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Appendix A

Public and Stakeholder Involvement Summary

Appendix A – Public and Stakeholder Involvement Summary

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1. Background and Introduction

This technical memorandum summarizes the Keystone Avenue Corridor Study (Corridor Study) stakeholder and public involvement activities conducted between September 2013 and September 2014. These engagement activities focused on identifying, listening, connecting, educating, reviewing, and analyzing initial ideas to improve multimodal (pedestrian, bicycle, transit, and automobile) transportation along Keystone Avenue from California Avenue to Coleman Drive. This study also looked at California Avenue from Cherry Lane to Newlands Circle, Booth Street from California Avenue to Riverside Drive, and Foster Drive from Booth Street to Keystone Avenue.

The Corridor Study objective was to identify and evaluate potential multimodal transportation improvements in coordination with existing land use and redevelopment projects. Significant areas of focus included pedestrian and ADA enhancements, safety improvements, traffic operations and efficiencies, transit, and bicycle. Neighborhood enhancements were based on community input in collaboration with the City of Reno, NDOT, and other agencies. The outcome of the Corridor Study is a comprehensive plan to guide short- and long-term improvements in the corridor.

During the study period, the project team conducted the following outreach and engagement activities:

- Three Technical Advisory Committee Meetings
- Three Stakeholder Working Group Meetings
- Four Public Meetings
- Five area organizations' meetings

2. Outreach Activity Calendar

The following table provides an outline of the Corridor Study outreach activities conducted between September 2013 and September 2014.

DATE	EVENT	DETAILS	MATERIALS
September 30, 2013	Technical Advisory Committee Meeting #1	Overall study process, existing conditions, study goals, stakeholder participation	Presentation; corridor map; data pertaining to transit, vehicles, bicycles, and pedestrians; and land use map
October 22, 2013	Stakeholder Working Group Meeting #1	Overall study process, existing conditions (group exercise), and study goals (group exercise)	Presentation; corridor map; and data pertaining to transit, vehicles, bicycles, and pedestrians
October 23, 2013	BPAC Meeting	Study overview, focus on bicycles	Project fact sheet, corridor map; and data pertaining to transit, vehicles, bicycles, and pedestrians
November 12, 2013	Public Meeting #1	Overview of study, process, and goals; and Q&A period	Presentation, project fact sheet, display boards (study information; corridor map; and data pertaining to transit, vehicles, bicycles, and pedestrians), and comment form

DATE	EVENT	DETAILS	MATERIALS
February 6, 2014	Public Meeting #2	Overview of study, process, and goals; summary of public comments to date; and Q&A period	Presentation, project fact sheet, display boards (updated study information; corridor map; and data pertaining to transit, vehicles, bicycles, and pedestrians), and comment form
February, 18 2014	Peavine PTA Meeting	Study overview	Project fact sheet and comment form
February, 26 2014	BPAC Meeting	Progress update, present preliminary alternatives (focus on bicycles)	Presentation
March 5, 2014	Technical Advisory Committee Meeting #2	Progress update, summary of public comments, corridor concepts, bike facility opportunities and challenges, and Starbucks® access	Presentation, corridor issues map, crash analysis data, bike facility map, Starbucks map, roadway sections, information/statistics on Complete Streets, and conceptual renderings
March 26, 2014	Stakeholder Working Group Meeting #2	Progress update, summary of public comments, corridor concepts, bike facility opportunities and challenges, northern segment alternatives (group exercise), and update on Coleman to McCarran	Presentation, corridor issues map, crash analysis data, bike facility map, Starbucks map, roadway sections, information/statistics on Complete Streets, and conceptual renderings
May 22, 2014	Public Open House #3	Presentation of concepts for public input: Keystone/ California intersection, southern section, and northern section	Project fact sheet, comparison of alternatives, and comment form
June 25, 2014	BPAC Meeting	Progress update, present alternatives (focus on bicycles), summary of comments, and recommendations	Presentation
July 9, 2014	TAC/CAC Advisory Committee	Presentation of study overview, alternatives, summary of comments, and recommendations	Presentation
August 6, 2014	Technical Advisory Committee Meeting / Stakeholder Working Group #3	Progress update, summary of public comments on alternatives, and draft Corridor Study report	Draft final report
August 21, 2014	Public Meeting #4	Presentation of final report and recommendations for Keystone Corridor	Project fact sheet, summary of recommendations (presentation), revised alternatives, and comment form

3. Stakeholders and Public

Corridor Study stakeholders were identified from among agencies and organizations directly or indirectly affected by or concerned about Keystone Avenue. A detailed list of all stakeholders contacted during the development of this study is included in Attachment A. Early and continuous outreach to these individuals was critical in capturing and disseminating information about needs, issues, and opportunities for the corridor. The stakeholder groups included a Technical Advisory Committee (TAC) and a Stakeholder Working Group (SWG).

3.1. TAC

Select industry and agency experts—RTC, City of Reno, NDOT, and consultant staff— shared their knowledge about the needs and opportunities for the corridor by participating on a technical advisory committee. Three TAC meetings were held for the study. The purpose of the first meeting was to inform the committee members of the start of the study; gain feedback on potential goals and objectives; and solicit information on the needs, issues, and opportunities for the corridor. The second meeting presented a summary of initial public comments from the first two public meetings, preliminary corridor concepts, and access management challenges at West 7th Street and Starbucks®. The third meeting presented results of the alternatives analysis and draft recommendations to be implemented for the corridor.

3.2. SWG

Stakeholder Working Group participants included corridor residents, business owners, and other interested stakeholders. Participants were given the opportunity to engage in group exercises to identify issues and opportunities along the corridor, provide input on alternatives, and share comments. The project included three SWG meetings. The purpose of the first meeting was to inform the stakeholders of the start of the study, set corridor study goals, and solicit information on the needs, issues, and opportunities for the corridor. The second meeting presented a summary of the public comments from the first two public meetings, outlined preliminary corridor alternatives, and provided an update on the NDOT Road Safety Audit Reports. The third meeting, which was concurrent with the third TAC meeting, presented results of the alternatives analysis and draft recommendations to be implemented for the corridor.

3.3. Public

A contact list for all property owners and occupants in a half-mile radius of the Keystone Avenue corridor was obtained through the Washoe County Assessor's office. This list amounted to more than 6,700 names and addresses. Additional names and addresses were collected from other various meetings throughout the project lifecycle and added to the contact list. Notifications for the public meetings were sent to the individuals on this list as well as to all agency and stakeholder partners. The project included four public meetings. The public was invited to attend and provide comments in a variety of formats including by comment form, question card, or court reporter. All comments were collected in a database whereby issues and opportunities were categorized. The issues and opportunities collected were a vital part of identifying corridor deficiencies and guiding the recommendation process.

4. TAC Meetings

4.1. Meeting 1 Overview

T The first Technical Advisory Committee meeting was conducted in August 2013. Attendees included members of the consultant team as well as RTC, City of Reno, and NDOT staff. The purpose of the initial TAC meeting was to inform the committee members of the start of the study; gain feedback on the goals and objectives; and solicit information on the needs, issues, and opportunities for the corridor. The initial TAC meeting set the stage for continued agency involvement and laid down the framework for developing alternatives designed to address the issues identified in the corridor.

4.2. Meeting 2 Overview

The second TAC meeting was held in March 2014. The study team presented a review of the study scope and the public outreach to date. This TAC meeting served as the beginning of the alternatives review phase, and its goal was to focus on areas in the corridor where choices can be made and alternatives selected. Five alternatives for the Keystone Avenue/California Avenue intersection were discussed. Alternative A, a large roundabout, was determined to be difficult for pedestrians and unrealistic due to the substantial right-of-way impact and associated cost. The TAC agreed this alternative should be dismissed from further analysis; however, it should be presented to the public as an alternative that was considered. Alternative B was suggested to be modified to provide better pedestrian connections. Alternatives B through E were recommended for further analysis.

Issues and opportunities were also discussed on the segment of the corridor between Jones Street and University Terrace. One major concern for this segment is the intersection at 7th Street and the queuing in the Starbucks parking lot. Representatives from the City of Reno indicated they would reach out to the owners of the Starbucks property and begin discussions on possible solutions.

Lastly, five roadway alternatives were discussed for the northern segment of the Keystone Avenue from University Terrace to Coleman Drive. These section alternatives included a Three-Lane Complete Street, Super Sharrow, Partial Sharrow, Parking, and Four-lane All-users configurations. Benefits and challenges for each were shared. The TAC consensus was that the Partial Sharrow, Parking and Four-lane All-users alternatives should be removed from further consideration because they do not widen the sidewalks and/or require right-of-way along Keystone Avenue. The other two section alternatives, the Complete Street and Super Sharrow were recommended to be carried forward for additional analysis.

4.3. Meeting 3 Overview

The third and final meeting of the Technical Advisory Committee occurred in conjunction with the final Stakeholder Working Group meeting on August 6. The project team presented the draft report recommendations for the Keystone Corridor. The group at large agreed to make minor alterations that better refined the concepts concerning short-term improvements to the Keystone Avenue/California Avenue intersection and traffic access control at the Keystone Avenue/Kimbal Drive intersection. These altered alternatives were presented at the final public meeting to gain additional feedback.

5. SWG Meetings

5.1. Meeting 1 Overview

The first Stakeholder Working Group meeting was conducted in October 2013. Attendees included members of the consultant team, agency staff, and residents along the corridor. The purpose of the initial SWG meeting was to inform the committee members of the start of the study; gain feedback on the goals and objectives; and solicit information on the needs, issues, and opportunities for the corridor.

Bike and pedestrian traffic was a major discussion topic during the meeting. In essence, there w inadequate or incomplete bicycle and pedestrian facilities along Keystone Avenue and the group would like improvements to be made to improve safety for not only these users but also vehicle traffic as well.

Topics of interest to the SWG included: Keystone Avenue bridge and intersection with Jones Street; focus on grade and weather issues; vehicle speeds north of 7th Street; Starbucks entrance and 7th Street intersection; safe crosswalks north of 7th Street; sight distances for vehicles turning on to Keystone Avenue; Raley's access; lane weaving, discontinuous sidewalks north of I-80, commercial access and pedestrian safety; congestion; SPUI improvements and associated vehicle speeds; and I-80 entrance signage.

5.2. Meeting 2 Overview

The second SWG meeting was held in March 2014. The project team presented a summary of public comments to date along with the corridor alternatives recommended by the TAC for further consideration. The goal of this meeting was to solicit feedback from the group on the alternatives and to potentially eliminate alternatives that did not meet the goals of the corridor study prior to presentation at the public meeting. The attendees participated in a group exercise to examine, discuss, and expand upon the alternatives, and comments were collected. The group's main concerns focused on slowing the speed of traffic through the corridor, increasing safety for all users, and making it possible for residents on Keystone Avenue to safety enter and exit their driveways.

The consensus of the stakeholders agreed with the alternatives developed for the corridor. They were also in agreement with the previous decisions made by the TAC regarding which alternatives should be eliminated from further discussion.

5.3. Meeting 3 Overview

The third and final meeting of the SWG occurred in conjunction with the final TAC meeting on August 6. Refer to Section 4.3 for more details.

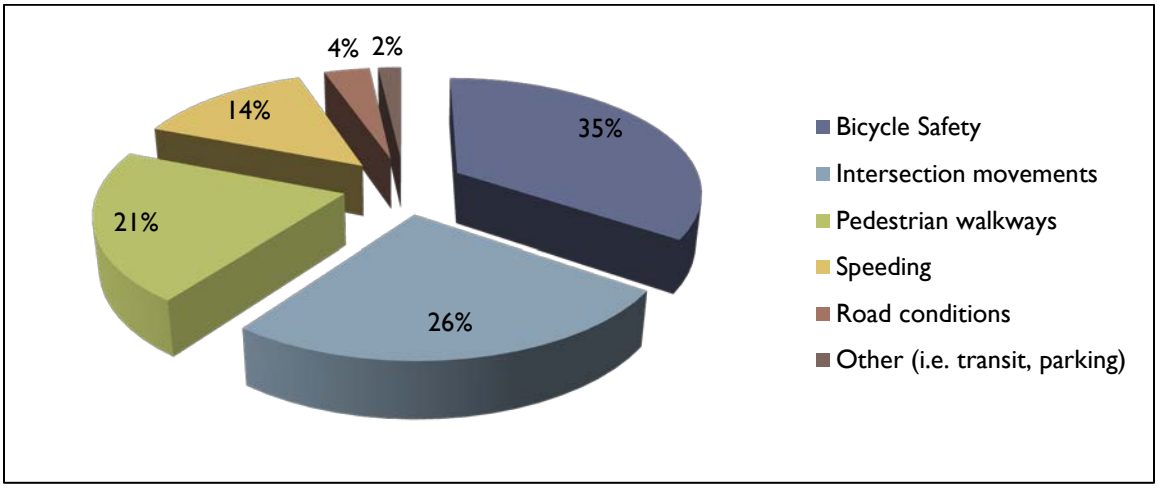
6. Public Meetings 1 & 2

Two initial public meetings were conducted; one in November 2013 and the second in February 2014. The purpose of these two meetings was to introduce the study and solicit feedback from the public on their concerns along the corridor. Attendees at the November meeting included approximately 60 people representing Keystone Avenue residents, commuters, businesses, and agency staff. The February brought in more than 160 people. Exhibits were displayed around the room illustrating the corridor limits, traffic and transit data, and issues and concerns. A formal presentation given by RTC's Lee Gibson was followed by a question and answer session. Comments forms and questions cards were handed out as part of the handout package. All comments and questions were collected in a database and shared with the project team and stakeholders.

6.1. Summary of Comments

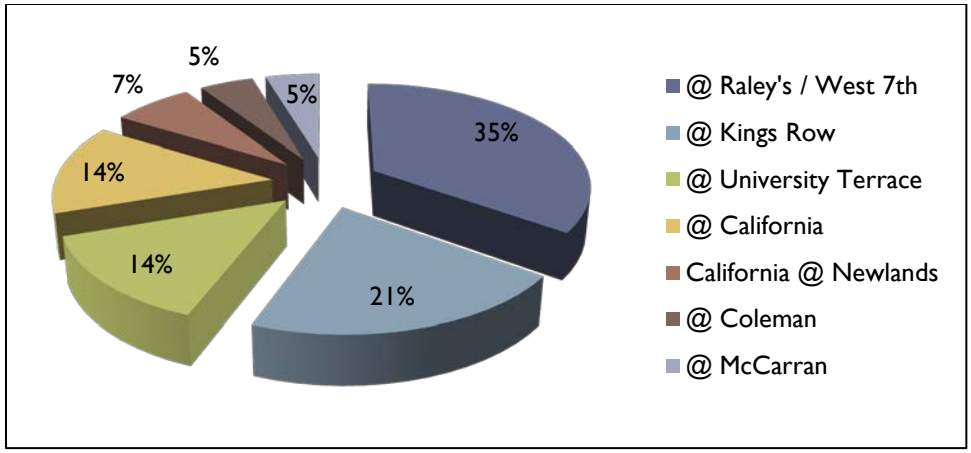
More than 180 comments were received following the November and February meetings. Comments comprising of comment forms, question cards, and emails and phone calls to RTC staff were gathered. Overall, the public's concerns centered around safety of pedestrians and bicyclists. Figure 1 shows the breakdown of the major concerns vocalized by the public at large.

Figure 1: Public concerns for Keystone Avenue Corridor



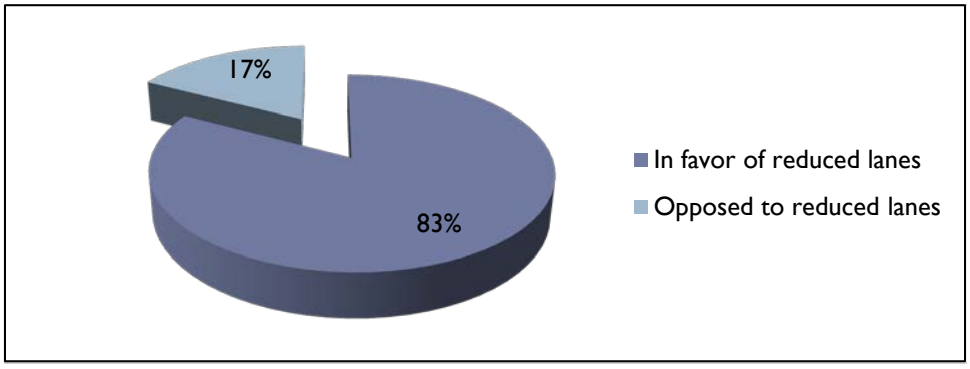
The second highest concern of the public was intersection movements. A closer look at the comments revealed that the intersection of Keystone Avenue at West 7th Street was of most concerned, followed closely by the intersection at Kings Row. Figure 2 illustrates a breakdown of the intersections of concern.

Figure 2: Named intersections of concern



Furthermore, the public expressed its opinion of the Complete Streets alternative for Keystone Avenue. Of the total number of comments (180+) received from the two meetings, 118 comments specifically stated one's stance on a Complete Streets configuration. Figure 3 shows the breakdown of those in favor of Complete Streets and those opposed.

Figure 3: Public comments specifically stating position on Complete Street alternative



In summary, the public is in favor of traffic calming measures to improve the safety of pedestrians and bicyclists. A complete database of comments from the first and second public meetings is included in Attachment B.

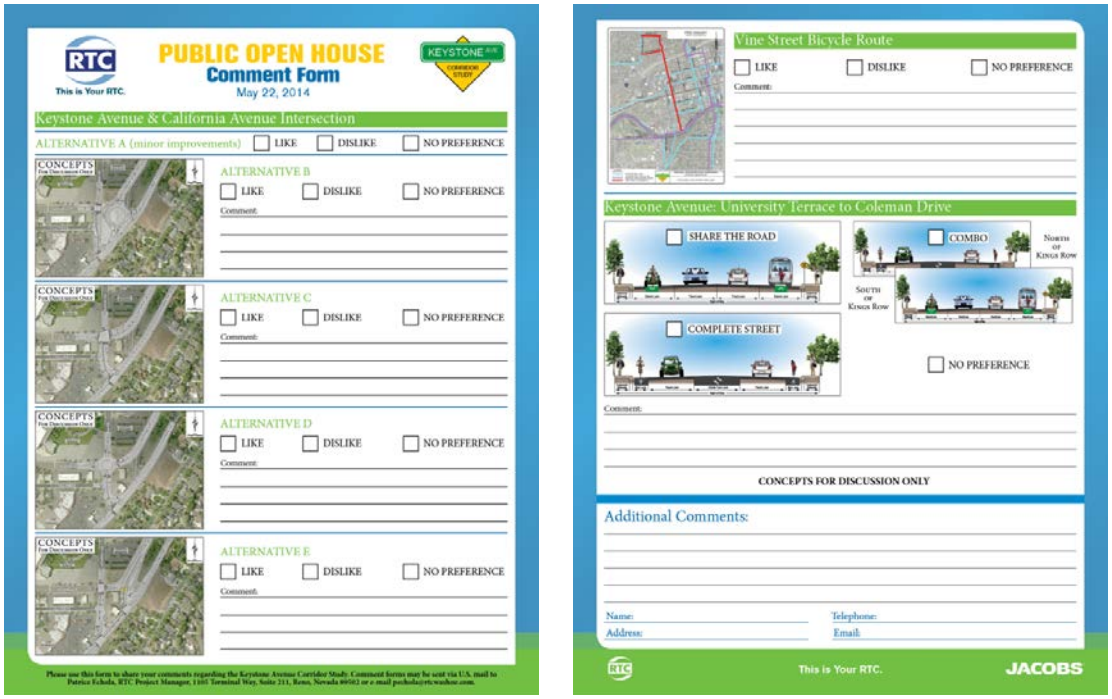
7. Public Meeting 3

The third public meeting was held in May 2014. The purpose of this open house forum was to educated the public on the various alternatives for the segments of Keystone Avenue that the RTC and consultant team are analyzing. Additionally, the primary goal of the meeting was to solicit feedback on specific alternatives and to request the public formulate an opinion on which of the alternatives should be carried forward into the recommended set of

improvements for Keystone Avenue. This data gathering was conducting using a specially designed comment card (see Figure 4) that allowed for polling of each alternative. A selection of 'Like', 'Dislike', and 'No Preference' were the options to choose from and additional space was provided for more specific comments. Approximately 110 people attended the May open house representing Keystone Avenue residents, commuters, and businesses.

