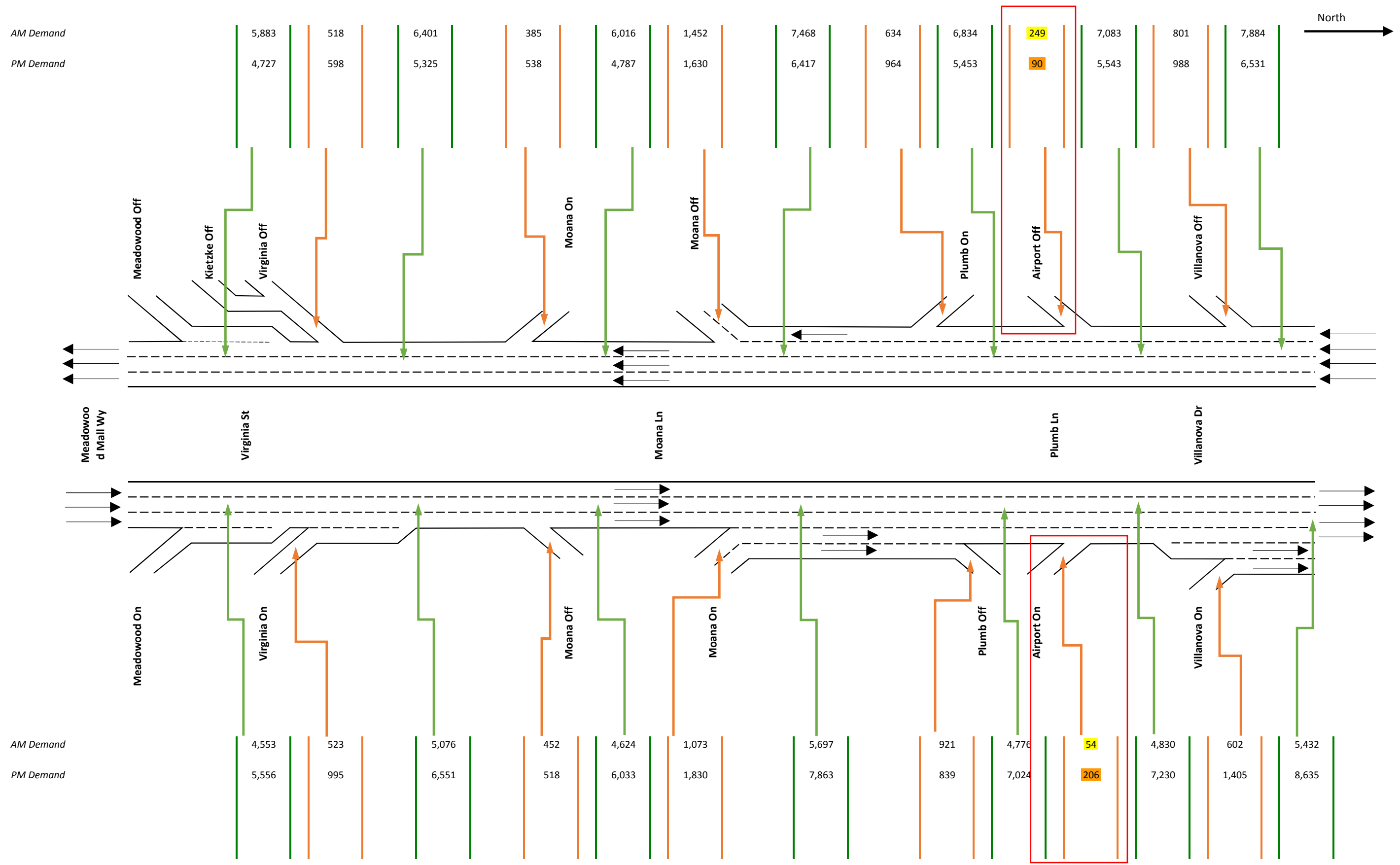


Existing I-580/US 395 Peak Hour Traffic Demands (Sheet 1 of 3)