It should be noted that for this public meeting, Alternative F (Limited Improvements) at the Keystone Avenue/California Avenue intersection, as described in the report, was renamed as Alternative A. The original Alternative A (Large Roundabout) was dismissed by the TAC prior to going to the public.

Figure 4: Public meeting #3 comment form



All comments were collected in a database and shared with the project team and stakeholders.

7.1. Summary of Comments

A total of 89 comments were received following the May meeting, comprising of comment forms and emails to RTC staff. Although not all registered comments clearly addressed each and every alternative presented, a tally of the selection made indicated which alternatives were favored over the others. Figures 5 through 7 break down the public's opinions for the Keystone Avenue/California Avenue intersection, Vine Street bike facility, and Keystone Avenue north of University Terrace roadway section alternatives.

Figure 5: Keystone Avenue/California Avenue intersection alternatives

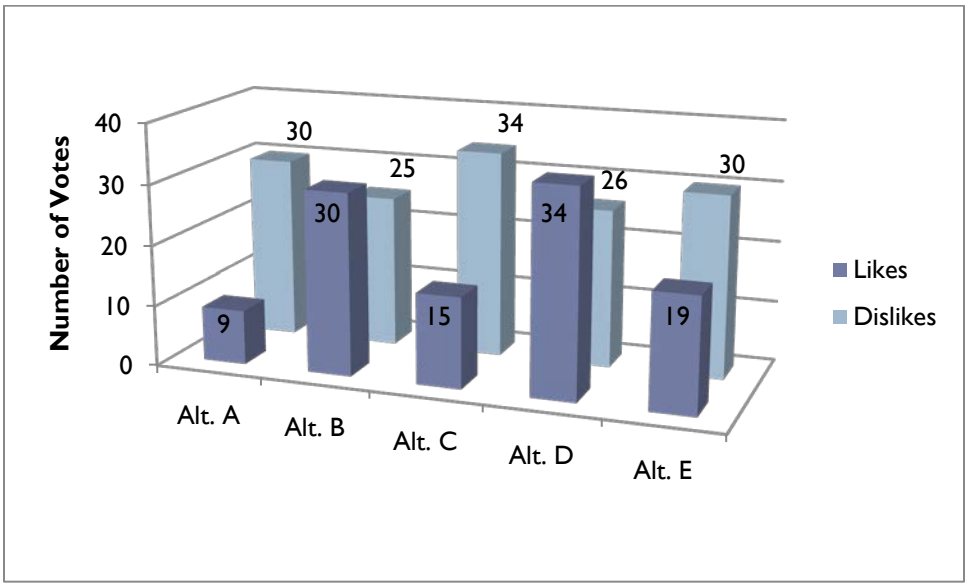


Figure 6: Vine Street alternative bike facility

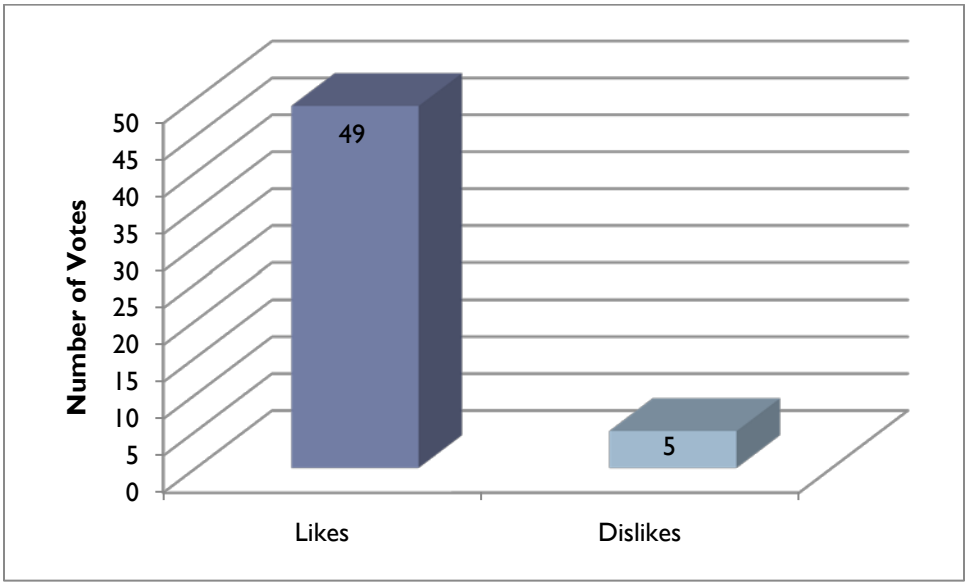
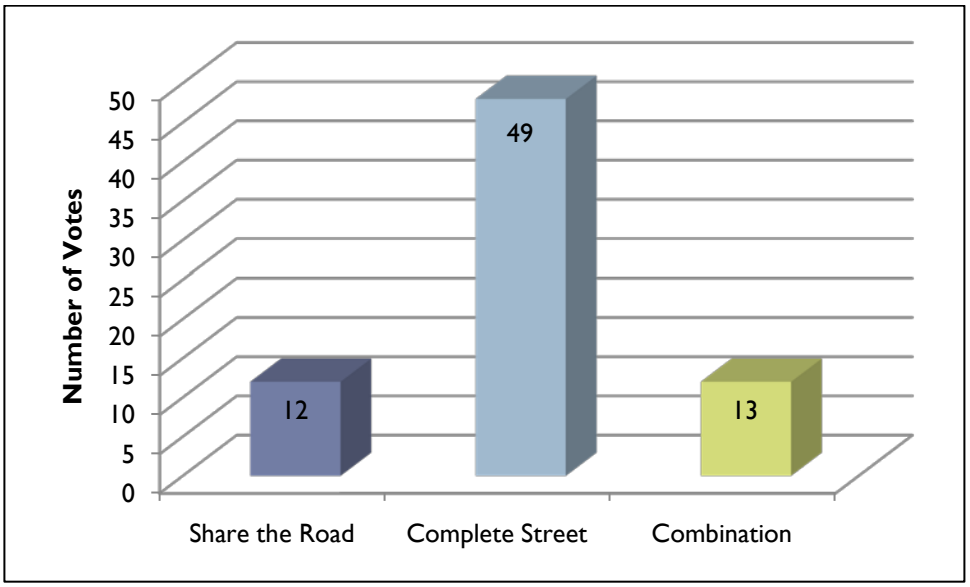


Figure 7: Keystone Avenue, University Terrace to Coleman Drive Section Alternatives

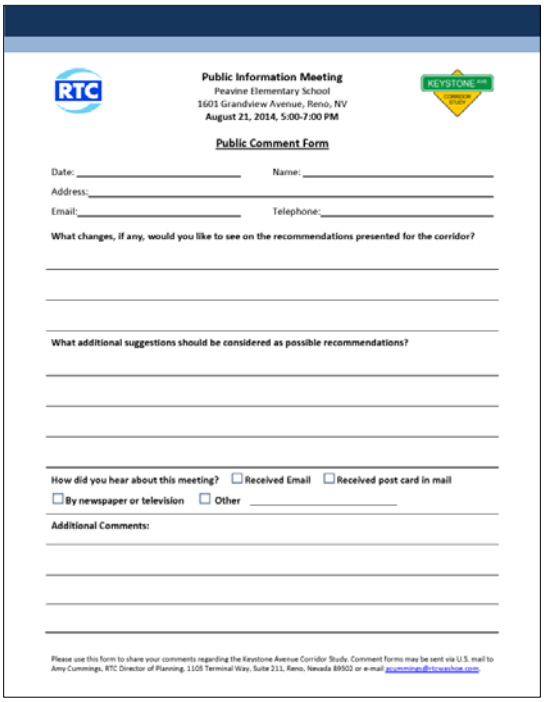


The public favored a roundabout concept for the Keystone Avenue/California Avenue intersection, so long as it provides safe crossings for pedestrians and improved connectivity for bicyclists. They public also wished to see improved bike lanes, sidewalks and crosswalks throughout the corridor. The public favored using Vine Street as an alternative to Keystone Avenue for bicycle traffic. Furthermore, the public overwhelmingly accepted the Complete Street section concept for Keystone Avenue beginning north of University Terrace. A complete database of comments from the third public meeting is included in Attachment B.

8. Public Meeting 4

The fourth and final public meeting was held in August 2014. The purpose of this meeting was to outline the recommendations presented in the study report, encourage the public to provide comments on the draft report, and solicit feedback on the revised concepts. A new comment card was developed for this meeting (see Figure 8.) Revised concepts including two modified Keystone Avenue/California Avenue intersection alternatives (Alternative A-1, referred to as Alternative F in the report and Alternative A-2, referred to as Alternative G in the report) and a concept that eliminated left-turns to and from Kimbal Drive were shown. The public had the opportunity to provide opinions on these concepts with directly influenced the final recommendations outlined in the report.

Figure 8: Public meeting #4 comment form



Public Information Meeting
Peavine Elementary School
1601 Grandview Avenue, Reno, NV
August 21, 2014, 5:00-7:00 PM

Public Comment Form

Date: _____ Name: _____
Address: _____
Email: _____ Telephone: _____

What changes, if any, would you like to see on the recommendations presented for the corridor?

What additional suggestions should be considered as possible recommendations?

How did you hear about this meeting? ☐ Received Email ☐ Received post card in mail
☐ By newspaper or television ☐ Other _____

Additional Comments:

Please use this form to share your comments regarding the Keystone Avenue Corridor Study. Comment forms may be sent via U.S. mail to Amy Cummings, RTC Director of Planning, 1105 Terminal Way, Suite 211, Reno, Nevada 89502 or e-mail acummings@rtcwashoe.com.

Keystone Avenue/California Avenue Intersection: Short Term (1-2 Years) Improvement Options

☐ A-1 Modified Intersection ☐ No Preference ☐ A-2 ADA Ramp Only

Keystone Avenue/Kimbal Drive Intersection

Would you support eliminating left turns to and from Kimbal Drive?

☐ Yes ☐ No Preference ☐ No

Additional Comments:

This is Your RTC.

8.1. Summary of Comments

Approximately 115 people attended the meeting and 63 comments were collected. The public favored the concept of eliminating left-turns to and from Kimbal Drive at Keystone Avenue by a total tally of 20 in favor and 8 opposed. They also favored alternative A-1, the modified intersection concept for the Keystone Avenue/California Avenue intersection by a tally of 22 in favor and 3 opposed. Furthermore, the public at large expressed their support for the study recommendations. A complete database of comments from the fourth and final public meeting is included in Attachment B.

9. Media Coverage

Corridor Study public meetings were announced through news and web media. The table below outlines the coverage.

Media	Article Title	Date
Road Ahead	Keystone Avenue Corridor Study	November 5, 2013
BikeReno.net	Keystone Corridor Study Open House	November 6, 2014
KTVN	RTC Seeks Public Input on Keystone Avenue Corridor	November 11, 2013
KOLO	Keystone, A Street with Issues Under Study	November 12, 2013
NevadaBike.org	SECOND Keystone Ave Open House, FEB 6 Reno High	January 31, 2014
KTVN	RTC Seeks Public Input on	February 4, 2014

Media	Article Title	Date
	Keystone Avenue Corridor	
NevadaBike.org	FINAL Keystone Ave Corridor Open House	April 29, 2014
KTVN	RTC to Present Keystone Ave. Corridor Design Concepts Thursday	May 19, 2014
This is Reno	Keystone Ave. design concepts to be presented May 22	May 19, 2014
Road Ahead	Keystone Corridor Meeting	May 20, 2014
CuterCommuter.com	Keystone Avenue Corridor Study Open House	May 22, 2014
KTVN	RTC Holds Open House on Keystone Avenue Corridor	May 23, 2014
Road Ahead	Keystone Avenue Open House	August 12, 2014
KTVN	RTC to Hold Open House on Keystone Ave. Corridor Thursday	August 18, 2014
MyNews4.com	RTC invites public to help plan Keystone Ave. Corridor	August 21, 2014

In addition, a transportation notice advertised in the Reno Gazette Journal one week and one day prior to all public meetings. A sample of this advertisement is shown below.

Figure 9: Transportation Advertisement

TRANSPORTATION NOTICE

RTC
This is Your RTC.

PUBLIC INFORMATION MEETING
Keystone Avenue Corridor Study
Thursday, August 21, 2014, 5:00 p.m. to 7:00 p.m.
Peavine Elementary School, 1601 Grandview Ave., Reno, NV

The Regional Transportation Commission will host a public meeting on August 21 at Peavine Elementary School for ongoing community input for the Keystone Avenue Corridor Study. The purpose of this meeting is to review the proposed improvement recommendations that are to be included in the draft report. Attendees will have the opportunity to provide input and comments on the recommendations being considered. A brief introduction will be held at 5:15 p.m.

How to Get Involved

This meeting provides you the opportunity to give valuable input on corridor study objectives and alternatives. Information on this project can be obtained through the contact below. **Visit www.rtcwashoe.com, click on HOT TOPICS for information regarding this study and the alternatives being considered.**

Eligible RTC ACCESS reservations call (775) 348-5438. Pursuant to Title II of the Americans with Disabilities Act, special accommodations may be requested by calling (775) 348-0480 at least 48 hours in advance of the meeting.

CONTACT: Amy Cummings, RTC Project Manager (775) 335-1825 / acummings@rtcwashoe.com

Attachment A – Technical Advisory Committee & Stakeholder Work Group Members

	Name	Agency
	April Wolfe	City of Reno
	Bill Thomas	City of Reno
	Charla Honey	City of Reno
	Christine Fey	City of Reno
**	Claudia Hanson	City of Reno
	Fred Turnier	City of Reno
**	Steve Bunnell	City of Reno
	Coy Peacock	NDOT
**	Mark Elicegui	NDOT
	Mike Fuess	NDOT DII
**	Tonia Andree	NDOT HQ
	Jaime Tuddao	NDOT Safety
	Amy Cummings	RTC
	David Jickling	RTC
	Lee Gibson	RTC
	Patrice Echola	RTC
	Scott Gibson	RTC
	Sienna Reid	Truckee Meadows Regional Planning Agency
**	SWG member	

	Name	Affiliation
	Aaron Laboto	NDOT
	Alissa Turner	Newlands Neighborhood
	Andrew Vitale	
	Andy Tenbrink	Ward 5 Old Northwest
	Anita Lyday	NDOT
	Ann Katherine Sawyer	
	Barbara DiCianno	Ward 5, Reno
	Beth Freemont	
	Bill Hoffman	
	Bradd Davidson	Reno Police
	Brittany Diehl	Nevada Commercial Services
	Camie Dencker	
	Carolyn Thomas	Resident
	Charles Stuart	
	Charlie Cronin	
	Cheryl Field-Lang	Attorney at Law
	Chrissy Faulstich	
*	Claudia Hanson	City of Reno
	Dan Gustin	Gustin Sports Productions
	Dean Mansfield	GSA Building Manager
	Dino Germano	
	Donna Bodway	
	Donna Clontz	Ward 5 Northwest
	Dr. Patrick Colletti	Colletti & Colletti Mds
	Emily Kilgore	Resident
	Enid Jennings	
	Ernie McNeill	
	Flip Leyva	School District Police
	Gary Maclean	
	George & Mary Wilson	
	Howard Riedl	RTC
	Jackie Hager	Resident
	Jamy Keshmiri	Ben's Fine Wine & Spirits
	Jason Ludden	
	Jeff Redmond	School District Police
	Jennifer Hicks	Waters Edge Apartments
	Jennifer Hsulh	
	Jim Poston	RTC
	Joan Arrizabalaga	Artist
	Josh Hejl	
	Julie Masterpoot	RTC
	Katherine Hoffman	Ward 5 Old Northwest
	Kelli Seals	Washoe County
	Kevin Weiske	Moody & Weiske Contractors
	Kuldip Judge	7-Eleven Convenience Store
	Kurt Dietrich	City of Reno

	Name	Affiliation
	Laura Joule	
	Leah Ruby	
	Lee Carol Lombard	Resident
	Lisa Hill	Ward 5 Old Northwest
	Lisa Mann	Ward 1, Reno
	Mac Rossi	Ward 5 Northwest
	Marilyn Miller	
*	Mark Elicegui	NDOT
	Mark Nichols	UNR Dept. of Economics
	Mark Stanton	WCSD, Capital Projects (Reno High School)
	Mark Stevens	Raley's
	Mary Highton-Foxton	
	Matthew Cramer	Reno Bike Project
	Michael DelOstia	Retired Civil Engineer, Resident
	Michael Graham	Ward 5 Old Northwest
	Michael Menashe	MRA Keystone LLC (for Keystone Square)
	Michael Wadsworth	School District Police
	MJ Cloud	Washoe School District
	Nick Khamis	7-Eleven Convenience Store
	Nina Sawyer	
	Pat Fager	
	Patrick Winans	
	Richard Miranda	School District Police
	Robert Bauter	Ward 5 Northwest
	Robert Cofer	Ward 5 Northwest
	Sam & Tiffany Baleme	
	Scott Gibson	RTC
	Scott Hall	
	Scott Wiley	Ward 5 Old Northwest
	Shirley Sponsler	Shirley's Farmers Market @ Village Shopping Center
	Stephen Mountford	Ward 5 Northwest
	Steve & Laurie Yarborough	Sierra Car Care
*	Steve Bunnell	City of Reno
	Steve Morton	CVS Pharmacy
	Tali Carasali	NV BC
	Tamela Germano	
	Terence Barker	
	Teresa Wilson	
	Tessa Dee Miller	The Nest (Thrift Store @ 2nd St)
*	Tonia Andree	NDOT
	Travis Landis	Ward 5 Northwest
*	TAC member	

Attachment B – November 2013 Public Meeting Comments

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Are there any other areas within the corridor that we should focus on?	Mailing list?	Additional Comments
Pet	11/06/13	Amie Lamb				I ride frequently. I used to live off of Keystone (Dickerson) and safety of bicycling could be much improved along Keystone. It should be a priority since so many UNR students ride in that area. I'm a seasoned rider, and it was terrifying to ride along Keystone.
Email	11/18/13	Amy Ghilieri				I just received notification of the meeting scheduled for last week regarding the Keystone Corridor Study. I obviously was not able to attend, but wanted to indicate my support for altering the traffic on Keystone. Two lanes, a turn lane, and bike lanes would make the world of difference. I live on Windsor Way and find it difficult to turn onto Keystone. Riding my bike is very difficult and I do everything possible to avoid the route. Please let me know if there is anything I can do to assist. Many thanks.
CF	11/12/13	Andrew Vitale	Pedestrian crossing @ Kings Row & Keystone		Yes	I'm extremely disappointed in the decision to cancel the N. Keystone road diet. As a motorist, cyclist, and pedestrian along the corridor, I look forward to the study's suggestions and actions. Make our streets complete.
CF	11/12/13	Andy TenBrink	1. Excessive speeds (narrowed/restriped lanes would solve this.) 2. Neighborhood separation. It is almost impossible to cross Keystone on foot.	Continued bike facilities north of Coleman. This section leads to the largest bike facility of all…Peavine Mtn. and Keystone Canyon. P.S. How are bikes suppose to cross McCarren?	Yes	Great job RTC staff. Keep up the good work transforming our city to a more livable place. P.S. Shouldn't City Council member be required to attend this type of meeting?
Pet	11/12/13	Andy TenBrink				Complete streets, connected neighborhood, traffic calming, speeding, bike lanes
Pet	11/07/13	Anthony Wadas				I live near this area, and I would like to be able to safely ride my bicycle on Keystone. Right now, I avoid that street, and as such, I also avoid all of the businesses in that area because I cannot safely ride my bike.
Email	11/19/13	Barbara Frederic				Today, November 19, we received the notice regarding the RTC November 12 meeting at the Reno High School. We noticed that it was sent bulk mail, but there was no date on the envelope. May we suggest that the next time there is a Public Meeting, that ample time be allowed for Bulk Snail Mail Delivery.
Pet	11/11/13	Brandi Bussa				Because I am a bike commuter and this area is a disaster for bicyclists. My husband was actually involved in a bike accident in the corridor two months ago.
Pet	11/11/13	Bryan Keeney				I frequently bicycle around town and this area could use improvements for bicycles and pedestrians.
CF	11/12/13	Camie Dencker			Yes	Please represent to City Council the proposed restriping plan on north Keystone (between University Terrace and Coleman.) In its current state, it is far from being in useable form for all methods of transportation. Frankly, it is a huge safety issue for all users. The crosswalk and lack of sidewalk at the Kings Row & Keystone intersection is a mess. Crossing all those lanes is scary and it's hard to get noticed by motorists.
Pet	11/06/13	Carlee Malfa				This is my neighborhood.
Pet	11/07/13	Chris Askin				Cycling safety. Particularly the section between i-80 and Lake Park. That section is super dangerous. Too narrow for four lanes of traffic!
Email	11/18/13	Cindy Potter				I live in your mailing area for the Keystone Study and just got my notice on Saturday for the November 12th meeting. It was sent bulk mail. Leslie and I learned this lesson a long time ago on a project in San Jose—Bulk Mail is left up to the mail carrier's discretion on when it gets delivered—they typically can wait for a light day. You may want to mention this to Lee Anne. Or, maybe it was just a conspiracy to avoid the Potters attending the meeting…I will tell you Mike is a teacher at Reno High and walks from our house on Nixon to school and back again every day, so if you want to run ideas by a former civil engineer who will be either your biggest fan or critic, let me know! Good luck with this one, it's an interesting geometry problem.
Email	08/22/13	Dave Carlson				The first thing I would like to point out that Keystone Ave is a key street to the freeway and has heavy traffic in the morning as commuters travel from their home to the freeway to get to work. I don't know if any of you live up this way, but in the winter the small hill near Raleys gets so iced up that there needs to be 3 lanes to slide sidways in. Every winter during icy conditions you can see numerous cars slidding in that area. I have lived here since 1973 so I have been in all kinds of conditions. The worst street to drive is Kings Row in front of the schools. It is full of cracks and bumps. I travel Keystone Ave. daily and have observed only 2 accidents in all these years.I don't know when Mr Gibson observed the light traffic above King Row. I live about 3 blocks away from the schools on King Row. During the drop off time in the morning and pick up time after school it is like the L.A. freeway during rush hour. Also at the corner of Wyoming and Kings Row there are two churches try going somewhere on Sunday morning. So my suggestion is that Mr. Gibson needs to drive on Kings Row Mon-Friday about 7:00 A.M. I would also like to note that the bicycle traffic on Keystone is extremly light. Thank you for your time
Email	08/25/13	Dave Carlson				The intersection of University Terrace and Keystone is where the hill starts, it goes up and down the other side to the left turn lane for Kings Row, then Keystone continues up to Colman where there is a 4 way stop.You people need to stop looking at maps and charts and physically go to these places and look. I think you should scrap this project and spend moneys and time where it's necessary. Like putting 4 lanes back at California and Mayberry Drive to prevent the quote from todays paper Death Trap. I plan to attend the meeting could you please give me the location.

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Are there any other areas within the corridor that we should focus on?	Mailing list?	Additional Comments
Email	11/17/13	Dave Carlson				It was nice to get a letter telling about a meeting at Reno Hi on November 12th. and delivered by mail on Saturday the 16th. Was this to keep people away ?I've had conversations by E mail on this project but always get meeting info. after it has happened.
CF	11/12/13	Demian O'Keeffe				Stop sign at California & Newlands
Pet	11/12/13	Denise Smith				The road is horrifying! People drive too fast and it is not safe for non-motorized transportation. Slowing down and adding bike lanes will not hurt anyone and can save lives.
Other	12/02/13	Donald Hudson				Disappointed with RTC's late notice: Congratulations to the RTC! I received a letter Nov. 18 in my mailbox announcing a public meeting on t he Keystone corridor for Nov. 12, six day after the fact. Thank you for being so timely about keeping me informed. A clear case of government inaction. And, why are you wasting my tax money?
Pet	11/08/13	Dylan Kuhn				I think a safe, pleasant Keystone experience could connect and open up much more of the City, making it more livable and "visitable" too.
Ward 5	08/08/13	Ed Hawkins				Excellent idea; need turn lane for Kings Row. Great presentation, very informative.
Email	11/16/13	Edwin & Kathy Boynton-Jones				I appreciate the notice of meeting on November 12th, course might have been better if we received it prior to the meeting rather than 4 days late. I have been less than pleased with the changes that you have made to Keystone since the new construction above Coleman was done. The closing of McCarran to only Right Hand Turns was City Government at it's worst. Hopefully sometime in the future you can get notices out prior to meetings, doesn't seem that difficult of a thing, but, obviously beyond RTC.
Pet	11/12/13	Eliot Drake				I am a driver and a cyclist and I believe that Reno has a great deal of room for improvement to allow cyclists of all abilities and types to navigate the city safely as part of Reno's transportation landscape.
Email	11/23/13	Emily Kilgore				My family and I attended the Public Open House on November 12 for the Keystone Ave Corridor Study and are excited about the future possibilities for the corridor which our family uses via different modes daily. I'd like to share with you my observations based on my own personal experiences using the corridor as well as those of my friends and neighbors. We live less than .25 miles from the intersection of Keystone and University Terrace, on the west side. Because so many of our activities take us toward and through downtown, including our daughter's elementary school and my husband's work, we cross Keystone at University Terrace at least 6 times a day, many of those times by bike. We also frequently make trips by bike, foot and car to Lake Park (at Keystone & Coleman Ave), to friends' homes near the intersection of Keystone & Gear St, and to friends' homes, businesses and parks in the southwest near Keystone and California Ave. Some issues we have encountered include: 1) Vehicles travelling along Keystone regularly use the 2 north and 2 south bound lanes to pass other vehicles that are travelling the speed limit. 2) Vehicles frequently use an open north or south bound lane to drive around vehicles that are stopped at the crosswalk at University Terrace while it's occupied. 3) We frequently see bikes using the sidewalk travelling both north and south along Keystone. 4) On trash day residents and businesses place their trash
Pet	11/08/13	Emily Kilgore				I use Keystone Avenue each day to take my six year old daughter to and from school (often by bike) with my four year old in tow. With a grocery store, sidewalks, and many pedestrians and cyclists using the area, Keystone needs not be a thoroughfare for cars rushing to get on the freeway (which it currently is). Presently, cars use the two lanes traveling north and south to pass people who are driving the speed limit.
Pet	11/11/13	Ernie McNeill				As a motorist and a cyclist, I want the roads in Reno to be safe for all users.
Pet	11/12/13	Ethel Murphy				Make the street safer for cyclists in the City
Email	11/23/13	Frank Patten				Good morning, As you should probably be aware, the mailed Notices for this meeting were received days after the meeting (in my case four days afterwards.) I am a bicycle commuter who lives at 1675 Keystone Ave. I remain completely in favor of the proposed re-striping of northern (upper) Keystone Avenue for the following reasons: 1. Between Coleman and the freeway, the right-of-way is just not wide enough for the current four-lane alignment. As you know, our sidewalks are way too narrow and abut traffic going at least 40 mph (downhill), within inches of pedestrians. We have no place to put our garbage cans, even though we are supposed to put them "in the street" and even though the new single-stream recycling program will use new Waste Management equipment that requires the cans be in the street. 2. The "intersection" of Keystone and Kings Row/Kimball/Gear is a nightmare, made worse by the multiple lanes of traffic; a single lane of traffic each direction would make it safer. 3. The Keystone entrance to Raley's is poorly designed and conflicts with the business driveways across the street as well as the left-turn lane onto University Terrace from northbound Keystone. 4. A Reno City Council member stated that Keystone was "too hilly" to be a bike route. This classic imbecilian* comment ignores the fact that going downhill is both fast and convenient. Indeed, if I could find a bike commute route to and from work that was
Mail	11/22/13	George Kent				Mailed late flyer
Other	11/18/13	Greg Fibiger				I was unable to figure out where to send this to from the city website, so I'm sending it to you in hopes of your forwarding it to the right people. Myself and many I know frequently have to walk the path that fades off California Avenue heading west down the hill to merge with Keystone Ave. The sidewalk there is quite narrow and is on a narrow one-way street to begin with. I've almost been run over on this strip several times and I know others complain of the same experience. Is there any way we could find the funds to put a protective rail along this strip of walkway? I would prefer to avoid this area in general because of the danger level, but there's really no other way around. My friends, my dog, other folks and I would GREATLY appreciate it!
Pet	11/11/13	Gregory Koerner				I would benefit from improvements on Keystone because I could more safely commute from work into downtown Reno that way.
Phone	11/20/13	Helena Creed				Please extend bus service further up Keystone Avenue to Putnam Drive if possible but Coleman Drive at a minimum.
Pet	11/11/13	Ian Sims				I commute to work by bicycle. Keystone needs to be safer.
Pet	11/08/13	Jaclyn Parker				I lived in Reno this past spring and summer. During that time I would regularly ride my bike on Keystone Avenue. It is downright scary at times for cyclists. The absence of a bike lane or decent shoulder causes drivers to come dangerously close to cyclists. Please include a bike lane or shoulder to help protect drivers and cyclists.

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Pet	11/07/13	James Kilgore				I live in this neighborhood and would love a safer way for me and my family to bike and walk to parks, school, local businesses, and friends' homes in the area. The pictured intersection (Keystone and University Terrace) is terrifying with four lanes of speeding cars and a little blinking crosswalk light that is ignored by almost everyone in the rush to get home or to get on the freeway.
Pet	11/08/13	Jennifer Medrano				Driving on this street is scary with so much congestion; pedestrians/bikers have an even harder time on this road.
CF	11/12/13	Jim Kilgore	Crosswalk at University Terrace is often ignored by cars or when one car stops in one lane, other cards may not see and continue.		Yes	Please improve ADA, walking, bicycling facilities along Keystone. Please include road diet from Coleman to University Terrace/West 7th Street. Safety is concern for those who live on and off Keystone.
Email	11/13/13	John Redlinger			Yes	I am 63 and I own a rental house that lies on 1051 Keystone, about 3 blocks north of the freeway. Currently backing out of the driveway onto Keystone Ave is reasonable as the traffic is generally driving 30 to 35 mph. When backing out we can only see a limited distance as from the driveway Keystone goes down hill fairly sharply. If you increase the speed, and or traffic load on Keystone there will be an increase in accidents as residents will still have to back out on to the corridor. Planning for a corridor should incorporate buying out all residences that back onto the route. As I have been actively thinking about converting the house into a Reno residence, and getting older will make the backing out even more of a concern, will you please put me on your mailing list so that I can stay abreast of developments.
Email	11/14/13	John Redlinger			Yes	That's actually very cool. With UNR expanding, there will be even more bicycle and foot traffic crossing the road, especially in the area of the corridor parallel to the school. Students just kind of look for an opening and run across. Slower would be nice. Would still like to be on your mailing list, (e-mail list would work just as nice). Thanks for the fast response. I was already starting to muddle through the changes and issues I would need to address.
Pet	11/07/13	John Safebiel				I am a very active cyclist in this community and we need more safe areas to ride. Every time we add good bike lanes, people use them, and they will here, too.
Email	11/27/13	John Toth				1. If the pavement is to be removed on Keystone as part of this project, consideration should be given to installing pull boxes and conduits to accommodate a possible future coordinated traffic signal system and/or other ITS features (traffic management cameras, programmable message boards, etc.) 2. Vehicular detection, preferably in-pavement loops, should be installed at all signalized intersections that currently have no detection capability. 3. Bus turnouts should be installed on the far side of each intersection for those locations where existing right-of-way to do so exists, or where such r/w can be acquired at a reasonable cost. 4. Partially enclosed bus shelters (open on one side only) should be installed at all stops. 5. Does the current "high tech T" intersection at Keystone and California have a high accident rate? If so, it should be evaluated for a possible conversion to a standard T. This would involve determining the current LOS, and the LOS as a standard "T" intersection. The queue lengths at this intersection should also be calculated assuming a standard T, to ensure that they would not pass thru the adjacent signalized intersection of California/Booth. 6. I request the intersection peak hour turning movement counts, and the recommended lane configurations (to include the proposed lane widths) at each intersection when that information becomes available. (11/27/13 reply) We spend our winters in Vegas, and won't be back in Reno until June. (We're heading south on Monday.) Therefore, I would appreciate your e-mailing me any handouts that are distributed during the January meeting.
Pet	11/07/13	Joseph Kozar				Make Reno a more sustainable, livable, and enjoyable city. RBP for life!
CF	11/12/13	Josh Hejl				Bike lanes on N. Keystone! The opposition is uninformed and afraid of change.
Pet	11/06/13	Josh Hejl				I am constantly in danger riding my bike and driving on this fast and dangerous neighborhood road.
CF	11/12/13	Julie Langman	East to west traffic at West 7th & Keystone needs a turn lane with an arrow traffic light.	Would like to see bike lane, pedestrian path, and two lanes on upper north Keystone between Sunnyside & Coleman.	Yes	Cars have dominated Keystone for far too long; people drive too fast and have little concern for bikes and walkers. Keystone is dangerous and unsightly in many ways. So glad this is being looked at.
CF	11/12/13	Kelli Seals		Consider looking at the corridor through to McCarren Boulevard - even farther north than Coleman. Can help with connectivity of bike lanes.	Yes	
Pet	11/12/13	Kelly Romer				Biking downtown is growing in popularity but is unsafe. We need more ways to protect cyclists.
Email	11/25/13	Leah Ruby				My family and i live on California at Robin Ave. We are avid bike riders (in fact, my son and myself are cyclists in the picture of Keystone and California Ave intersection taken during the traffic study). We use our bikes to get to school, do shopping and go to work. I am looking forward to a better solution for the Keystone, Booth and California overpass/intersection that will be safer for my families primary form of transportation. Also, a bike lane on Keystone would take hours off of our commutes and enable us to use the shopping centers on that street.
Email	11/24/13	Leanne Stone				I would first like to say that the flyer we received announcing the meeting came either the day before or the day of the meeting, very short notice for an event that could have a big impact on our area. We do object to any proposal that could reduce Keystone Ave. to one lane in each direction from I-80 north to Coleman Dr. This road is heavily used by the tremendous number of people who live in this older NW neighborhood, particularly during morning and evening commuting time. It is difficult enough now to access Keystone Ave from the side streets. Reducing the number of lanes would jam up traffic even more.
CF	11/12/13	Lennis Herburger			Yes	My wife and I chose to not buy a house in the Kings Row/Keystone area because of the lack of bike lanes, poo-sidewalks, and heaving speeding.
Email	11/21/13	Leslie Skinner				Hi Patrice, I just wanted to let you know that I received a letter in the mail regarding the community outreach/public meeting on the Keystone Corridor that occurred on 11/12/13. However, I received the notification on 11/19/13; a week after the meeting occurred! I thought you might appreciate knowing that the letters weren't received by the public until a week after the meeting happened… I might have attended had I known about it ahead of time!
Pet	11/11/13	Lindsey Pisani				Because it will make biking, running, and walking safer!