## Appendix 3 2040 No-Build Traffic Volumes

**FIGURE 4-4 (CONTINUED)**  
**2040 No-Build Peak Hour Intersection Turning Movement Volumes and Average Delay Results**



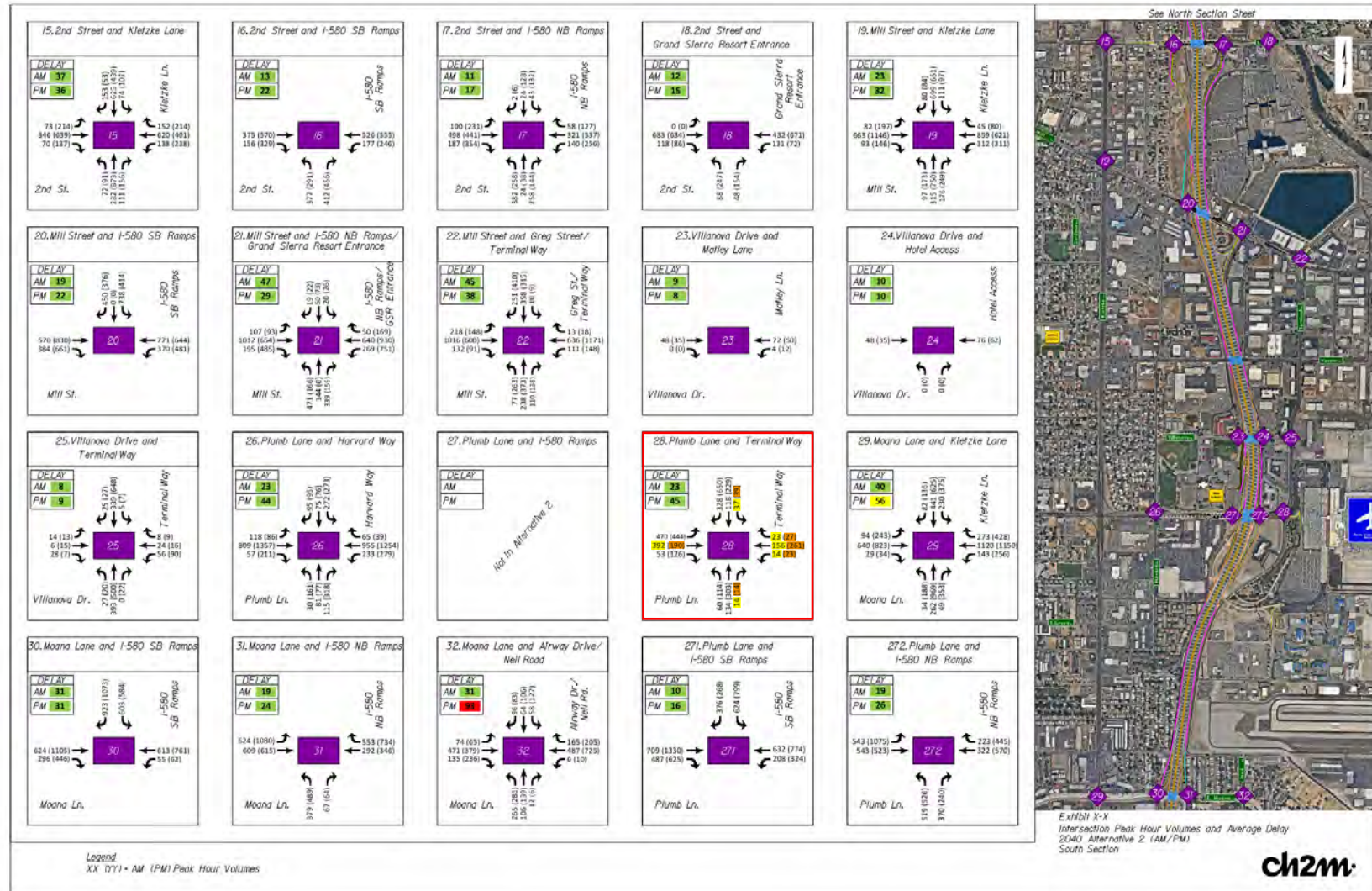


2040 I-580/US 395 Peak Hour Traffic Demands (Sheet 1 of 3)

## Appendix 4 NDOT Alternative 2 Traffic



FIGURE 6-3 (CONTINUED)  
2040 Alternative 2 Peak Hour Intersection Turning Movement Volumes and Average Delay Results