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Email	11/16/13	Lisa & Robert Haenel			Yes	Today November 16th,we received a notice in the mail regarding a public information meeting that is being held November 12th. I am sure we are not the only ones in the study area that received this so late. Will we receive an agenda and minutes of the meeting since we did not know the meeting happened? Thank you. You can mail it to 2085 Ellendale Rd. 89503.
CF	11/12/13	Lisa Hill				Please implement to low cost road conversion north of I-80 on Keystone, University Terrace to Coleman as soon as possible. We worked through all the proper steps through our West University NAB + 4 years. We have been waiting a long time for this conversion that was recommended by the City traffic engineer. It was ignorance on the part of our council person about traffic data, strategies for improvement safety, etc. It's the role of RTC to educate these newly elected. Thank you.
Email	12/08/13	Lora Robb				Dear Patrice, I own a home on Wesley Drive, just off Keystone Avenue near Lake Park in NW Reno. I received a notice of public meeting that took place on Nov. 12, however, the notice arrived the very day of the hearing so I was unable to plan to attend. Will there be additional meetings where I can participate in the process? I have long thought Keystone should be a 3-lane road with a center turn lane and bike lanes on both sides of the street. There is a great deal of pedestrian traffic in this part of Reno and I, myself, have often felt unsafe walking/crossing Keystone or bicycling. I am glad to see there is an effort being made to enhance this busy roadway in the community. I would appreciate the chance to review the plans developed to date and understand the options being considered for Keystone Ave Corridor.
CF	11/12/13	Lynda Walsh	Not clear if this was ID'd, but Riverside is designated as a "bike boulevard" but does not meet national standards for this designation. Cars routinely speed and endanger cyclists in this area.	The crosswalk at Raley's on Keystone north of 7th is very unsafe. I have seen pedestrians almost hit by speeding vehicles multiple times.	Yes	Thank you for doing this study - much needed and appreciated!
CF	12/05/13	Maggie Robinson	Left hand turn signals at the light on 7th & Keystone turning from 7th onto Keystone. One lane each direction w/ bike lane and turning lane on N. side of I-80. Dangerous pull out from Raley's lot onto Keystone.	Thank you for including the North section in the study. It would be great if the open lots on Keystone where developed into local business shops, restaurants, etc. to make it feel like a community rather than strip mall.	Yes	We live right off north Keystone and would love to see this part of Keystone redone so it is more pleasant and safer to drive, bike and walk on. I currently avoid it as much as possible by using alternate neighborhood routes. Again, thank you for looking into improving this corridor.
Pet	11/12/13	Megan Horan				To keep my friends and family who enjoy biking safer.
Pet	11/08/13	Michael Koch				I grew up in Reno and lived off Keystone for a while and have had multiple friends and family live in that area. The part of Keystone west/northwest of I-80 is barely safe enough for cars, let alone anyone on alternative types of transportation (bikes, motorcycles, etc.). Please fix this area so it is safer for the community!
Email	11/18/13	Mishelle Bradford				I attended the Public Information Meeting regarding the Keystone Avenue corridor on November 12th. My thanks to RTC for holding it. Reno-Sparks has been named a Bronze Level Bicycle Friendly Community by the League of American Bicyclists, in large part due to the work being done by RTC. I believe that bicycling is good for communities and should be encouraged. Both bicycle commuting and recreational bicycling are good for health, and that is important in a country like ours where obesity and other inactivity-related health problems are widespread. Also, the more people who commute by bicycles, the less the traffic congestion and pollution. I would like to see the Keystone Avenue corridor incorporate bike safety features. It would seem that the California Avenue - Keystone Avenue intersection would be especially important, as I would think that the current configuration would make it difficult for some students at Reno High School to ride bikes to school. In addition to bicycle safety features, I believe pedestrian and ADA safety features are important. The more people who are out in the community enjoying exercise (to the extent they are able) and fresh air, the more people care about health and the quality of life in our community. Thank you for taking my comments under consideration.

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Ward 5	08/08/13	N/A				I am convinced that Complete Streets are the best solution for many of our transit corridors. Is there any way to increase police presence after the street is re-striped; particularly to encourage bicyclists to conform to existing laws as well as install proper lighting?
Ward 5	08/08/13	N/A				I like it! Would like City to consider three lanes before Kings Row. Students need to cross Keystone to get to Clayton for school.
Ward 5	08/08/13	N/A				In favor with comments provided in writing. [Nothing additional provided.]
Pet	11/09/13	Noah Silverman				Because safe roads benefit cyclist and motorist alike.
Ward 5	08/08/13	Peggy Lakey				Good idea to create three lanes instead of four.
Pet	11/06/13	Robb Wolf				It would be nice to have some SAFE space to ride a bike on this road. Please make this happen so us bikers will feel safe.
Pet	11/07/13	Robin Dechent				Safe bike riding options are very important to me and my family.
CF	11/12/13	Rochelle Mezzano	Not providing bike lanes is not an option. Period. I was struck by a vehicle while riding on a road which did not provide me a bike lane. Since September 24, 2013, I have incurred [more than] $250K in medical bills, I've been advised it will be one year before I will remotely "fully recover." Let's say that would be the prognosis physically. (next)			Mentally, emotionally, financially, I think the prognosis is closer to several years, if ever. The favor of a bike lane is not for the bicyclist exclusively. Imagine the driver who hit me constantly having to live with himself seeing the image of me on the hood of his car, sliding off, flying 29' according to the police report, each day he takes the same familiar route to work. The favor of bike lanes benefit both drivers and cyclists. Please avoid putting the financial burden on the individual cyclists.
Pet	11/12/13	Sara Roche				I have many friends and family living off of this road and for the safety of ALL residents

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Email	11/16/13	Scott and Donica Mensing				We received a flyer in the mail today about the Keystone Ave. corridor study and public information meeting. Unfortunately we were unable to attend the meeting since it was held earlier this week, but I would like to take the opportunity to provide some comments through this email. We live at 810 Whitaker Drive just off of University Terrace and have been at that address for 20 years. I have not looked at any data concerning the intersection of University Terrace and Keystone, but would note that it is a dangerous intersection because of the high traffic flow along University Terrace, and the poor visibility entering on to Keystone. To the left, visibility is blocked by a building that extends right out to the sidewalk, making it very difficult to see oncoming cars without pulling out dangerously far into the intersection. To the right there is a hill so one has a short view to oncoming traffic, and drivers coming over that hill have their eye on the light at 7th (and a downhill grade) so tend to come off pretty fast. Another challenge is that University does not continue across in a directly straight line, but has a small jog to the left. I have two thoughts to add to the input phase for this project; both relate to making this a safer intersection. An obvious option would be to add a traffic light to the intersection. That might not be too popular since it is so close to the light at 7th. An alternative is to make University Terrace a cul de sac, closing access at this point onto Keystone. I have not talked with any of the residents on University Terrace in the block adjacent to Keystone, but since there are traffic humps on
Other	11/12/13	Scott Hall				Submitted signatures for online petition for support of Keystone improvements. Collected 83 signatures and 35 comments, which are attached.
Pet	11/06/13	Scott Hall				I'd like to ride my bicycle down Keystone Avenue and across a new bridge to California Avenue.
Ward 5	08/08/13	Scott Wiley				I support the keystone & Arlington restriping projects as long as the neighbors along Keystone also support the project. The results of the road diets along Arlington, Plumus, etc., look to be stressful and [illegible].
CF	11/12/13	Shannon O'Keeffe			Yes	[hand sketch] Bike path on Keystone south and over bridge and from Newlands down California Avenue. Murals on Keystone to California overpass by car wash!!! Please.
CF	11/12/13	Sheryl Coulston	I think the entire corridor needs to be improved. However, I'll limit my comments to the north corridor between 7th and Coleman. *Walking on sidewalks is dangerous because of the condition of the sidewalks, and narrowness, and close proximity to a lane of traffic. There are actually a total of 4 crosswalks on this stretch, one crosswalk at 7th, one at University Terrace with flashing light, one at Kings Row (that goes to no sidewalk), and one at Coleman.	*Bicycle lanes - I think this could be accomplished by making this section a complete street like California or Arlington. The only reason cars use second lane is to speed by you. UNR students and recreation cyclists use this corridor to get to Evans Creek (a Reno asset!) Rancho San Rafael.	Yes	My husband commented to me tonight that it is a blight, this section with poor sidewalks, crumbling curbs, no bike lanes, etc. He thinks Arlington & California improvements are great. *Turn lane signal for Keystone off 7th (no arrow) in either direction. *Bus stops - both directions bus stops in traffic lane. Can Raley's provide right of way to provide and improve their entrance/exit and bus stop for many of their customers? * Coleman and Keystone intersection is a four-way stop. Except if you are going north to Coleman you can merge/yield a right hand turn. That merge right use for Rancho Park to Coleman, Peavine students, parents, and residents up Coleman area. We could just turn right at four-way stop. The right merge/yield often has a car from the four-way stop that is coming on Coleman to quick make a right turn just past the yield. It is a bit dicey. Add students, cyclists, etc., there is quite a mix there by the park at that intersection. *Additionally, buses stopping near the crosswalk with flashing light totally blocks the crosswalk. Thank you for this project. The concerns/needs at California & Keystone are many and your priority already.
Pet	11/12/13	Sheryl Coulston				I drive this route almost daily and often attempt to walk the route from Coleman to 7th for a stop at one of the coffee shops. I find walking this route unsafe with the sidewalks so close to the outside lane of traffic, sidewalks uneven, crosswalks not even in locations where there is a sidewalk on the other side of the road, etc. I see students (all ages) trying to use this route walking and on bikes. I'd like to see this corridor made safer for all.
Pet	11/12/13	Steven Holm				Everyone should be safer on the roads
CF	11/12/13	Suraj Zutshi			Yes	No bike lanes I-80 to Keystone bridge. Too dangerous as people drive careless and too fast. Specially not at the expense of a traffic lane.
Email	11/20/13	Suzi Puryear			Yes	I was not able to attend the open house, but would like to contribute my ideas/suggestions. Can I obtain a copy of the minutes to review what was discussed? Then I can respond to you with my suggestions or agreements. Thank you for your time, I look forward to participating.
CF	11/12/13	Terry Barker	The entire Keystone corridor is unfriendly to bicycles. Above University Terrace, it is unfriendly to pedestrians.			I strongly support the idea of a road diet for Keystone Avenue. It would improve safety for all road users by slowing traffic and increasing buffer space for non-motorized users.
Ward 5	08/08/13	Terry Barker				I think the restriping is a wonderful idea! Go for it!
Pet	11/12/13	Thais Mollet				Bike safety!
Email	12/13/13	Thomas Collins				Please note attached letter. [No letter attached.]

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Are there any other areas within the corridor that we should focus on?	Mailing list?	Additional Comments
Email	11/18/13	Tim Jones			Yes	I am writing as a daily, multiple times, user of the Keystone corridor from Coleman to I-80 and vice-versa. Earlier this year, the recommendations for changing Keystone to a one-lane road and addition of bicycle paths were delayed for a year to give more appropriate notice and receive more public input. It appears that that process has begun. Today, November 18, I received a letter from RTC concerning a public presentation on this project, to be held at Reno High School. However, the hearing was held on November 12, almost one week ago. Please be assured I have not been on vacation, and I have picked up my mail on a daily basis. Why were these letters to residents in this area sent after the public hearing, Ms. Pechola? As I recall, there seemed to be a problem with advance notice of public hearings on this very same project earlier this year. It appears these were bulk-mailed and therefore subject to lower status mailing. I am cc'ing Councilwoman Neoma Jardon on this matter. I would certainly hope RTC provides ample notice for residents who would be affected by this project to voice concerns over what would be major changes to the Keystone corridor. Please add my email to your list of RTC public hearings so that I may plan to attend future opportunities for citizens to attend.
Email	11/19/13	Tim Jones				Thank you for your prompt reply to my concerns. I'm glad to hear that another hearing will be scheduled for this project. I also thank you for your offer to meet with your team prior to the January hearing. I will certainly keep that in mind. I know several of us in this neighborhood were concerned with the proposal to turn Keystone into one lane in each direction, given the steep hills and sharp curves on that street from 7th to Coleman. And while bike lanes are certainly important to any city's transportation plans, that section of Keystone is not exactly friendly to bicycles, given those hills and curves. The primary issue here, however, is not the value of bicycles and those who ride them---it should be on traffic flow and efficient access to and from I-80 and surrounding thoroughfares. I look forward to the public hearing in January. Again, thank you for your response.
CF	11/12/13	Tom Miller			Yes	Bike/ped safety/access should be an integral part of the plan.
Pet	11/11/13	Tracey Smith				My son rides his bike through the streets of Reno, makes sense for a safer ride.
Pet	11/11/13	Valerie Truce				It's important to me as a bike rider, as well as concerns for other bike riders.
Email	11/21/13	Vivian Mello				We received a notice of the RTC meeting regarding Keystone Avenue changes. Unfortunately, your meeting was on the 12th of November and we received the notice on the 16th of November. I don't know the results of that meeting, but hope you will consider my input. Living off of Kings Row since 1976, using Keystone Ave. is a daily trip. I have watched the traffic grow with additional housing projects over the past 37 years. I don't feel there will be much more. Since the 2nd street underpass was taken away, Keystone Ave. has been utilized even more. Making any adjustments from four lanes to two lanes would be disasterous. The rush hour traffic would be backed up to the Keystone overpass and beyond.
CF	11/12/13	Wendy Broadhead	Pedestrian safety, speed of vehicles, bicycle use - primarily on Keystone - between 7th and Coleman. I personally liked the "road diet" concept. Need to increase pedestrian crossings.			
Email	11/14/13	William Hoffman				I feel the need to calm traffic on the segment of Keystone Avenue between 7th Street and Coleman cannot be over emphasized. In the late 1960's (?) a neighborhood type two lane street (with parking) existed along this segment. With it's parking along both sides and a 25 mph speed it allowed for much safer access to and from Keystone Avenue for the facing homeowner's driveways as well as intersecting streets side streets. In the late 1960's the transportation planners studying the results that were expected from placing an interchange at I-80 and Keystone saw a projected increase in traffic north of I-80 and, as was the practice, they decided there was enough width to widen Keystone to 4 lanes by removing parking and increasing the speed limit. However that decision I believe forced the street to function at a level that it was not designed for especially at those speeds (35 mph to 45 mph). There are several blind curves and hills that create the dangerous situation resulting in very restricted response options for vehicles attempting to enter the street from the driveways and side streets leading to the accidents. The removal of the parking has removed the ability of the entering vehicles any forgiveness once their decision to enter has been made as the curb is the outer edge of the curbside lane. I believe with hills and curves involved there is also an enhanced danger for the pedestrians crossing . I believe there is
Email	11/17/13	Zoe Gerhart				Just wanted you to know that the mailing on the Keystone Corridor arrived in Saturday's mail yesterday, Nov 16. The meeting had already been held by then as it was scheduled for Tuesday, Nov 12. I appreciate your efforts to keep us informed, but am disappointed that taxpayer monies were spent in putting together a mailing that arrived after the meeting itself was held. Perhaps the time element of Permit Mailings could have been considered? And will be in the future??? I'm disappointed that our local efforts seem as inefficient as those of DC. Or perhaps we citizens are just extra-sensitive to government foibles? Thanks for letting me vent. I'm sure that you'll learn from this incident and do better next time.

Form	Date	Name	Mailing List?	Question
Q/A	11/12/13	Dino Germano	Yes	Keystone restriping - speed/traffic control - bike access & pedestrian access - a new casino? Added traffic?
Q/A	11/12/13	Donna Carroll		RTC does a lot to accommodate bicyclists. How much revenue for projects like this come from the bicycle riders? What do they contribute for special use of streets?
Q/A	11/12/13	Andy TenBrink		Some questionable traffic statistics and "facts" have delayed this project. How can we work with City Council members to avoid this in the future?
Q/A	11/12/13	Hal Goss		Is it feasible to have round about at Keystone & Kings Row and tear down the castles?
Q/A	11/12/13	Craig Schoenky	No	If the number of motor vehicle travel lanes are reduced between 7th Street and Coleman Avenue, where do you expect the commuter traffic to shift to?
Q/A	11/12/13	Rochelle Mezzano		Why don't I see yield to cyclist signs after each bike lane ends sign?
Q/A	11/12/13	Josh Hejl	No	Does Nevada state law (NRS 484B.270) mandate new construction to have bike lanes? Or how does and will these new projects comply?
Q/A	11/12/13	Lisa Hill		How much does public health concerns factor into your road planning? We are facing epidemic health problems due in part to lack of safe muscle powered options, especially for children.
Q/A	11/12/13	Scott Hall	Yes	1. What are the options for ADA access for California Avenue? 2. Will bicycle LOS and walk score be assessed?

Name	Note
Tom	
Brian Adams	
Elaine Bates	
Marcia Osloond	
Trula Giovandardi	
Harold Klieforth	
Helena Creed	Not interested in attending the next meeting, but would like to add a comment (see comment form)
Peter Favor	Address and phone associated with Carol Tresner
Lee Carol Lombard	Attended meeting
Bentley Brooks	
Marilyn Swan	
Anna Marie Vierra	
Mary Mingo	
Hans Frischeisen	Address associated with Charles & Lois Eckroat (Eckroat Family Trust)
Kris May	
Barry Phipps	
Patty	
Terry Chilcoat	
Barbara Spiersch	
Cecilia Royce	
Joeann Klintworth	
Charlotte Smith	
Aurelie Sheen	
Ralston West	Owner of 501 W. 1st Street, Truckee River Terrace Apartment Homes

Attachment B – February 2014 Public Meeting Comments

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
CF	01/17/14	Barbara Sanders	Parking limited if people use this route for getting to work. Turnaround for buses at Coleman. Timing to existing bus routes. Exhaust. Need for planting along corridor - need ground cover. Traffic safety where Coleman/Keystone and 12th Street intersect.	Yes	I did not get notice of Nov. 12 meeting until after it took place.
CF	01/17/14	Berniece Ott	We have no bus service along Coleman Drive. [illegible] Being 83 years old… It is very inconvenient.		
CF	01/16/14	Cyndo Ferris	Since closing top of Keystone to left turns onto McCarran, Keystone's traffic has increased. Bike lanes north of 7th Street aren't needed.	Yes	Lane reduction is not a viable option on Keystone especially at Keystone, Highway 80 intersection.
CF	01/15/14	Eric Fassbender	Intersection Keystone/University combined with entrance to Raley's and 7-11 makes a complicated and dangerous traffic pattern. No visibility from University west of Keystone without pulling much farther beyond the white line.	Yes	Eliminate the Keystone entrance to Raley's and move sign at Optician's on University/Keystone corner will help immensely.
email	01/28/14	Everett Adams	You have already narrowed California Avenue to a one-way traffic jam, also Arlington Avenue. Now Keystone.	Yes	I purchased my home in 1963 because it was the best place in Reno to live. It now takes me 10 to 20 minutes more to drive home on California Street. I believe a real study should be made before you destroy our area with more traffic. Just look at our freeways built with no consideration of growth and safety.
Other	02/06/14	Frank Patten			Presentation on the Issues to be Considered and Potential Solutions or Improvements (PDF file)
CF	01/15/14	Geof Giles	Too many huge busses belching black smoke, holding up traffic with no riders.		Stop making streets narrower/few lanes - you are jamming up traffic.
CF	01/29/14	Greg Schulte		Yes	Add to mailing list if it is different than this newsletter.
email	01/17/14	Hal Goss			After more than thirty years, I still fear a rear end collision as I wait to turn off of Keystone. It is not a joy to enter Keystone either. I wonder how people in wheelchairs navigate around utilities.
CF	01/15/14	Jacque Dawson	High traffic volume in a residential area and high speeds above the posted 25 mph limit	Yes	Making the Keystone/California Avenue light a one-direction-at-a-time during the lights, i.e. eliminate green turn light at same time as green straight light.
CF	01/21/14	James Meyers	do not install bike lanes on Keystone form Coleman to University Drive. This would cause huge backup of traffic. We need all 4 lanes for vehicles.	Yes	We were notified of the November 12 meeting 2 weeks after it was over. Hard to issue comments when the meeting is over.
CF	01/15/14	Janet Chism		Yes	
CF	01/15/14	Jessica Palmer	I'm not sure what has already been identified. I'm very happy that Keystone is being addressed. I drive on it daily and often am afraid of hitting pedestrians walking in the gutter and cars pulling onto Keystone from side streets.	Yes	

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
CF	01/18/14	Joy Meeuwig	Please pay careful attention to bicycle traffic on the California hill. For years bicycles were prohibited on the hill. When California was converted to single lane each way, the "no bicycles" was removed because there are bicycle lanes approaching from each direction BUT NO BICYCLE LANE ON THE HILL! East bound traffic is terrible when bicycles are headed up hill! Fix it!		
CF	01/16/14	Julie Morris	There needs to be a 4-way stop sign at 1st & Ralston. Very dangerous intersection - especially for pedestrians and bike riders and river activities vs. cars.	Yes	
CF	01/27/14	Kelena Creed	There is no access north of King's Row on Keystone.	Yes	
CF	01/15/14	Leonard Raymond			How can 1 lane move traffic faster than two lanes? I ride a bike and have no need to ride on Keystone!
CF	01/15/14	Lisa Grune	Sidewalks areas on Keystone near King's Row are very small and we feel especially near the King's Row junction with Keystone by the empty lot on the east side.	Yes	Thanks… this area is a problem - very congested!! (Maybe Raley's could give up part of their parking lot for additional lanes.
CF	01/18/14	Mary Mingo	Not sure what issues have been "id" Better coordinate traffic lights to ease flow of vehicles especially from 80 south on Keystone to California Avenue. If possible, widen street. Hope you are not considering narrowing Keystone for bike lanes (as California). You would create a traffic nightmare.	Yes	
CF	01/15/14	Michael Cirac		Yes	No more bike lanes. Mayberry Drive has already been ruined. Accommodate vehicles which are 99% of use.
email	01/27/14	Patrick Smith			My name is Patrick Smith. My family owns the properties at 1101 Jones st and 75 Boyd place which are very near the Keystone corridor highlighted in the informational pamphlet we received in the mail. As a long time resident of the neighborhood, I was curious if in your preliminary analysis, you noticed that Boyd Place and Keystone Place are primary arteries for foot traffic in the neighborhood. I wanted to bring this to your attention because your highlighted areas included Booth street to Riverside Drive. What I have seen through the years is in order to avoid the high vehicle traffic and noise of Keystone, north and south bound foot and bicycle traffic to and from the Booth street bridge filters through the alleys between Riverside and Jones St and then funnels down Boyd place and Keystone Place. I don't know what level of interest there is as far as pedestrian and bicycle enhancements, but for those four or so blocks of the study area, that is where enhancements would be best placed.
CF	01/16/14	Penny Vestbie	Please do not close the Booth Street bridge to vehicular traffic - you will have a backlog of traffic from Reno High to Keystone. Westfield people have trouble getting onto Booth Street now when school is in - add all the traffic coming off of Foster Drive and you have a big mess.		