## **Attachment B**

Reno-Tahoe Airport Authority

Board of Trustees

Resolution No. 537

## Attachment B

### RESOLUTION NO. 537

#### **A RESOLUTION IN SUPPORT OF RETAINING CONVENIENT FREEWAY ACCESS FOR THE RENO-TAHOE INTERNATIONAL AIRPORT THROUGH A PROPOSED NEW DESIGN**

WHEREAS, the Reno-Tahoe Airport Authority (“Authority”) is a quasi-municipal corporation that was created by the Nevada State Legislature in 1977 to serve a public use and promote the general welfare by facilitating safe and convenient air travel and transport to and from the Reno area; and

WHEREAS, the Vision of the Reno-Tahoe International Airport (“Airport”) is to be a model airport that supports the region’s tourism and economic growth and provides safe and secure, convenient customer-focused air service delivery facilities; and

WHEREAS the Mission of the Authority is to maintain and grow aviation services and facilities, as part of the global air transportation system, to transport people and goods to benefit the region while being financially self-sustaining; and

WHEREAS, the Airport supports an overall catchment area of 1.3 million people, including northern Nevada and northeastern counties in California; and

WHEREAS, the Airport has an annual economic impact on the community of more than \$2 billion; and

WHEREAS, the Airport is currently served by two interstate highway direct connect ramps which serve 4 million annual passengers and 2,500 employees that utilize the Airport; and

WHEREAS, the Authority strongly supports the Spaghetti Bowl project and recognizes that both it and the Airport are vital to the community and the region; and

WHEREAS, the Airport is currently completing a 20-year Master Plan which projects that the Airport is expected to serve as many as 6.5 million passengers by the year 2036 based on its Federal Aviation Administration (“FAA”) approved forecast; and

WHEREAS, the Nevada Department of Transportation (“NDOT”) in conjunction with the Federal Highway Administration (“FHWA”) and the Regional Transportation Commission (“RTC”) of Washoe County is conducting environmental and design efforts for the Interstate 80/Interstate 580 System-to-System Interchange Spaghetti Bowl (“Spaghetti Bowl”) Project; and

WHEREAS, the Authority received official notification from NDOT as of June 7, 2018 that the Reno-Tahoe Airport Authority has been recognized as a Participating Agency for the Spaghetti Bowl Project; and



WHEREAS, the Spaghetti Bowl traffic model does not factor in the Master Plan forecast or the Master Plan proposed facilities, because NDOT is required to use traffic data supplied by the RTC; and

WHEREAS, the Spaghetti Bowl Draft Environmental Impact Statement ("DEIS") being prepared by NDOT calls for the removal of the freeway direct connect Airport ramps as part of its Preferred Alternative solution; and

WHEREAS, the removal of the Airport access ramps diminishes Airport customer convenience and puts Airport users, including passengers, employees, and tenants, at increased security risk by eliminating ground access redundancy for first responders and the fastest response and transport route between the Airport and area hospitals including the region's only trauma center;

NOW, THEREFORE, BE IT RESOLVED by the members of the Board of Trustees of the Reno-Tahoe Airport Authority that the Authority hereby urges the Nevada Department of Transportation to include the Authority's Design Alternative (attached) into the NDOT Preferred Spaghetti Bowl Alternative within the Environmental Impact Statement (EIS) and allow the Authority meaningful involvement in the environmental analyses, traffic modeling and financial planning aspects of the remaining EIS process associated with the Authority's Design Alternative. Additionally, the Authority urges that the Regional Transportation Commission include the Federal Aviation Administration approved passenger forecast as part of their transportation model and that this information be used by NDOT in the traffic models used for the Spaghetti Bowl project and all future transportation projects.

On motion by Trustee Jay, seconded by Trustee Rose, the foregoing Resolution was passed and adopted this 14<sup>th</sup> day of June, 2018, by the following vote of the Board:

AYES: Trustees Carey, Gianoli, Rose, Chaplin, Jay, Farahi, Sferrazza and Carasali