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
email	01/23/14	Pierre Mousset-Jones			It seems that the RTC ideas for the Keystone corridor are reasonable and should benefit pedestrians and cyclists. I have heard mention of a one lane road from Coleman to I80. The advantage is that people may get a place to park in Keystone rather than none at present, and there will be a bike lane. A major concern is what it will do for the traffic lineup in the morning and evening at the 7th St traffic light and the I80 traffic lights. The line of cars can be very long even with two lanes. There needs to be better coordination of the traffic lights from 7th St through to Jones St to ensure a smooth flow both ways. However, a major concern of mine, and also that of the now defunct Old Northwest NAB, is the lack of a traffic light or roundabout at the Keystone McCarran intersection. This is a location waiting for accidents to happen, which will be made even worse by the new construction on the North side of McCarran, which will provide even more traffic at that intersection wanting to turn in both directions on McCarran. This really needs some serious consideration. I hope it can be included in the discussion, it should be because the new construction will no doubt increase traffic down Keystone to I80 which will make matters worse at the I80 and McCarran intersections. Perhaps the builders have agreed to put in lights or a roundabout as part of their permit. If not, that is a major mistake.
email	01/22/14	Reva Rindy			I cannot thank you enough for looking to improvements for this street. I currently live in a house on the south west corner of Keystone and Jones and have for four years. We do not park our cars in front of the house because of the dangerous conditions of speeding cars taking the single one way lane to get to Riverside Drive. Despite the speed zone being posted at 15 miles per hour I have seen approximately 2% of the vehicles that travel this route go this speed. We have had side view mirrors snapped off or damaged from parking in front of our home. The first time we knew not to park there, so we made it a rule not to - the second time was only a temporary parking situation and it happened again within 4 hours of parking there. There is also, the poor soul that was hit in front of the house on March 1, 2013 when he tried to cross Keystone. I have no idea where these drivers need to be in such a rush, but it is dangerous for pedestrians and residents of the homes close to the street - which is quite a few. Last fall on a Saturday morning right across the street, I saw two street parked cars smashed together - hit in the rear by a huge truck traveling north bound. These are only the things I'm aware of - I am certain you know of so many more.
email	01/22/14	Tom Corty			I was hoping there was a plan online showing your design and proposed changes on Keystone from I-80 to Coleman but I couldn't find one. Can you provide me this plan so I can review it prior to the meeting on February 6.
email	01/16/14	Tom Kirkgaard			I (and many others) use Keystone to commute to work. What are these proposed "multimodal Improvements"? I hope this isn't a euphemisms for automobile lane reductions. This mailed flyer is the first I have heard of this but apparently it has been going on since August 2013?

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
email	01/31/14	Carol Thomas			Barbara – I have not heard a word from RTC as to if they sent the notices. What does it take to get an answer? A lot of people I talk with say they think RTC will do whatever they want as with the Southeast Connector that has been in the paper.
CF	01/27/14	Helen Wright	Homeless or transient people without a place to go.		
CF	01/27/14	Ray Fulton, Jr.	None	Yes	Thanks for your help.
CF	01/16/14	Dennis Freeman		No	Please do not bottleneck up Keystone with a bike path that will be rarely used.
CF	01/30/14	Michael Fernbach		Yes	I fully support this project, particularly the re-striping from Coleman to University Terrace; the bike lanes will be huge safety improvement.
CF	01/29/14	Lynell Tobler		No	This is just to let you know that I sold my home at 1229 Ralston Street, Reno, NV in November 2013 so I no longer have any ties to Reno. You can take me off your mailing list. Thank you.
CF	02/01/14	Eric Carter	Lack of bike lanes, unsafe on street parking along parts of Keystone Avenue	Yes	As an avid bicycle commuter I am hopeful there will be more bike lanes added in Northwest Reno.
CF	01/24/14	Cynthia Walker		Yes	Glad to see attention on pedestrian safety and hope to see more bicycle lanes
email	02/06/14	Barron Brooks			Hello, my name is Barron Brooks, and I am the property owner of 1 Booth Street. I plan on attending your presentation this evening and have attached a slideshow of my input regarding the Booth Street bridge intersection. If there is a chance for public comment, I would like to elaborate. Thank you. (Presentation attached.)
email	02/06/14	Jim Meyers			Regarding bicycle lanes on Keystone, We are totally against it. Would back up traffic twice as bad as it does now. If there is a vote, we both vote NO.
email	02/06/14	Greg Zolot			Keystone is one of the worst areas in town for bicycling, so I would like to add some comments. Between being not one inch of a shoulder on Keystone, to a narrow sidewalk already used by pedestrians, to the heavy traffic, and interstate exits, Keystone is unusable to cyclists (unless they're crazy). Any improvement to these things would make a difference. As usual on any road, the area around the highway exits is worst of all. The traffic doesn't slow down nearly enough when exiting the highway. One example is one time late at night, a maniac exited without slowing down at all, and slammed on their brakes just before entering Keystone and hitting me (back when I still used Keystone at all, at any hour). Keystone can also be very difficult to cross, particularly north of 7th.

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
email	02/06/14	Pierre Mousset-Jones			I am concerned about three aspects of the Keystone corridor: 1) The traffic back up particularly in the morning and evening but also during the day, at the I80 traffic lights going both north and south. Two lanes are essential within a reasonable distance south and north of the freeway otherwise waiting traffic will back up, for example, up to Kings Row or worse. 2) The traffic lights from 7th St. to 1st St. need to be better coordinated going both North and South to ensure smooth traffic flow and minimum backup. 3) Traffic lights or a roundabout is essential at the Keystone/McCarran junction. Right now Keystone traffic arriving at McCarran can only turn east, if it wants to go west it must wait some distance east from the intersection in a McCarran center turnout before doing a U turn onto McCarran going west. The same applies in the opposite direction for traffic from Keystone north arriving at the McCarran intersection. The increased traffic from the 288 condominiums being built north of McCarran just near the intersection, will make the problem even worse and lead to likely accidents some of which could be fatal. Traffic on McCarran is typically going 60 mph and coming from the east up a hill so it cannot be seen until it is nearly at the intersection. Right now many are turning west from Keystone illegally, no doubt this will happen in the other direction. It is just a location waiting for an accident to happen, and NDOT should be asked what value they put on a human life. In addition, there will be more traffic north and south on Keystone to and from McCarran, due to the condominiums, which will make traffic lines worse at the 7th st traffic lights. Thank you for considering these issues. Yours sincerely Pierre Mousset-Jones
email	02/07/14	Lisa Hill			Good job last night! What a great turnout! Comments and an additional issues not included in meeting below. My husband and I bought out home 1 house in from Keystone Avenue 25 years ago when we were first married. We originally bought to be close to UNR and to the trails and regional park. We raised our boys in this neighborhood and stayed far longer than we ever anticipated because this is a great urban neighborhood. But the hazards of Keystone Avenue have always been a problem. I wished I could have felt safe letting my kids walk to public school, but I didn't. I wish I felt safe when my husband rides his bike to work or my University aged son who lives with us rides to and from UNR, but I don't. I drive up and down Keystone Avenue multiple times per day and have witnessed near misses and crashes of cars, pedestrians, and bikes. I see pedestrians trying to get to Raley's or CVS pharmacy on 7th or get onto a bus with great peril. I worry, especially about the oldest and youngest citizens who do not drive. We were so excited last fall when RTC announced a road conversion only to be disappointed when Reno council deferred the plan. We dream of a more walkable, liveable neighborhood. (like Wells Ave.! We lived off of Wells many years ago and can't believe the positive changes the road plan made!) I also drive for living doing home visits for home bound veterans at the VA. I drive all over town every day and in all kinds of conditions. Like all drivers, I want to spend as little time in the car as possible. Over the last few years, as road conversions have gone in, I have experienced very little change in how long it takes me to get to my veterans' homes. Our team of home care providers mostly hate road construction season not road conversions! Some of the comments at last nights meeting seemed rooted in the fear of change rather than real outcome and data.

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
email	02/07/14	Anne Alley			I am unable to attend the public meeting tonight regarding the Keystone Corridor Study. I heard a rumor that turning Keystone Avenue into 2 lanes was being considered. As a resident and homeowner in the Kings Row area for almost 28 years, I have been using Keystone Avenue on an almost daily basis, commuting down Keystone to California Avenue, in order to access my offices over the years in the downtown area, and now to my new offices on Second Street. When California Avenue was reduced from 4 lanes to 2 lanes (excluding the center turn lane), this caused a significant back-up in traffic during the morning and evening commute times. It also increased the amount of traffic diverting into the residential neighborhoods off of California Ave. by commuters trying to get out of the traffic. Presently, Keystone Avenue is already experiencing heavy traffic, especially at commuter times, which a reduction in travel lanes would only exacerbate. Considering the minimal amount of bike traffic and the already existing sidewalks and crosswalks at intersections, most of them at intersections with signal lights and crosswalk buttons, and an actual flashing light by the Raley's store past 7th Street, a decrease in lanes is not necessary. An increase in lanes would be more appropriate, though obviously, impossible. Considering the fact that the other commuters like myself are the ones actually working and living in Reno and paying property, sales and gas taxes, our needs should be considered above those of a minimal amount of people who actually ride bikes during limited times during the year. Our extreme cold in the winter and heat in the summer reduce the number of people riding bikes. In all my years working in Reno (since 1978), I have only known one person who rode a bike to work, and at that, on only a limited basis. I hope that the City of Reno, RTC and NDOT will take the needs of the residents in the Northwest and Southwest areas who use Keystone Avenue on a regular basis into consideration in this matter.
CF	02/06/14	Riley Nork	As a high school student, I know that the commute from our school to fast food restaurants during our lunch hour can be hectic. I'm concerned that forcing a lane change for inexperienced drivers will only increase danger.	No	
CF	02/06/14	Amy Fitch			I want to express my support for continuous bike lanes on Keystone and better bike/ped facilities on bridge @ California Avenue and @ Booth Street. Lane reductions elsewhere in Reno have been great and will work well to make people safer on Keystone. We need more complete streets! People are always afraid of change - that doesn't mean it shouldn't happen.
CF	02/06/14	Jeff Milligan	None	Yes	Biking and pedestrian use is the most important to me. We must have a safe path for bikes from Keystone to California to Arlington. I like the round-about, it looks like the safest solution. Will there be room for a bike lane on California Avenue?
CF	02/06/14	Barry Breslow			Please don't make the same mistake as was made on Mayberry and on Arlington. Keep Keystone 2 lanes in each direction. There is no compelling reason to change. Thank you.
CF	02/06/14	Andy TenBrink	If this complete street program can reduce accidents by 40%, wouldn't the City be negligent not to put it in?!	Yes	**In winter, Reno only plows 1 lane in each direction anyway. So it is functionally reduced to 1 lane. This doesn't cause traffic issues, so that argument is invalid!**
CF	02/06/14	Anna Katherine Sawyer	Keystone is the only main northwest outlet with a freeway entrance and exit and should not become a bike lane street or otherwise narrowed street. Think safety.	Yes	
CF	02/06/14	Keith Dennett	Very difficult to turn left onto California from Newlands Circle - cars traveling east (and west) on California go well over the 25 mph posted speed. Intersection of Keystone with California - need read light on California eastbound when green left turn from Keystone. Consider roundabouts at Kings row and Keystone intersection and at California and Newlands Circle?	Yes	Supportive of 3 way stop at intersection of Keystone
CF	02/06/14	Dustin Milligan	None	No	I have personally ridden my bike thru the corridor and it was hell. I could've easily been ran over and was blocking traffic. I like the roundabout solution; it seems the safest.

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
CF	02/06/14	Charles Steiner		Yes	Do not close Booth St. bridge to vehicular traffic! Consider impact to Newlands area during special events; when Riverside & Arlington are closed, northbound traffic is forced to Keystone or Virginia, most likely to Virginia because a left turn out of Newlands is often impossible.
CF	02/06/14	Ben Rogers			I came to this meeting to voice my whole-hearted support of bike lanes in Reno. It's making Reno a more bikeable, healthier, happier town. Keep it up! (Keystone is not very bikeable as it is, so bike lanes would be great and I would use them regularly.
CF	02/06/14	Shane Fitch		Yes	I support establishing bike lanes and safer pedestrian structures (sidewalks/crossings) - too many car lanes on the northern section make the road difficult for bikes and people leaving their driveways. Many people access Rancho San Rafael via Keystone, and many are on bikes.
CF	02/06/14	Terry Barker	Bike lanes on Keystone above Coleman would facilitate access to existing bike lanes on Ralston.		I want to reiterate my support for a road diet on Keystone between Coleman and University Terrace. The redesign options for the California/Keystone intersection look promising.
CF	02/06/14	Elizabeth Zbinden	This might be private property and not fixable, but (between 7th and Coleman)-at Gear, where Gear comes in to Keystone no sidewalk on Keystone, and with the landscaping there is no way for pedestrians to stay out of traffic. Where Kings Row comes into Keystone - two walls probably put in by the subdivision developer - make it very hard for drivers on Kings Row to see the traffic oncoming on Keystone so they make it hard to get out onto Keystone		Was unable to understand much of the verbal presentation. Lousy room acoustics or lousy microphones and speakers or lousy enunciation. Volume was just fine but sound was fuzzy; could not make out the individual words.
CF	02/06/14	Georgia Nannini	Crosswalk at Newland Circle used by high school students	Yes	Don't destroy Newland Park - Don't destroy "The Castle" mansion in the middle of California/Keystone interchange. It's historic!
CF	02/06/14	Christine Anderson		Yes	Strongly support improved bike and pedestrian facilities
CF	02/06/14	Michael DelOstia	On-street parking for Keystone residents	Yes	Please contact me for SWG participation - semi-retired civil engineer living on Keystone (1615)
CF	02/06/14	Alex Mensing	University Terrace and Keystone is an anxiety-provoking intersection. Poor visibility, fast traffic, blockage by people turning into and out of Raley's parking lot.		Closing car traffic access to exit/enter University Terrace on East side of Keystone and routing traffic to 7th would not only eliminate a frustrating intersection, it would increase bike and pedestrian-friendly nature of that area. *Train staff on use of microphone for clear public speaking please. Thanks!
CF	02/06/14	Cheri Reimann			Could not hear the speakers! Turn up the microphone.
CF	02/06/14	Addison Wilhite	I appreciate the time and effort put into this important work.	Yes	My chief concern is safety for all users including motorists, pedestrians, and bikes. ADA requirements, bicycle lanes, and "road diets" should be a part of the entire corridor.
CF	02/06/14	Sherry Stofko	Keystone @ Raley's - unsafe tot urn left onto Keystone Fast cars, 2 lanes, and poor visibility @ Kings Row and Kimball @ Keystone with the hill	Yes	Thank you for the mailed invite to this presentation. Thanks for these awesome presentation handouts. Makes dissemination to people who couldn't be here much easier. Please allow more time for Q&A at next meeting.
CC	02/06/14	Forrest Pelsue		Yes	As a Keystone resident, I would like to emphasize: * noise of traffic is disruptive, speeding frequent * many side streets have terrible visibility, i.e. Kimbal * it is terrifying to bike on Keystone! But I have to!

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
CC	02/06/14	Anna Santoro		No	Would like to see some improvements on the 7th and Keystone intersection by Raley's. Also a bike lane would be safer.
CC	02/06/14	Anonymous			I live on upper Keystone. I want a more walkable/rideable neighborhood. I support lane reduction with more ped and bike facilities.
CC	02/06/14	Anna Marie Vierra		Yes	
CC	02/06/14	Ginger Ng		Yes	good presentation
CC	02/06/14	Savina Gonzalez		Yes	I'm concerned with lane reduction north of Kings Row on Keystone. There is a lot of traffic at Kings Row - traffic will back up as it already does sometimes.
CC	02/06/14	Emily Kilgore		Yes	Contact me for SWG
CC	02/06/14	Michael DelOstia		Yes	Please restore on-street parking on Keystone How do I volunteer for the SWG?
email	02/16/14	Pierre Mousset-Jones			Two more comments: I and a number of my friend frequently use a bicycle to go south over the river from old NW neighborhood, we never use Keystone. It will never be an attractive route too much traffic etc and a bike path will not help, there are lots of alternative safer and quieter routes. The crossing on Keystone just south of University Terrace is very dangerous despite having the flashing lights particularly in morning and evening. It is just a poor location it needs to be rethought, many times I have seen pedestrians scuttling for cover with cars rushing by or turning in or out of Keystone. There is too much going on in that area rushing south to catch the green light at 7th, rushing north after the 7th light turns green, going in and out of Raley's, going in and out of 7-11 and Arco and turning east or west on University Terrace, plus traffic queues in the morning, often all happening at the same time more or less. A pedestrian can easily end up hung up isolated on the crossing in a dangerous situation or just not noticed in the bedlam.
email	02/17/14	Glenn			
email	02/15/14	Marilyn King			
CF	02/18/14	Jenny Brekhus			• Replacement of Keystone Avenue bridge is key. It is structurally deficient. Coordination with flood project related to Booth Street removal is key. • Bike lanes are a part of our future. Accomodating all modes is important. • Closing commercial driveways to eliminate conflict, improve circulation, and increase safety should be explored.
email	02/20/14	Nikki Boyce		Yes	I live off of Keystone Ave. and just heard about this study. I'm interested in potentially contributing comment/efforts and would like to know more information about the project. Thank you for your work!!
email	02/21/14	EC		Yes	Please send me an announcement re: meeting times. As my mail is being forwarded to me right now I may not receive it in time so I will tell you my last concern now in the hopes you can add it to the comments somehow. Owning a home on upper Keystone where they have the traffic calming concrete triangles : I am nearly hit in the rear every time I turn into my driveway. I signal WELL IN ADVANCE but the cars behind me will not slow down. Additionally, the calming triangles took away all street parking in front of my house AFTER I had already purchased the house and the street sweeper cannot sweep the gutters. The concrete triangles need to be removed.

Form	Date	Name	What issues, not already identified, do you know exist in the corridor?	Mailing list?	Additional Comments
email	02/27/14	Addison Wilhite			I realized I walked out of BPAC without giving you the map. Maybe that's good because there were a couple of very small sections, rather unconnected, that I never rode to verify the bike symbols. I can send that your way or bring it to you next month. Also, regarding the Keystone option last night...I ended up brooding about it for several hours and I finally realized what was rubbing me the wrong way. It felt like we had a bunch of recreational cyclists advocating for what is basically a pleasant connector on Vine st. for their recreational rides that head up into the NW Reno or connect them to the downtown area. I can understand that as a recreational cyclist myself. However, the problematic section of Keystone (there are many!) is particularly the economic black hole near Savemart which serves those adjacent neighborhoods which are very much a socioeconomically challenged neighborhood. I kind of cringe at all of us well educated people on BPAC with our expensive bikes calling the detour around that area a "compromise." It seems like the people we need to be thinking about first are those that are living near that area that need safe access to those businesses and services. I realize I'm saying this with no specific idea of what is in store for the Keystone area around there and I feel confident that whatever happens will be an improvement. It just gives me pause because I'm not sure we're thinking first and foremost of the primary beneficiaries of a revamped Keystone and the RTC is all about transportation...not necessarily recreation. two cents...sigh....
email	03/07/14	Alissa Turner			
CF	03/10/14	Stan Lyon	None. It appears Keystone Avenue traffic is moving well. Why fix something that isn't broke.		Where is the money for this changes proposed? Couldn't it be better used elsewhere?

Form	Date	Name	Mailing List?	Question
Other	2/6/14	Scott Hall		Is RTC still recommending Complete Streets as a standard policy, and will the Keystone Ave Corridor project follow Nevada Revised Statute NRS 403.575 Complete Streets and the U.S. Congress H.R. 2468 Safe Streets Act of 2013 guidelines? ("Complete Streets Program" means a program for the retrofitting of roads that are under the jurisdiction of the board of county highway commissioners for the primary purpose of adding or significantly repairing facilities which provide road access considering all users, including, without limitation, pedestrians, bicycle riders, persons with a disability, persons who use public transportation and motorists.)
Other	2/6/14	Scott Hall		Why have the last several road conversion projects, Upper Sutro Safety Project, Upper Keystone Resurfacing Project, and Mid Town Virginia Street Corridor not included bicycle facilities and have remained Incomplete Streets?
Other	2/6/14	Scott Hall		What are the economic benefits of On-Street Parking versus a Protected Bicycle Lane?
Other	2/6/14	Scott Hall		Does the Keystone Ave crash data have an approximate insurance cost attached to it?
Other	2/6/14	Scott Hall		Does the Keystone Ave crash data from Reno/Sparks Law Enforcement exist in a public, accessible format?
Other	2/6/14	Scott Hall		How does the new NOOT policy of mandatory bike/ped access through projects, i.e. Keystone 1-80 Interchange, affect the Corridor Study?
Other	2/6/14	Scott Hall		Does evidence of photographs, snow tracks or "desire lines" by cars traveling only in the left hand lane mean that even motorists are aware of the danger of the right hand lane with limited sight lines?
Other	2/6/14	Scott Hall		How will completing the bicycle lane connection from McCarran in the north to the Truckee River Trail and Bike Boulevard in the south affect the RTC Bicycle Network for the region?
Other	2/6/14	Scott Hall		Will there be a raised median installed on Keystone from 4th Street to 5th Street to prevent congestion and motor vehicle crashes?
Other	2/6/14	Scott Hall		Will the Americans with Disabilities Act guarantee access for wheelchairs, scooters and bicyclists from Booth Street/Reno High School up to Newlands Circle as a result of the project?
Other	2/6/14	Scott Hall		What is the appraised value of the 7-11Convenience Store at Booth and California Ave and can it be moved to accommodate the new Intersection?
Other	2/6/14	Scott Hall		Have any RTC Commissioners or staff members ridden their bicycle the entire corridor from Lake Park to the Truckee River and back along Keystone Ave?
Card	2/6/14	Anna Katherine Sawyer	Yes	Peak use will likely double. Have any surveys been taken on the number of cars using Keystone?
Card	2/6/14	Anna Katherine Sawyer		Have any efforts been made to determine how many streets, home and people will be adversely affected? A poll of the residents [illegible].
Card	2/6/14	Kathleen O'Connor		Do the bike lanes provide the buffer zone for backing out of driveway?
Card	2/6/14	Nathan Corona		If there is only 3 lanes, what happens with the bus stops at a stop?
Card	2/6/14	Mitzi Hultin	Yes	How about a traffic light at Kings Row?
Card	2/6/14	Andy TenBrink	Yes	They only plow 1 lane each way…so why don't we think it will work?
Card	2/6/14	Rex Crouch	Yes	Why is the CA engineering firm comparing Reno to Seattle and Portland? Comparing two port cities with a desert city of different populations in poor judgment
Card	2/6/14	William Hoffman		Will you consider returning curbside parking, slower speeds and one lane in each direction with center turn lane - also place [illegible] back around [illegible].
Card	2/6/14	Malea Gerard	No	Please make Keystone north of Freeway safer and slower so we can pull onto Keystone - we have nearly been hit.
Card	2/6/14	Charlotte Gilman	Yes	How is the project to be funded?
Card	2/6/14	Alex Mensing		Could you speak about alternatives you are considering to encourage environmentally friendly transit around this corridor, such as bicycling?

Form	Date	Name	Mailing List?	Question
Card	2/6/14	C. Thomas	No	Between Kings Row and Coleman Ave. the ratio of bikes to total volume is [illegible].
Card	2/6/14	Judy Cornelius	Yes	If Keystone north of 7th were reduced to 2 lanes - I would never get off my street no matter the time of day. This section feeds into I-80. It is not Arlington, [illegible] Plumb. It is a thoroughfare.
Card	2/6/14	Lyle Witt		North end of Keystone is right turn only - This omits access to Northwest Reno by forcing more traffic to Kings Row and West 7th. Now proposed [illegible].
Card	2/6/14	Joe Nezitic	No	Bikes are dangerous to our roadways They should be taxed to raise funding to pay for their own paths. RTC is destroying the City of Reno with bike lanes!
Card	2/6/14	Carolyn Thomas	Yes	New apartments going up on Keystone and North McCarran - how will they affect traffic on Kings Row and Keystone? What are bicycle stats on Keystone north of University Drive? Why not take bike lanes to Ralston or Washington or where traffic is less and it is flat and avoids freeway intersection?
Card	2/6/14	Michael Hartley	No	Bring the lane count down to 2 will stifle traffic. I understand that you one notion to decrease the lane count is to allow people to back out of driveways. How will that improve traffic backed up? Furthermore, this will decrease the ability to t urn left onto the road.
Card	2/6/14	Fred Tholke	Yes	Will the bus stops on Keystone in front of Raley's be improved? Today people waiting for the bus are [illegible]. I've observed people slip off the curb into traffic. The location looks unsafe. Thank you.
Card	2/6/14	Fred Cooper		This corridor study focuses on Keystone, and fails to address nearby parallel potential corridors (e.g. Ralston, Vine, Stoker). These corridors are impacted by the Keystone study, and they provide some valuable opportunities, especially for bikes, pedestrians, etc. I request that these parallel corridors be considered and addressed.

Name	Note
Pat Stagier	How will the new development north of Keystone & McCarran traffic impact Keystone to I-80?

Attachment B – May 2014 Public Meeting Comments

			Keystone/California Alt. A			Keystone/California Alt. B			Keystone/California Alt. C			Keystone/California Alt. D			Keystone/California Alt. E			Keystone/California Alternatives	Vine Street Bicycle Route		
Form	**Date**	**Name**	**Like**	**Dislike**	**No Pref.**	**Like**	**Dislike**	**No Pref.**	**Like**	**Dislike**	**No Pref.**	**Like**	**Dislike**	**No Pref.**	**Like**	**Dislike**	**No Pref.**	**Comments**	**Like**	**Dislike**	**No Pref.**
email	04/30/14	Shaun Richey																			
web	05/02/14	Damien Cole																			
Call	05/13/14	Barry Breslow																			
CF	05/22/14	Carolyn Thomas			Yes		Yes		Yes				Yes		Yes				Yes		
CF	05/22/14	Mike					Yes					Yes					Yes		Yes		
CF	05/22/14	Dale Doevv					Yes				Yes	Yes						Like the idea of a round about here.	Yes		
CF	05/22/14	Stacy Barry	Yes					Yes		Yes			Yes		Yes			[Alt. B] is OK option but the likelihood of taking over 7-11 is farfetched. [Alt. C] Don't take away California to Keystone connection. Without it there is too much traffic @ 7-11. [Alt. D] Concerned about emergency vehicles reaching Federal building or school. By removing access to Keystone from California, you have too much traffic - roundabout in front of school is bad - too much foot traffic. [Alt. E] My preference. Like the 2 turn lanes onto California. Familiar option - traffic flows.	Yes		
CF	05/22/14	Anonymous				Yes				Yes		Yes					Yes		Yes		
CF	05/22/14	Michael W. Smith		Yes			Yes			Yes			Yes			Yes			Yes		
CF	05/22/14	Andy Tenbrink		Yes		Yes			Yes			Yes					Yes	[Alt. B] Nice but the high cost will make it such a future goal that people will be disappointed. [Alt. C] Rank #2 Low cost, easiest to get rolling on soon. [Alt. D] Low/med. Cost & great bike pedestrian benefits. Level of service might actually be better. Ranked #1. [Alt. E] Not good or bad for me. $$ are probably too high.	Yes		
CF	05/22/14	Anonymous				Yes												[Alt. B] This solution seems to offer the most alternative for everyone with the least inconvenience. Maybe too pricey.			
CF	05/22/14	Anonymous		Yes			Yes			Yes		Yes				Yes		[Alt. B] too much of a hammer to fix this problem. [Alt. c] forces too much traffic on Foster. [Alt. D] let the driver's ed students have some fun. How do you get a slow plow in there? [Alt. E] too big a hammer.	Yes		
CF	05/22/14	Anonymous				Yes				Yes								[Alt. C] Too much traffic at Keystone & Foster/Booth. [Alt. D] flows better than C.			Yes
CF	05/22/14	Anonymous		Yes		Yes					Yes	Yes					Yes	[Alt. B] most value for all, focuses on the issues. Assumes bike & pedestrian access for all. [Alt. D] best alternate to B			
CF	05/22/14	Joan Stoltz																			Yes
CF	05/22/14	Richard Stoltz																			

			Keystone: University to Coleman						
Form	**Date**	**Name**	**Comments**	**STR**	**CS**	**Combo**	**No Pref.**	**Comments**	**Additional Comments**
email	04/30/14	Shaun Richey							Hello, I'm a resident near the intersection of second st and keystone ave. i got the notice for the public meeting on may 22nd, but i won't be able to attend. I was hoping that this email reaches the correct person, as something i wish i would have the opportunity to bring up with the planners is the idea of a pedestrian/bicycle bridge connecting west dickerson st with idlewild park. i'm a cyclist who tries to avoid driving within the city when i can, and i think a bridge here would go a long way in promoting the new shops, cafes, and art spaces popping up on west dickerson, as well as create i nice walking/cycling loop that would include the riverwalk and the cycling paths already painted on first street. other benefits would be promoting the use of oxbow park, and making walking and cycling in reno even easier for those looking to get around this way. Hopefully i'm sending this to the right place. i would've liked to have brought it up at the meeting. Thanks again.
web	05/02/14	Damien Cole							I've been paying attention to the Keystone Corridor project and study. I'm a mail carrier, so not only do I know how ruthless Keystone can be for both autos and pedestrians, but I've also been really studying the entire Royal Heights and Idlewild area a lot. In regards to the Keystone study, I think only part of the picture is being looked at. In addition to improving Keystone, I think an alternative route needs to be considered. Not only would it ease congestion on Keystone and 7th, 4th, and California, but it would also possibly help revitalize West 4th Street between West McCarran and Keystone. It could also bring new life to Dickerson Road if some possible outlet were considered on the west end of it. Behold! The Wyoming Corridor. http://brassandmortar.com/wyoming/wyoming-corridor.png Phone or Email reply are both good.
Call	05/13/14	Barry Breslow							
CF	05/22/14	Carolyn Thomas	Yes, route bikes away from Keystone for safety. Visibility dangerous on Keystone.	Yes		Yes		Bay Area (visited last week) uses shared lanes and it seems to work. They were painted green.	This is complicated - you should have given the same presentation as the [stakeholders] meeting in March so people know what they are voting for. This is "blind" voting. Submit written comments "on way out" is not a presentation for group comments.
CF	05/22/14	Mike	Please do not cut down the lanes north of the highway on Keystone. Use Vine Street and the combined system for north of Kings Row. I use Vine everyday.	Yes		Yes		Combined to Vine Street at Williams or Gear please. Keystone is too busy near 7th.	Bike company owner and someone who uses Vine everyday, never Keystone. The drivers who use Keystone will hate us if we cut down their access.
CF	05/22/14	Dale Doevv	Use the combination with Keystone improvements 4th to the freeway			Yes		Like the free right turn from Kings Row to Keystone and sharing the street south of Kings Row	Very good job - will love to see this completed some day!
CF	05/22/14	Stacy Barry	This is a great option. Vine is traveled a little and is a nice wide street.			Yes		Combo would be the best. Making Keystone 2 lanes will back up traffic too much from Kings Row to 7th. From Kings Row to Coleman, one lane each direction should be sufficient.	Option E for Keystone/Booth and Combo for University Terrace to Coleman --> My votes. Have you considered the impact of emergency vehicles reaching Reno High and the Young Federal Building? How would pedestrians cross Foster? There are a lot from the school.
CF	05/22/14	Anonymous	I am a rider myself and I would like to see more bicycle routes in Reno		Yes			This would be good for everyone. There would be no traffic for cars who want to turn and would be safe for bikers	
CF	05/22/14	Michael W. Smith	Keystone & I-80 has enough traffic problems already						Roundabout @ Newlands Circle fly over river & land north of McKinley Arts
CF	05/22/14	Andy Tenbrink	Like, but we're giving in! I'm split on this idea because it represents the low hanging fruit. We could tackle Keystone if the political will was there. It is a low traffic alternative & viable in the short term. What about all the current on street parking? Can the cross streets to destinations like the shopping center on 5th/Keystone have bike lanes to give connectivity?		Yes			Traffic volumes work with this. Compare to W 7th where we have bike lanes & similar traffic volumes. Restores neighborhood feel and makes it possible to cross the street again. If necessary at least give us the combo option.	
CF	05/22/14	Anonymous							
CF	05/22/14	Anonymous	Hell, get some use out of Chet & Link bridge. Don't know if it "force" any improvements			Yes		Keeps traffic confined until Kings Row where you need more lanes for buses.	
CF	05/22/14	Anonymous				Yes		You need two lanes of traffic from Kings Row to 2nd.	
CF	05/22/14	Anonymous			Yes			I think the attractive draw of the river for bikes will make this pay off, introducing a safe option or a large section of town.	This area is primed for a big bike & pedestrian renaissance. Let's fuel it!
CF	05/22/14	Joan Stoltz	How much will bikers, users crosswalks @ University Terrace, disrupt southbound traffic to the freeway entrance?	Yes				Too much traffic to reduce access to Keystone from Sunnyside	
CF	05/22/14	Richard Stoltz		Yes				Traffic is much to heavy (late in the day) now and slowly getting worse	

Form	Date	Name	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Comments	Like	Dislike	No Pref.
CF	05/22/14	Tara deQueiroz	Like				Yes			Yes			Yes		Yes			[Alt. B] My kids and I bike from Westfield Avenue down Booth to their school downtown. Need that left turn off Westfield. Lots of folks on California & Mayberry area use Westfield/Booth to access the river. [Alt. E] This is the best alternative. It leaves the Westfield/Booth left turn and improves pedestrian/bike access up California Avenue. We live off Westfield and would like to be able to walk up California with our kids/strollers.		Yes	
CF	05/22/14	M. Cronin		Yes		Yes						Yes						[Alt. B] I like the roundabout concept to keep traffic moving through the intersection. [Alt. D] Would prefer 1st alternative on this page. I fear this just addresses high school traffic.	Yes		
CF	05/22/14	David Miller										Yes						[Alt. D] Add green lanes and use barriers in roundabout as in the Dutch model	Yes		
CF	05/22/14	Rod Young		Yes		Yes				Yes			Yes			Yes		[Alt. B] I think the long term impact would benefit the area and keep the traffic flowing. [Alt. C] The increase in traffic to the Foster Drive area defeats the purpose and congests that intersection even more.	Yes		
CF	05/22/14	Anna Marie Vierra	Yes				Yes			Yes			Yes		Yes				Yes		
CF	05/22/14	Anonymous		Yes			Yes		Yes			Yes				Yes		[Alt. B] too much $, concrete maintenance, etc. [Alt. C] Best			
CF	05/22/14	Dino Germano				Yes					Yes	Yes				Yes					Yes
CF	05/22/14	Tamela Germano		Yes			Yes			Yes		Yes				Yes		[Alt. A] not a fix! [Alt. B] Confusing, difficult to navigate. Trying to solve too many things, loses efficient function. Bizarre navigation to get to Reno High. [Alt. C] Traffic circle would be more functional. [Alt. D] Like the traffic circle. Would like 2nd traffic circle at Booth and California. [Alt. E] Difficult to navigate.	Yes		
CF	05/22/14	Jana		Yes			yes				Yes	Yes				Yes		[Alt. B] Roundabout with double lanes not safe for bikes. [Alt. D] Ingenious design to accommodate all modes of transportation safely! [Alt. E] Not a good bike option going down California - traffic goes fast! I use the right-turn lanes a lot now for safety and to let cars pass.	Yes		
CF	05/22/14	Joan Arrizabalage							Yes			Yes						[Alt. C] better for students on foot.			
CF	05/22/14	Bob Webb		Yes				Yes		Yes			Yes		Yes			[Alt. B] confusing with traffic circle and limits access to Booth Street (high school traffic). [Alt. D] No direct access from Keystone to California, forces traffic onto Booth. [Alt. E] retains Keystone access to California and provides better turn movements.	Yes		
CF	05/22/14	Pat Fager		Yes			Yes			Yes			Yes		Yes				Yes		
CF	05/22/14	Terrance Barker		Yes				Yes	Yes			Yes				Yes		[Alt. C] I like the simpler, lower cost alternatives because I believe they are more likely to be realized in the short term.	Yes		
CF	05/22/14	Anonymous		Yes		Yes				Yes		Yes				Yes		[Alt. B] roundabouts are great but concerned for whether this can happen or not. [Alt. C] not much of an improvement stoplight maintenance. [Alt. D] roundabouts calm traffic and there's a clear direction for how traffic flows. The high school needs traffic calming to stay safe. [Alt. E] way too confusing to drive.	Yes		
CF	05/22/14	Sherry Stefko		Yes		Yes				Yes		Yes				Yes		[Alt. B]…but major eminent domain issues. [Alt. D] concerned about backup of traffic that affects the roundabout (question answered, thanks!). [Alt. E] concerned about traffic backup--too many signals.	Yes		