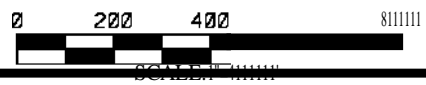
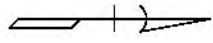
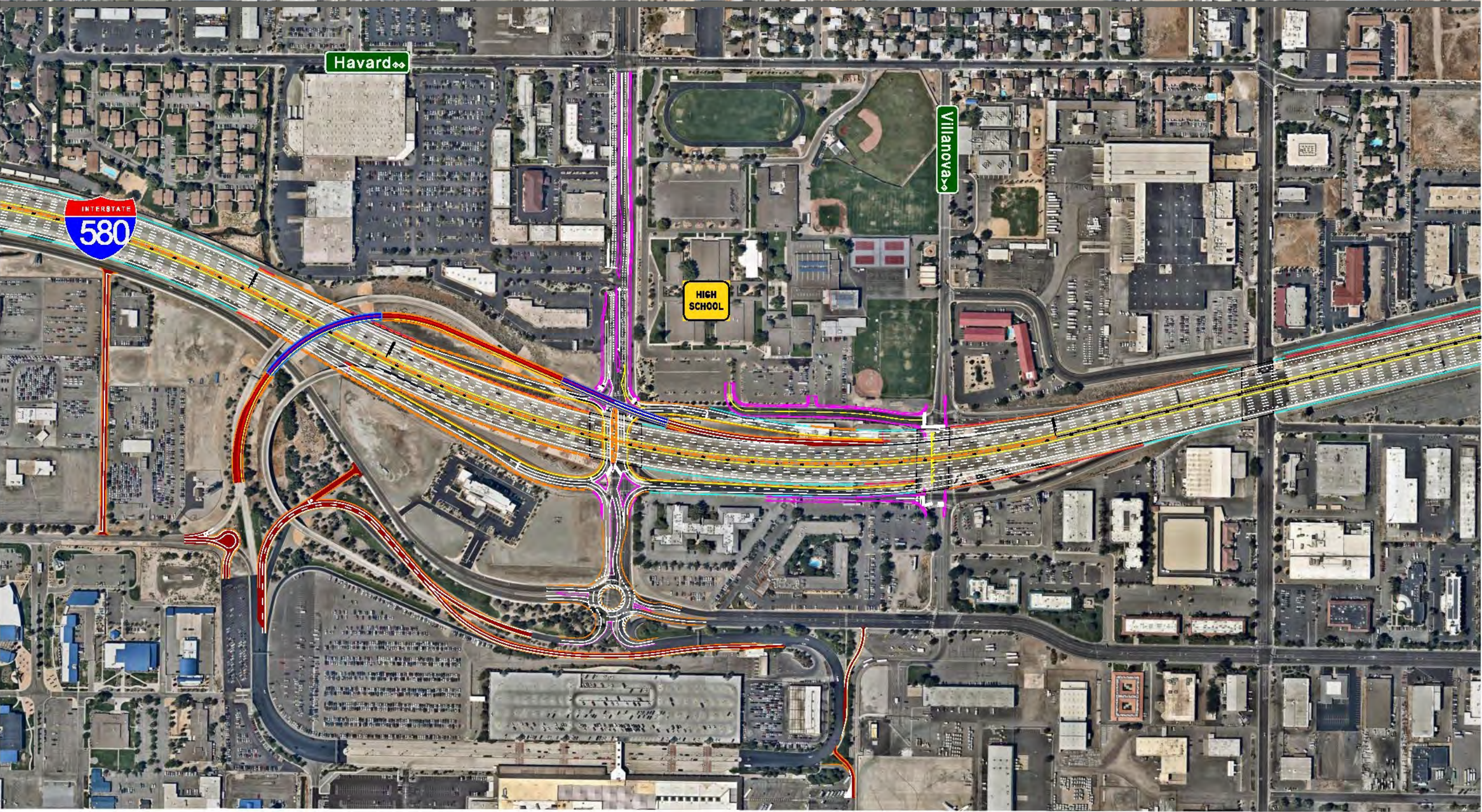
ABSENT: None ABSTAIN: None

  
Chairman Shaun Carey

ATTEST:

  
Secretary Carol Chaplin





Design Option a<sub>3</sub> and AI<sub>2</sub> w<sub>0</sub> NB Alternative 2 Direct Ramp

Figure B3/A1.2



# Reno-Tahoe International Airport Master Plan Aviation Forecasts Approval Letter



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Office of Airports  
Phoenix Airports District Office

3800 N. Central Avenue  
Suite 1025, 10<sup>th</sup> Floor  
Phoenix, AZ 85012

May 15, 2017

Marilyn M. Mora, A.A.E.  
President/CEO  
Reno-Tahoe Airport Authority  
P.O. Box 12490  
Reno, NV 89510-2490

**Reno-Tahoe International Airport (RNO)  
Aviation Forecast Approval**

The Federal Aviation Administration (FAA), Airports District Office has reviewed the aviation forecast for the Reno-Tahoe International Airport (RNO) Master Plan Study, dated April 13, 2017. The FAA approves these forecasts for airport planning purposes, including Airport Layout Plan (ALP) development. The FAA approval is based on the following:

1. The difference between the FAA Terminal Area Forecast (TAF) and RNO Airport's forecast for total enplanements, based aircraft, and operations is within the 10 percent and 15 percent allowance for the 5 and 10 year planning horizons.
2. The forecast is based on current data and appropriate methodologies.

Based on the approved forecast, the FAA also approves the MD10/30 (D-IV) for the existing and Boeing 767/300ER (D-IV) future critical aircraft.

The approval of the forecast and critical aircraft does not automatically constitute a commitment on the part of the United States to participate in any development recommended in the master plan or shown on the ALP. All future development will need to be justified by current activity levels at the time of proposed implementation. Further, the approved forecasts may be subject to additional analysis or the FAA may request a sensitivity analysis if this data is to be used for environmental or Part 150 noise planning purposes.

If you have any questions about this forecast approval, please call me at (602) 792-1074.

Sincerely,

Original signed by:

Joseph M. Carlini  
FAA Airport Planner/PFC Specialist

Enclosure: TAF Summary Report for RNO Airport

# APO TERMINAL AREA FORECAST DETAIL REPORT

## Forecast Issued January 2017

RNO

AIRCRAFT OPERATIONS														
Enplanements				Itinerant Operations				Local Operations				Total Ops	Total Tracon Ops	Based Aircraft
Fiscal Year	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total			
REGION:AWP STATE:NV LOCID:RNO														
CITY:RENO AIRPORT:RENO/TAHOE INTL														
2017*	1,531,760	439,622	1,971,382	45,675	11,302	22,940	1,812	81,729	3,196	350	3,546	85,275	0	120
2018*	1,577,198	450,986	2,028,184	47,517	10,872	23,044	1,812	83,245	3,228	350	3,578	86,823	0	120
2019*	1,616,907	460,773	2,077,680	49,260	10,383	23,148	1,812	84,603	3,260	350	3,610	88,213	0	120
2020*	1,655,388	470,129	2,125,517	50,946	9,912	23,252	1,812	85,922	3,293	350	3,643	89,565	0	120
2021*	1,694,072	479,540	2,173,612	52,590	9,487	23,357	1,812	87,246	3,326	350	3,676	90,922	0	120
2022*	1,729,892	488,271	2,218,163	53,960	9,247	23,462	1,812	88,481	3,359	350	3,709	92,190	0	120
2023*	1,763,005	496,313	2,259,318	54,974	9,271	23,568	1,812	89,625	3,393	350	3,743	93,368	0	120
2024*	1,794,388	503,896	2,298,284	55,871	9,360	23,674	1,812	90,717	3,427	350	3,777	94,494	0	120
2025*	1,826,359	511,674	2,338,033	56,783	9,453	23,781	1,812	91,829	3,461	350	3,811	95,640	0	120
2026*	1,861,073	520,156	2,381,229	57,772	9,547	23,888	1,812	93,019	3,495	350	3,845	96,864	0	120
2027*	1,897,695	529,134	2,426,829	58,815	9,642	23,996	1,812	94,265	3,529	350	3,879	98,144	0	120
2028*	1,935,603	538,286	2,473,889	59,889	9,738	24,104	1,812	95,543	3,564	350	3,914	99,457	0	120
2029*	1,975,096	547,870	2,522,966	61,010	9,835	24,213	1,812	96,870	3,599	350	3,949	100,819	0	120
2030*	2,013,482	557,223	2,570,705	62,103	9,933	24,322	1,812	98,170	3,635	350	3,985	102,155	0	120
2031*	2,052,007	566,578	2,618,585	63,199	10,032	24,432	1,812	99,475	3,671	350	4,021	103,496	0	120
2032*	2,092,248	576,310	2,668,558	64,342	10,132	24,543	1,812	100,829	3,707	350	4,057	104,886	0	120
2033*	2,132,061	585,943	2,718,004	65,474	10,233	24,654	1,812	102,173	3,744	350	4,094	106,267	0	120
2034*	2,173,806	596,111	2,769,917	66,662	10,335	24,766	1,812	103,575	3,781	350	4,131	107,706	0	120
2035*	2,217,151	606,742	2,823,893	67,898	10,438	24,878	1,812	105,026	3,819	350	4,169	109,195	0	120
2036*	2,261,725	617,656	2,879,381	69,169	10,542	24,991	1,812	106,514	3,857	350	4,207	110,721	0	120
2037*	2,306,319	628,581	2,934,900	70,441	10,647	25,104	1,812	108,004	3,896	350	4,246	112,250	0	120
2038*	2,350,467	639,358	2,989,825	71,700	10,753	25,218	1,812	109,483	3,935	350	4,285	113,768	0	120
2039*	2,396,060	650,635	3,046,695	73,006	10,860	25,332	1,812	111,010	3,974	350	4,324	115,334	0	120
2040*	2,440,004	661,554	3,101,558	74,269	10,968	25,447	1,812	112,496	4,014	350	4,364	116,860	0	120
2041*	2,483,048	672,275	3,155,323	75,509	11,077	25,562	1,812	113,960	4,054	350	4,404	118,364	0	120
2042*	2,526,045	682,985	3,209,030	76,749	11,188	25,678	1,812	115,427	4,095	350	4,445	119,872	0	120