Form	Date	Name	Comments	STR	CS	Combo	No Pref.	Comments	Additional Comments
CF	05/22/14	Tara deQueiroz	Keystone is the artery used by so many bikes and pedestrians. Vine is already used by biers - it is Keystone that needs to be improved.		Yes			It's unsafe for bikes to share lanes in such a congested area.	I would bike and walk a lot more if Keystone and California were safer. We already bike with the kids to school along Westfield/Booth/Riverside and the left turn out of Westfield is used by so many bikes.
CF	05/22/14	M. Cronin	Will help provide safe access to the university		Yes				I appreciate the opportunity to provide input.
CF	05/22/14	David Miller	Needs green lane. Move bike lane next to sidewalk. Parking between bike lane and traffic lane		Yes			Total green lane with separation from traffic lane also Dutch style roundabouts at intersections	Add the Dutch CROW to your reference and planning library. Also check out the YouTube clips on how the Dutch systems work
CF	05/22/14	Rod Young	I think this is a good alternative route for bicycle traffic.		Yes			This are is narrow enough right now, without adding bicycle traffic	
CF	05/22/14	Anna Marie Vierra	Bike lanes are a great idea for Vine Street and Kimball, but not University Terrace - it's too steep!		Yes			Could we change the [University Terrace] street name to it's original name: Chestnut? Improve sidewalks. Could we not put a casino where P&S Hardware & 5th Street Bakery were? Then it attracted students and locals. Something like midtown with live/work space would be ideal. Gentrify Keystone with trees please!	Bike lanes are a good idea on Vine Street but not on University Terrace because it's too step! Kimball is good. Can we pave multi-use paths like Caughlin Ranch - through the demolished strip mall - and over the land under the freeway and along 7th.
CF	05/22/14	Anonymous	Put bikes apart from cars. Bike bridge on Vine over river.						Use Newlands Circle to divert some traffic and all bikes down over the river.
CF	05/22/14	Dino Germano			Yes	Yes		Complete Street is first choice. The speed of traffic is 35 to 40 on average, no the 30 posted. If the lanes are reduced to 1 in each way, speeds will better match posted speed.	No one brings family out on Keystone from Kings Row to Coleman - too fast, bad sidewalks, bad corner between Alturas and Gear - bad sight lines - two lanes, one north, one south, a turn lane and bike lanes please.
CF	05/22/14	Tamela Germano	Vine should be 2 lanes, not 4 lane. Sharrows mean you would have to bob back into traffic to avoid parked cars. Possibility of bicycle bridges. Don't' lose the stop signs or this would be a major thoroughfare.		Yes			Love this [center lane]! Center turn lane allows traffic flow!! Nothing but a complete street would provide bicycle safety. I want to be able to cycle to the park & to Raley's without undue risk to life and limb. I don't think a shared lane would work. From over a decade of watching traffic on Keystone, it would be misused. Nor does it provide a buffer for the residents. The center turn lane is essential for reducing points of conflict.	
CF	05/22/14	Jana	Excellent route to avoid busiest section of Keystone, but is a bike lane needed? It's safe already. Bridge for bikes and pedestrians.		Yes			This works extremely well on Mayberry! Turn lanes are safe and help traffic flows. Bike lanes are safe.	How about green lanes for bikes? And bike lights that give bikes or cars a head start?
CF	05/22/14	Joan Arrizabalage			Yes			From Reno High to Jones and First Street, the speed has been clocked to 80 mph! There are drag races at night coming out of the high school. Traffic going north is incredibly dangerous and there are many accidents.	The traffic must be slowed down! California and Mayberry., Arlington and other previously busy streets have been slowed by the "Complete Street" - I can't easily park in my driveway and my car has been hit twice by people going too fast to make the corner.
CF	05/22/14	Bob Webb	Provides an alternative for N-S bicycle traffic off Keystone - hopefully less vehicle traffic		Yes			Shared lane with cars and bicycles will not work, particularly during heavy traffic periods - cars will tailgate or force bikes to side. Best concept s the Mayberry approach - Complete Street.	Bridge replacement for Keystone over Truckee River is important, need to proceed as soon as feasible - potential safety hazard.
CF	05/22/14	Pat Fager		Yes				There are not enough bicyclists on N. Keystone to waste the space giving them their own lane.	I have an email from City of Reno, Barbara DiCianno Office of Communications & Community Engagement that a traffic light will be installed on N. McCarran and Keystone to accommodate new apartment complex. This will increase Keystone traffic and no decision should be made regarding University Terrace to Coleman without figuring in that increased traffic. (email attached)
CF	05/22/14	Terrance Barker	I like the idea of diverting bicycle traffic to Vine Street. My only concern is how to handle southbound bicycle traffic turning left onto University Terrace.			Yes		I favor "Complete Street" from Coleman to Kings Row, then "Share the Road" south of Kings Row. Hey! That's the "Combo" configuration, isn't it?! Yeah! Combo!	
CF	05/22/14	Anonymous	Any improvements for bicycling is good for the community.		Yes			A complete Street serves all users, eliminates or reduces points of conflicts and with two less motor vehicle lanes, there's less wear/tear/maintenance.	
CF	05/22/14	Sherry Stefko	I would use this route often - in fact I already do as an alternative to Kings Row from River area.		Yes			Room for bikes and pedestrians, slows traffic, and safety of turn lane. Traffic down to one lane before Kings Row intersection - Yeah - because then left turners come out of that line. :)	Combo option U.T. to Coleman: :(Scary for 2 lanes merging to 1 on the northbound hill at Whitaker-Kimbal. It was crazy just turning off of Keystone (traveling south) to get to this McKinley Arts Building. Traffic coming to complete stop in busy travel lane. :(What about McCarran & Keystone intersection now that new development at Liberty/Peavine :(Presumed even more traffic on Keystone - McCarran to I-80. Suggestion: extra comment sheets w/o info so I don't need to take another entire packet.

Form	Date	Name	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Comments	Like	Dislike	No Pref.
CF	05/22/14	Sheryl Coulston		Yes		Yes				Yes			Yes			Yes		[Alt. B] Great for RHS, great for bikes & pedestrians, great for traffic flow. This keeps the main traffic route away from the high school. [Alt. C] I like this but B is better. Good for pedestrian crossing. I like keeping the high school traffic separate from the main flow of traffic. [Alt. D] Like the roundabout, I always like roundabouts, but Alternative B has my vote!! We need to keep main traffic flow away from the high school. [Alt. E] NO! :0 This is still making an awkward turn Keystone to California.	Yes		
CF	05/22/14	Jackie Hager					Yes			Yes			Yes			Yes		[Alt. B] Rejected by engineers - too expensive. [Alt. C] Problem with location at Reno High. This does not improvement bike lanes! [Alt. D] Going down to Reno High is ridiculous. A roundabouts not affective for a four-way stop! [Alt. E] Rejected by engineers.		Yes	
CF	05/22/14	Dave Aiazzi																			
CF	05/22/14	Scott Gold				Yes				Yes			Yes		Yes			[Alt. D] Pedestrian walkways, not been controlled. [Alt. E] Don't have to buy businesses out, eases flow, bike lanes	Yes		
CF	05/22/14	DeLores Aiazzi		Yes		Yes				Yes		Yes				Yes			Yes		
CF	05/22/14	Anonymous		Yes			Yes			Yes		Yes				Yes		[Alt. B] Bad traffic flow out of Reno High. This will force more traffic into neighborhoods as drivers look for alternate routes. [Alt. C] This one is OK, 2nd choice downside = more stop lights. [Alt. D] I think this one is the best. Good flow from high volume Reno High and fewer stop lights. [Alt. E] Seems like lots of work for no real change.	Yes		
CF	05/22/14	Tim Jones			Yes														Yes		
CF	05/22/14	Elizabeth Difronzo				Yes												[Alt. B] direct connection Keystone to Reno High.			Yes
CF	05/22/14	Kerry Crawford		Yes		Yes				Yes			Yes			Yes			Yes		
CF	05/22/14	Marilyn Matylinsky		Yes		Yes				Yes		Yes				Yes		[Alt. B] looks expensive	Yes		
CF	05/22/14	Jon Anderson		Yes			Yes		Yes			Yes				Yes		[Alt. D] preferred!!	Yes		
CF	05/22/14	Eric Gerken		Yes		Yes				Yes			Yes		Yes			[Alt. B] I like this best	Yes		
CF	05/22/14							Yes			Yes			Yes			Yes				
CF	05/22/14	Arel Schumerber	Yes				Yes		Yes				Yes			Yes		illegible comments			Yes
CF	05/22/14	Anonymous				Yes			Yes			Yes			Yes			[Alt. B] needs to be directly to Foster - heaviest use at all times. [Alt. C] add "E" pedestrian and bike access to Foster & Booth from California and pedestrian access from back of Newlands Park. [Alt. D] First Choice. Add another round at California & Booth with driveway. Add the pedestrian switch back and pike path as in "E" and a driveway for Dudyville. [Alt. E] We love all the single lanes per direction.	Yes		
CF	05/22/14	Julie Langman				Yes					Yes		Yes				Yes	[Alt. B] pedestrian safety makes this a plus. Flow of traffic would be easier to navigate.	Yes		
CF	05/22/14	Anonymous	Yes				Yes		Yes				Yes			Yes		[Alt. B] As a cyclist I am not in favor of roundabout and too costly. [Alt. C] Best in long term when funding becomes available and will be compatible if/when Booth Street bridge removed. [Alt. D] The segment of California from Keystone east up hill needs a better solution for bike/pedestrian.	Yes		
CF	05/22/14	Scott Wiley		Yes		Yes				Yes		Yes				Yes		[Alt. B] seems the least confusing. [Alt. C] go w/roundabout Version D. [Alt. D] Need second roundabout at California & Booth Street. [Alt. E.] Still strange intersection.	Yes		
CF	05/22/14	Anonymous																			

Form	Date	Name	Comments	STR	CS	Combo	No Pref.	Comments	Additional Comments
CF	05/22/14	Sheryl Coulston	Yes, a Vine Street bicycle route is great. I've used this route already for safety reasons!		Yes			Like center turn lane is great, bike lanes :), wider sidewalks :). This plan makes me happy and it includes improving the bus stop at Raley's. Any delays will be short. This will improve safety for pedestrians, bikes, and cars. I have personally seen so many accidents. Complete Streets are statistically safer!	Thank you for your amazing work on this project to make improvements for all for our neighborhood and Reno.
CF	05/22/14	Jackie Hager	Move Starbuck to CVS. Problem with children, parking, traffic flow.					No! - Share the Road. No! - Complete Street. Northbound is not to be shared when bikes do not go on freeway entrances! Traffic is to have the capability to move! Not be backed up especially from Kings Row. South same thing.	Still the neighborhoods affected have not been notified of these meetings. If this op house (as you call it) was announced to all persons affected, this room would not be large enough. If this is to just satisfy bicyclists, it…
CF	05/22/14	Dave Aiazzi							
CF	05/22/14	Scott Gold			Yes			Raley's - Keystone/University Terrace - enter and exit seems to be dangerous on a daily basis	Phase out/or separate into two projects. 1. University to Coleman. 2. Keystone and California Intersection. Option 1 looks to cost less and would be a quick solution or change. Option 2 seems to require high dollar and would take much longer to see it in construction.
CF	05/22/14	DeLores Aiazzi			Yes				
CF	05/22/14	Anonymous	As a cyclist I prefer bike lanes off of main streets. This is a good north/south alternative to Keystone. Even if Keystone had bike lanes, I would still avoid it.			Yes		Complete street would create too much congestion near I-80.	
CF	05/22/14	Tim Jones	Bike lanes in this area will enhance the quality of life.			Yes		I lie off Coleman and walk to Raley's etc. regularly. Sidewalk improvements are a must. Likewise, 4 lanes south of Kings Row are critical, due to increased flow to and from I-80.	Please do not do a complete street treatment south of Kings Row. We must have 4 lanes. Also, please do something about the blind turn from Kings Row left to Keystone. The current "Royal Heights" brick structure and adjacent foliage continue to be dangerous.
CF	05/22/14	Elizabeth Difronzo			Yes			Please install street lights Keystone & Butte (same area blinking crosswalk). Roundabout installed Gear & Keystone or Kings Row & Keystone. Please fix sidewalks. We walk to park and Raley's and have to go into traffic without bikes and strollers because of telephone polls and broken sidewalks.	
CF	05/22/14	Kerry Crawford			Yes				
CF	05/22/14	Marilyn Matylinsky			Yes				Any doing to slow vehicle traffic, improve sidewalks, bike lanes, lights
CF	05/22/14	Jon Anderson			Yes				Anything that slows major vehicle traffic
CF	05/22/14	Eric Gerken	I ride my bike from Kings Row to Lakeside frequently. We use either Vine or Washington now. It seems better to Leave Keystone from University to Riverside devoted to bikes.		Yes				
CF	05/22/14		"Whatever"			Yes		Too many cars commute here to justify bike bias of RTC. No buses above Kings Row anyway. More houses going in. Alternate, gentle grade streets better than Keystone.	Keystone - I-80 interchange: After "rebuild", somebody "forgot" to resurface strip and direct traffic here. Huge NDOT sign just encourages speeders. Move bus stop on southbound Keystone.
CF	05/22/14	Arel Schumerber	illegible comment		Yes			illegible comment	illegible comment
CF	05/22/14	Anonymous	much safer		Yes				
CF	05/22/14	Julie Langman	Vine Street is a great alternative street for people who bike. It's safest, less traffic, and still close to Keystone for easy access.		Yes			Complete Street is safety not only for pedestrians and bikers, but also for people living on Keystone. Currently, cars drive too fast - very unsafe, can't even walk it.	I'm very excited about a new and improved Keystone which is long overdue. Let's support our community by making our street safety, bring neighbors together through walking and biking and a healthy area for our children.
CF	05/22/14	Anonymous	I am still concerned with the left turn for bicycles (should the complete street option be chosen for Keystone) at southbound Keystone to eastbound University Terrace. Some cyclists will not have trouble but some will.		Yes			This street will be much safety for all modes with a complete street concept. Vehicles at 25mph will return this arterial to the form it was prior to the freeway with not loss of function or flow.	Alternative A in the short term (3-5 years) for funding and Alt. C in the long term with higher costs - roundabouts near schools?
CF	05/22/14	Scott Wiley			Yes				
CF	05/22/14	Anonymous						RTC needs to consult with the City regarding the flood zone that crosses Keystone onto 1150 Keystone (now vacant). This is important.	

Form	Date	Name	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Comments	Like	Dislike	No Pref.
CF	05/22/14	Anonymous			Yes		Yes		Yes			Yes				Yes		[Alt. B] too much bike emphasis. [Alt. C] works too, but prefer roundabout. [Alt. D] roundabout good. [Alt. E] too much going on.			
CF	05/22/14	Anonymous	Yes				Yes		Yes				Yes		Yes			[Alt. B] The roundabout would obstruct traffic coming from Keystone to RHS - for students, staff, and families. And taking over businesses in never a smart community move. [Alt. C] This is a good solution to the problem! But it is still not rated as the best. [Alt. D] This would be horrible for student safety - drivers and walkers. And this has the worst corrective rating on the chart. [Alt. E.] This is the best! According to the comparison chart, this has the most # of excellent ratings and is best for all involved.	Yes		
CF	05/22/14	Barb Deavers				Yes												[Alt. B] I like this concept.			
CF	05/22/14	Anonymous		Yes		Yes				Yes			Yes			Yes		[Alt. B] needs bridge Keystone to Foster. [Alt. D] Very difficult to get to California	Yes		
CF	05/22/14	Anonymous				Yes						Yes			Yes			[Alt. B] like separating RHS and other traffic. [Alt. D] seems like this would get RHS traffic turn in the AM. [Alt. E] getting bike lane on California			
CF	05/22/14	Matthew Cramer			Yes			Yes	Yes					Yes	Yes				Yes		
CF	05/22/14	Anonymous		Yes			Yes			Yes		Yes				Yes		[Alt. B] takes up too much real estate. [Alt. E] isolates 2 buildings.	Yes		
CF	05/22/14	Jim Kilgore		Yes				Yes			Yes		Yes		Yes			[Alt. E] allows turning - safer for all users	Yes		
CF	05/22/14	Victoria Weiser				Yes				Yes			Yes			Yes		[Alt. B] one giant intersection reduces backups and increases traffic flow. [Alt. C] This would cause lots of traffic to back up.			
CF	05/22/14	Amy Fitch		Yes		Yes					Yes	Yes			Yes			[Alt. B] It would be important to include greenery in open areas to keep this from looking like a freeway interchange. [Alt. C] Seem like a lot of signals within a small area. [Alt. D] I always like roundabouts. [Alt. E] I think - a little unsure - might meet with least resistance since it's the most similar to existing in away.	Yes		
CF	05/22/14	Lisa Hill		Yes				Yes	Yes			Yes				Yes		[Alt. C] Aim for simple lower cost so it gets done.	Yes		
CF	05/22/14	Emily Kilgore													Yes			[Alt. E] I like that this option allows turning and provides adequate access for all users.			
CF	05/22/14	Barron Brooks		Yes		Yes				Yes		Yes			Yes			[Alt. B] Seems less feasible than others. Include southbound Keystone to Booth exit? [Alt. D] Seems the most feasible. I'm a little worried the roundabout may receive too much traffic from Keystone southbound. [Alt. E] Also very feasible.	Yes		
CF	05/22/14	Anonymous	Yes				Yes		Yes				Yes		Yes			[Alt. B] No roundabouts! Way to unsafe!	Yes		
CF	05/22/14	Anonymous						Yes			Yes	Yes					Yes	[Alt. D] Safest for cyclist and pedestrians	Yes		
CF	05/22/14	Anonymous				Yes				Yes			Yes		Yes			[Alt. B] Concerned about the cost. Could be a lot but in the long run this might be the best. [Alt. C] Bringing in High School Traffic into the equation would, I think, would not be good. [Alt. E] Maybe the most economical along with the most efficient.			
CF	05/22/14	Chris Askin		Yes			Yes			Yes		Yes				Yes				Yes	
CF	05/22/14	Anonymous		Yes			Yes		Yes				Yes			Yes					Yes
CF	05/22/14	Dave Hall																	Yes		
CF	05/22/14	Donna Clontz				Yes												[Alt. B] Love the traffic circles; current config is so dangerous!	Yes		