# **Attachment C**

## Roadway Analysis Exercise After Action Report



---

**Date:** October 29, 2018

**To:** Mark Cameron, VP Operations & Public Safety  
**Fr:** John Ivanoff, Chief of Public Safety, TAA   
**Re:** Roadway Analysis Exercise- After Action Report

---

Dear Mr. Cameron,

On October 29, 2018 at 0900 hours I participated in a tabletop exercise for the Reno-Tahoe International Airport (RNO). The exercise was designed to analyze entry and egress points for emergency response vehicles traveling in three different configurations of roadways leading into the airport. The three roadway configurations are based upon current roads, future roadways proposed by the Nevada Department of Transportation (NDOT) which eliminates direct freeway access (via Interstate I-580) to/from the terminal, and an alternative hybrid configuration that eliminates some terminal to freeway access but keeps direct airport access from the southbound freeway off ramp.. For further information, see attached map images of the three configurations.

Participating in the exercise were members of the Reno-Tahoe Airport Authority, Nevada Air National Guard Fire Department, Reno Police Department, Washoe County Sheriff's Department, Remsa, Reno Fire Department and Sparks Fire Department.

#### **Scenario:**

The scenario of the emergency involved a multi vehicle accident at the intersection of East Plumb Lane and Terminal Way. The accident resulted in multiple injuries and complete blockage of all directions of the intersection (this will be referred to in the document as the "initial event"). Soon after the first accident, a vehicle collides with pedestrians at a second location in front of the RNO terminal, resulting in multiple injuries (this will be referred to in the document as the "secondary event").

#### **Roadway Configuration #1:**

This emergency scenario was exercised with current (2018) roadway systems as they connect RNO to/from surface streets and I-580.

#### **Initial Event**

- **Response-** The initial response from all public safety agencies occurred immediately. Plumb Lane and Terminal Way were closed at the site of the collision, with alternate routes being established to allow citizens continued access to the terminal building as well as allowing for emergency response vehicles to mitigate the emergency response at the second event.

- 
- **Roadway Considerations-** The freeway flyover access points into and out of the airport provided excellent travel routes for ambulances to arrive and depart the airport and allowed ease of access to the local area hospitals. Citizens were able to avoid the incident by taking alternate routes to the south and north of the terminal using varying roadways and the I-580 southbound off-ramp exit as well as the northbound on-ramp. This allowed the emergency responders to avoid the public while mitigating the emergency.
  - **Emergency Response Time –** The times for each type of response (police, fire and ambulance) were estimated on existing traffic conditions for the time of day the scenario took place.
    - Reno Fire (RFD) – Approximately four (4) minutes (Station 21).
    - Reno Police (RPD) – Unknown, dependent on location of patrol units when the accident occurs
    - Airport Police (APD) – could respond from the terminal in approximately two (2) minutes.
    - Medical Transport Units (Remsa) – Approximately seven (7) minutes to respond and stage, with the first few units arriving a few moments before seven minutes. Some responding units would be dispatched from area hospitals located southwest of the airport.

### **Secondary Event**

- **Response-** Emergency response from the APD and AFD would be immediate, however due to the size of the pedestrian related accident, secondary first responder units would be required to mitigate the situation.
- **Roadway considerations-** While the main intersection will be impassible due to the collision, entry and egress points to the terminal will be unimpeded due to the flyover access points. This would allow secondary first responders to access the terminal accident site easily. The flyovers will also provide choices for citizens to make while entering or exiting the airport, which would allow for emergency egress routes to remain clear of congestion.
- **Emergency Response Time-** These times will be similar to those described in the Initial Event.

### **Roadway Configuration #2:**

This emergency scenario was exercised with proposed NDOT roadway system changes as they will connect RNO to/from surface streets and I-580. In this configuration, significant changes to I-580 are evident, including complete removal of both direct connect freeway flyover entrance and exit ramps to/from the airport as well as the Villanova freeway on-ramp.

### **Initial Event:**

- **Response –** Initial response was very close to the same, as responding units were not yet impeded by traffic. However, response to the second event location was slowed because all egress routes were significantly restricted due to a lack of access points leading to and from the events.



- 
- Roadway Considerations – There was no way for emergency vehicles to clearly enter, or depart the area with patients without mixing with local congested traffic. Since the congestion could not be circumvented by the public or emergency responders, exiting for transport could not be accomplished. Furthermore, with no immediate egress and ingress routes via I-580, patient transport was significantly delayed, resulting in public safety hazards.
  - Emergency Response Time – The times for each type of response (police, fire and ambulance) were estimated using existing traffic conditions for the time of day in which the scenario took place, on the new roadway configuration.
    - RFD – Approximately four (4) minutes (Station 21).
    - RPD – Unknown, dependent on location of patrol units when the accident occurs. Surface streets would be necessary to respond which will likely increase response time; Reno
    - APD – could respond from the terminal in approximately two (2) minutes.
    - Remsa – Unknown time of arrival. Estimated significantly longer to respond as all units will have to use surface streets to arrive on scene. Patients will therefore be without transport to hospitals for a longer period of time.

## **Secondary Event**

- Response- Emergency response from the APD and AFD would be immediate, however due to the size of the pedestrian related accident, secondary first responder units would be required to mitigate the situation.
- Roadway considerations- The main intersection will be impassible due to the collision and entry and egress points to the terminal will be severely impeded due to the lack of the flyover access points. The confusing and limited roadways available to the citizens will likely clog any and all ability of the first responder's access to the scene if they are arriving from outside of the airport's roadway system. This congestion will also severely hamper the ability for medical transport units to leave with patients. Helicopter service for transports will not be reasonable or safe given the location of the accidents.
- Emergency Response Time- These times will be severely hampered for reasons mentioned above. Time cannot be estimated for arrival or departure, however it was clear from all first responders in attendance of the exercise that there was no clear way into or out of the emergency situation in a timely fashion.

## **Roadway Configuration #3:**

**Initial Event** This emergency scenario was exercised with the Airport Authority's alternative to the NDOT roadway system changes as they will connect RNO to/from surface streets and I-580. In this configuration, some changes to I-580 are evident however a southbound freeway off ramp direct connect airport entry would exist via I-580.

- Response- Initial response was very close to the same as Configuration #1, as responding units were not yet impeded by traffic. Response to the second emergency location was impacted due

---

to limited roadways leading to the terminal, however not as badly as in Configuration #2. The exit ramp on southbound I-580 into RNO improved response time.

- Roadway considerations- Emergency vehicles were able to respond via surface streets and southbound I-580 to the scene. This allowed for a more timely arrival than Configuration #2, however not as timely as Configuration #1. Egress was still a challenge because the surface streets would become clogged and would impede ambulance transport. This could result in patient care delays.
  - RFD – Approximately four (4) minutes (Station 21).
  - RPD – Unknown, dependent on location of patrol units when the accident occurs.
  - APD – Could respond from the terminal in approximately two (2) minutes.
  - Remsa – Approximately seven (7) minutes if responding southbound on I-580. If forced to respond from a different direction or surface street, this time will increase significantly compared to Configuration #1.

## **Secondary Event**

- Response- Emergency response from the APD and AFD would be immediate, however due to the size of the pedestrian related accident, secondary first responder units would be required to mitigate the situation.
- Roadway considerations- The main intersection will be impassible due to the collision and entry and egress points to the terminal will be somewhat impeded due to fundamental changes in the roadway structure and lack of the flyovers. However, by maintaining the exit roadway from the interstate into the terminal roadway, traffic would flow somewhat more smoothly than in Roadway Configuration #2. The confusing and limited roadways will continue to be a factor as they pertain to alternate routes of travel and egress routes. The congestion will be increased compared to the existing configuration however not to the level of Roadway Configuration #2. First responders would need to gain control of all exit points of the roadways prior to the citizens clogging the lanes.
- Emergency Response Time- These times will be somewhat hampered for reasons mentioned above. Time cannot be estimated for arrival or departure. Exercise participants were able to create travel routes to and from the secondary event.

## **Other Considerations:**

- Pedestrian Traffic – Historically in several other large scale incidents in which the roadways to an airport are blocked, citizens will abandon their vehicles and begin to walk to the airport terminal. In doing so, they become a hindrance to the emergency responders and may cause secondary emergency events. Furthermore, all of the abandoned vehicles parked on the surface streets, interstate and neighborhoods become a hindrance to emergency vehicles and will eventually need to be removed. Logistically this could take a significant amount of resources and time to complete. The roadway in Configuration #2 clearly inhibits citizens and

---

emergency responder access points and therefore will contribute to the pedestrian issue described here.

- Air Operations Area (AOA) Roads – Emergency responders may use the airfield access roads to respond to emergencies. In doing so they would avoid a great deal of traffic. This access strategy however should not be considered as a primary source of response to public side emergencies for the following reasons:
  - Safety – Emergency vehicles would be travelling near or on active taxiways and/or runways to arrive at the scene. This is inherently dangerous and must be controlled by positive escorts and coordination with the Air Traffic Control personnel to keep aircraft and vehicles from colliding.
  - Security – Any ingress or egress from an airfield carries an immediate security concern. Vehicles and their occupants must be clearly escorted and gates must be secured after each escort. This practice will slow down the response time to the scene.
  - Staffing prohibitive – Since positive escorts must be maintained at all times while on the airfield, airport staff members must act as the escorts for the emergency responders. These personnel may not be immediately available which will cause a significant delay in response.
- First Responder Safety- In order to respond to any emergency, a first responder must have a clearly defined and safe route of travel to and from the scene. Configuration #2 makes such a response impossible. By significantly restricting roadways leading into and out of the airport, emergency responders will be forced to travel into a dangerous situation and will have very few options to avoid encountering citizens blocking the road.
- Future Growth- Population in Reno will certainly grow over the next two decades. With such growth there must be a consideration of leaving more, not less, roadways into the airport. The airport itself will likely be serving many more passengers than at the present time.

### **Recommendation:**

While it would be easiest to leave the roadways as they are, this may be impractical for a number of reasons. Population growth, business needs and other factors may prohibit leaving the roadways into the airport as they are now. However, in analyzing the first responders viewpoints as they were confronted by the three roadway configurations, it was clear that Configuration #2 was the least likely to be successful during an emergency. The significant roadway changes would severely impact public safety and could result in unintended life safety consequences.

Configuration #3 appears to be the best compromise for changing some of the I-580 entry and exit ramps while still maintaining a southbound exit to the airport.

It is also recommended that airport personnel and local first responder agencies exercise scenarios based on Configuration #3 in which they exit the airport property via the airfield. This exit point may be the best solution to avoiding the clogged roadways for a short period during patient transport evolutions. While this is not an ideal situation, if exercised properly it could relieve some of the more difficult areas immediately near the airport where congestion may occur.

---

RNO may also consider creating feeder roads that are open only to emergency vehicles for egress off of the property.

**Conclusion:**

It is significant to note that the scenario of the exercise did not impact my observations. Any event in which the main entry point of the airport was impacted would have resulted in the same outcome. While the scenario may change, entry to the scene and a safe exit route is necessary during any emergency. Configurations #1 and #3 allow for such a route. Configuration #2 does not; as stated previously, it is the least likely to be successful during an emergency. The significant roadway changes in the NDOT preferred alternative in Configuration #2 would severely impact public safety and could result in unintended life safety consequences.

If at any time you need clarification or more information from me, please let me know.

Respectfully,



John Ivanoff

Chief of Public Safety

Tucson Airport Authority Police Department