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CF	05/22/14	Anonymous							
CF	05/22/14	Anonymous			Yes			Combo looks to be the best when considering that the major point of a road is for vehicular travel. The complete street would not be bad.	
CF	05/22/14	Barb Deavers						Would prefer from Kings Row to Coleman because there is heavy southbound drive in morning and heaving northbound in afternoon.	Please put in turn signal at 7th & Keystone for those turning left and at Starbucks onto Keystone. People turning right on the Keystone on opposite side are often cut off regularly.
CF	05/22/14	Anonymous	better place for bikes	Yes				Shared road is least offensive	Please synchronize lights. If people can get through more than one light without constant stopping, it would help considerably.
CF	05/22/14	Anonymous							
CF	05/22/14	Matthew Cramer	I favor this option above options A-E regarding bicycle facilities IF Vine is converted to a legitimate bike boulevard with treatments to address cross traffic.		Yes				
CF	05/22/14	Anonymous			Yes				
CF	05/22/14	Jim Kilgore	Need more information on how to address intersections at 2nd, 1st, 4th. This would not be an efficient route.		Yes			Slow traffic down, safer for everyone. Kids, cars, bikes, etc. Share the Road or Combo would not be safe unless speed limit was reduced to 15 mph.	Please make Complete Street University Terrace to Coleman. Safe for all users. Consider reducing speed limit. University Terrace stop sign or better crosswalk. What is being done for bike safety over i-80 & Keystone?
CF	05/22/14	Victoria Weiser			Yes			A roundabout at kings Row or a stop light please.	There should be a left turn arrow on 7th at Keystone for each North and South turns. Turning north on Keystone at 7th is sometimes 3 cycles of lights before safe. The crosswalks and "free right" yield from Keystone to Coleman need MASSIVE improvement. Kids need to feel safe to walk to school.
CF	05/22/14	Amy Fitch	I also like option w/ bike lanes between 4th & 5th but see additional comments below.		Yes			Sharrow on an uphill lane is almost pointless. Center turn lane is essential.	Re: Keystone between 4th & 5th should eliminate driveways on West side by Wells Fargo & southeast of Radio Shack. Visibility is bad already and cyclists will be at risk. Cars can enter @ signalized intersection or off 4th Street.
CF	05/22/14	Lisa Hill			Yes			Would like to see complete Street all the way up and down Keystone	Keep this on your radar - small tech start ups are starting to locate northwest of the downtown. We would like to see Keystone become a thriving business district all the way from the River up. Meld downtown and the northwest into one thriving business district.
CF	05/22/14	Emily Kilgore			Yes			The Share and Combo options would not adequately improve safety for bicycle and pedestrian users along Keystone. Especially considering the speed at which traffic flows.	
CF	05/22/14	Barron Brooks			Yes				The resolution to the Booth Street bridge intersection should factor in to study. This issue is within the study's limits and I would like to see the options as part of the scenarios presented. I for one am in favor of it becoming a pedestrian bridge. Outside of this issue, I like the work that is being done by the study and some of the options presented.
CF	05/22/14	Anonymous	Less traffic plus a bike lane ensures safety for our bikers.	Yes				A center lane would prevent people from exiting their streets or driveway. Too many schools plus freeway for one lane only.	Adding a bike lane on Keystone costs too much and will never be used. It would still be unsafe with traffic from schools and freeways.
CF	05/22/14	Anonymous			Yes			Safer for cyclist and pedestrians	Safety for all modes is paramount.
CF	05/22/14	Anonymous							
CF	05/22/14	Chris Askin	As a main artery cyclists will still primarily use Keystone - that is where the commerce is. If you move the stores to Vine then this plan would work - otherwise no.		Yes			This is a residential neighborhood, not a freeway.	
CF	05/22/14	Anonymous			Yes				
CF	05/22/14	Dave Hall		Yes		Yes		Access to Keystone from Sunnyside is difficult now - if a bike lane is introduced, it will be impossible to get onto Keystone.	
CF	05/22/14	Donna Clontz		Yes					1) Need left turn arrow at Keystone and westbound 7th coming from Starbucks to protect eastbound drivers on 7th turning right onto Keystone 2) Need bus service above Kings Row on Keystone for riders visiting senior housing on N. Keystone near McCarran.

Form	Date	Name	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Like	Dislike	No Pref.	Comments	Like	Dislike	No Pref.
CF	05/22/14	Raymond Sherwood				Yes				Yes			Yes		Yes			[Alt. B] If roundabout is raised keep school traffic separate from regular traffic [Alt. C] Do not remove Keystone/California connector [Alt. D] new drivers + roundabout = accidents [Alt. E] best, safest flow of traffic for vehicles and bicycles.			
CF	05/22/14	David Harshbarger	Yes																		
CF	05/22/14	Trent Harshbarger	Yes																Yes		
CF	05/22/14	David Bobzien					Yes			Yes		Yes				Yes		[Alt. D] This would be a big improvement.		Yes	
CF	05/22/14	Anonymous					Yes			Yes		Yes				Yes		[Alt. B] too much space [Alt. D] perfect! Good size and helps things moving [Alt. E] Horribly unstable.	Yes		
CF	05/22/14	Anonymous			Yes		Yes			Yes		Yes					Yes	[Alt. B] No enough space. [Alt. C] Too similar to first , unstable, inefficient design [Alt. D] Seems efficient, does not obstruct California Avenue [Alt. E] Obviously it needs to change		Yes	
CF	05/23/14	Tracy Sherwood			Yes	Yes				Yes			Yes			Yes		[Alt. B] I feel that this alternative provides the most diversity and safety for all stakeholders.	Yes		
email	05/23/14	Bob Webb																			
CF	05/23/14	Terry McAfee										Yes							Yes		
Email	05/23/14	Kathy Eastman																			
Email	05/23/14	Virginia Lenz																			

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CF	05/22/14	Raymond Sherwood			Yes			We both drive and bike, safest solution	
CF	05/22/14	David Harshbarger			Yes			Safety	
CF	05/22/14	Trent Harshbarger	I commute by bicycle on this street. Adding bike lanes would be a good idea and much safer than it is now.		Yes			I live at the corner of Keystone Avenue and University Terrace. My parents live on the corner. We see a lot of traffic going over the speed limit of 30 mph. It is very common to see a lot of traffic easily going in excess of 50 mph. Single travel lanes would help alleviate speeding. Adding bike lanes will also help keep cyclists safer.	
CF	05/22/14	David Bobzien	If we can't make Keystone south of 80 more bike friendly, then I guess this would do.		Yes			"Share the road" isn't really and option for Keystone as the four lanes that promote excessive speed on the part of vehicle drivers would remain.	As a father of two young children, we like to walk home from school on Keystone. It's not very safe with its current configuration. The "Complete Street" option would be the safest for all.
CF	05/22/14	Anonymous	I like bike booties		Yes			Keystone is very busy and out of control.	
CF	05/22/14	Anonymous	Bicycle routes in Reno often are too large and obstructs traffic.				Yes		
CF	05/23/14	Tracy Sherwood	I would use the Vine Street bike route		Yes			I know that this provides challenges but seems like best all around choice.	A roundabout creates issues for drivers that do not f follow traffic laws. The same with the sharrows. Cars do not. I should say drivers, do not know bicycle law to begin with, then add new symbols or obstacles and the bikers are the ones to get hurt.
email	05/23/14	Bob Webb							I attended the corridor study workshop yesterday evening, and thought of 3 more points that I would submit as comments for consideration: • Whichever solution is decided upon for the stretch of road on Keystone between University Terrace and 7th/I-80 interchange should consider traffic stacking north on Keystone during the morning “rush hour”. I have been at the University Terrace/Keystone intersection (biking across from west to east, or in the car turning south) and traffic has backed up from the interchange, through 7th to almost University Terrace. If ya’ll have not surveyed traffic during the 7 to 8 hour at that stretch, it might be of interest. • From the displays yesterday, it appears as if RTC will make some minor improvements on Keystone north of Coleman. Two thoughts: o There is no bike lane on the west side of Keystone to match the one on the east side. Should hopefully put in a real bike lane on the west side and adjust the “bump-outs” on the west side as needed to accommodate the bike lane. o The east bike lane currently ends south of Peavine Road and there are painted stripes in place to guide drivers from cutting that curve as they head north to McCarran (does work too well to guide folks out of the bump out and away from hugging the curb). Hopefully the improvements will continue the bike lane north to McCarran (and south on the other side), plus provide a better measure to guide drivers so they won’t hug the bike lane or curb as they drive north.
CF	05/23/14	Terry McAfee	Like this if Keystone is complete streets above Kings Row		Yes			Combo OK with Vine bike route	Would be helpful to know LOS in AM for right turn at Kings Row
Email	05/23/14	Kathy Eastman							We live on Jones Street on the west side of Keystone. When exiting Jones Street to either make a left turn onto Keystone or cross to McKinley Arts Center there is a lot of danger and accidents. It is right there at the beginning of the keystone bridge to go south toward California. No light or warnings coming off bridge to slow down. I would encourage you to drive out just once. As we exit Jones, on the left, is a raised planter in front of the business on the corner with a large evergreen shrub. You can not see oncoming traffic or bicycles. This gets worse as the evergreen in the planter grows during the summer. Even without the Evergreen the planter limits visibility. Traffic speeds up above posted limits coming off of the keystone bridge and going onto the bridge. Not sure why the bridge somehow suggests to people that no one is around and speeding is ok but it does. I have seen numerous accidents and have almost been struck 4 times this year alone myself. Best we can do is see the light at first street a block away. Make sure to wait that it is red and now we inch out which actually puts us in the lane exiting to river to make sure no one coming. I almost was hit in side door by bike last week. Jones appears to be small, no big deal but it is ALL apartment housing so the numbers of residents in this couple of blocks is extremely significant amount of traffic for one small intersection. We also ride our bikes and since crossing Keystone on a bike at this corner is impossible we find we have to turn right on what I will call the exit ramp to the river and that is very small with all the cars parked there and sharing the road for everyone who is heading toward school or Idlywild park. I can imagine riders coming from 4th street feel threatened at this
Email	05/23/14	Virginia Lenz							We live on the corner of Keystone and Peavine. I drive on Keystone every work day. I cover virtually its entire length at least twice every day. I also continue onto California Ave and then south on Arlington. Having experienced RTC's "improvements" on Arlington Ave., I would not like to see a similar configuration on Keystone. The insane left turn lane from Arlington (southbound) onto California is indicative of poor planning and disrupted traffic flow. The left turn "pocket" is approximately three vehicles long, with an ostensible opening for vehicles turning left into the Wells Fargo lot. Even if the "Keep Clear" opening manages to stay clear, left turners typically move into the left turn lane long before the pocket, thus blocking cross traffic. Reno would have been far better off designating Nixon and Gordon as bicycle corridors. The same will be true of Keystone. The bicycle corridor should be Vine Street, which would be far safer for everyone. Alternative B for the Keystone/Booth/California intersection makes some sense; but the community would be better served by spending the $$ for a new aquatics facility. Thank you for considering our comments.

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Email	05/27/14	Wendy Broadhead																			
email	05/28/14	David Fenimore																			
CF	05/30/14	Anonymous																			
Email	06/05/14	Teresa Wilson																			
CR	06/02/14	Richard Carr	Yes					Yes		Yes			Yes				Yes	[Alt. B] Too expensive for right of way buy outs. No easy access for students to RHS. [Alt. C] Bottleneck at Reno High - BAD. [Alt. D] Worst for pedestrians! Don't make everyone get caught at RHS. [Alt. E] Too expensive for too little change.	Yes		
CR	05/30/14	Patricia Rose			Yes			Yes			Yes			Yes			Yes				
email	06/11/14	Cindy Evans																			
		Anonymous																			
CF	07/17/14	Carol Mattes		Yes			Yes		Yes			Yes				Yes		[Alt. B] Definitely not!!. [Alt. C] Prefer stop lights [Alt. D] Roundabout would be second choice {Alt. E] Too complex			
			9	31	7	30	26	10	16	34	10	35	26	3	19	31	10		49	5	6

Form	Date	Name	Comments	STR	CS	Combo	No Pref.	Comments	Additional Comments
Email	05/27/14	Wendy Broadhead							I was unable to attend the final presentation for the California Ave, and Keystone corridor study presentation last Thursday, May 22. I have previously commented on these projects. As a life-time Reno-item and someone who has spent nearly my entire life in the Old Northwest, I completely support the "complete street" concept for Keystone. I think other streets which have become complete streets are more compatible to being neighborhoods, with slower traffic and greater safety for pedestrians, particularly school children, and for those who reside on the affected street. Currently, Keystone is a "freeway" with people driving ridiculous speeds that I think are in part due to the existing four lanes. I have witnessed extremely dangerous conditions for residents attempting to enter Keystone from their driveways, and for pedestrians attempting to cross Keystone (with the exception of the pedestrian crossing at Raley's/University Terrace). I realize that the Kings Row/Keystone intersection is the most problematic due to school traffic (I think) but I have seen the turn lane off Keystone overflow because it is not long enough. I also realize that traffic from Kings Row on to Keystone can also be heavy. The intersection as it currently stands is extremely dangerous for both drivers but more so for pedestrians. A traffic circle may alleviate some of the problems, I do not think there is one easy solution, however. Nonetheless, I think that safety should be dominant in the decision making, and not reflexive of the fear for change. Keystone was poorly
email	05/28/14	David Fenimore							Thanks for the opportunity to view the various options last Thursday at the public information meeting. • For the Keystone/California intersection, I am in favor of Alternative B, the roundabout. Second choice would be Alternative E, the modified "T". It would be good to be able to safely access midtown on a bicycle or on foot from the river by this route. • For University Terrace to Coleman, I'd love the "Complete Street" alternative. I also would like the intersection of University Terrace and Keystone made safer. Due to the hill north of the intersection blocking the view of (often high-speed) southbound traffic, and cars coming off I-80 and through the 7th street intersection, and traffic turning into Raley's and out of the Arco station, and street parking blocking several sightlines, it's a dangerous place for cars as well as bicycles and pedestrians. • Finally, I think that Vine Street makes sense as a north-south bicycle through-route. Keystone will always have a high number of vehicles turning into and exiting from its many businesses and parking lots, which would make it less comfortable even with a bike lane. But, can the Vine Street intersections at 1st and 2nd streets be made safer? The traffic along these two east-west routes crossing Vine is often high speed and difficult to estimate because of street parking blocking the
CF	05/30/14	Anonymous		Yes					Barry Breslow (who is an attorney and Bruce's brother) does not have the opportunity to attend meetings, but wants to make it clear to the Keystone Corridor group that he is opposed to roundabouts in this overall neighborhood ("old" northwest) and DOES NOT support reducing Keystone to one lane in each direction.
Email	06/05/14	Teresa Wilson							Hi Jaqueline, I am the property manager for the Keystone Square Shopping Center located at 525 Keystone Ave. I had a question regarding the Keystone Corridor work that will eventually begin. One of the tenants in the square was concerned about losing business once the construction begins, I am not sure if this has come up at previous meetings, but do you know how this will affect the businesses in the shopping center? The last time a large amount of construction was performed this particular tenant lost a lot of business due to the fact the shopping center ingress and egress was closed off. I can't imagine that would happen again and there would be a better solution to this concern. I don't believe any further details have been decided on. We have been unable to attend the last two meetings due to schedule conflicts if any further updates have been discussed. IF there is someone else I need to speak to please let me know. I appreciate your help. Thank you, Teresa Wilson, Property Manager
CR	06/02/14	Richard Carr	Who wants to ride on Keystone anyway? :)	Yes				Combo - Never this! Share the Road - Actually already have this. I don't think you need another complete street dominated by bike lanes - never see bikes! Slows traffic having only one lane. Side streets have to wait longer to access.	The distance between Foster and California is way too s hort to handle the back up of traffic on Booth Street when you send everyone through a Reno High bottleneck.
CR	05/30/14	Patricia Rose		Yes				We need share the road as Keystone is a drain as so many streets flow into Keystone. Do not waste tax payers' money!	
email	06/11/14	Cindy Evans							Dear Patrice, I was not able to make the public Information Meeting for the Keystone Corridor Study last month. Our main access is from Sunnyside at Keystone(to the west). Looking at the illustrations on the web site – we would like to know which illustration (if any) is being considered for this area of Keystone Avenue between University Terrace and Kings Row. While the Complete Street illustration would serve the traffic flow for our congregation and the many community programs on our campus - the Share the Road concept would limit access to our facility – and direct traffic to other roads that are narrower. Thanks in advance for taking the time to share some of the concepts for this section of the corridor. It's wonderful that this area is being studied for improvements.
		Anonymous			Yes				
CF	07/17/14	Carol Mattes			Yes	Yes			
				12	49	13	1		

Attachment B – August 2014 Public Meeting Comments

					How did you learn of the meeting?				Keystone/California Short-term			Keystone/Kimbal: Eliminate Left Turn			
Form	Date	Name	What changes, if any, would you like to see on the recommendations presented for the corridor?	What additional suggestions should be considered as possible recommendations?	Email Notification	Postcard Notification	Newspaper/ Television	Other	A-1	A-2	No Preference	Yes	No	No Preference	Additional Comments
email	8/6/2014	Brian Adams													I am very concerned about proposed plans to reduce Keystone Ave to only two lanes of automobile traffic north of I-80. Keystone Ave backs up at W 7th Street during rush morning hour as it is, when southbound motorists try to get onto I-80. When recent construction reduced Keystone to one lane, the backup was intolerable. Also, the evening traffic northbound on Keystone between I-80 and Kings Row is very heavy. I urge RTC to retain four lane for automobiles on Keystone between I-80 and King's Row.
email	8/6/2014	Judy Cornelius													I am writing to express my comments about the Keystone Corridor study and the proposed options for "improving" the road. First, there is no reason for bikes, skateboarders etc. to be accommodated on Keystone Ave. The lower portion of Keystone is a business district and automobile traffic -if it is not heading to I-80 - is trying to turn into various business establishments. Cyclists - even with bike lanes - are at risk for being hit through this section of Keystone. I'm not even going to address skateboarders because they have no business being on city streets. The University doesn't even allow them on the UNR campus why does government think they have to accommodate them? They are not a legitimate form of transportation. Bikes are much more suited to Vine Street, Washington or on the West side - Stoker. Each one of those streets provide safer travel for bikes and maneuver through the neighborhoods just as well as Keystone. The proposed bike lanes from 7th Street North on Keystone are unnecessary if Vine or one of the other streets are utilized the bike lanes can be continued through that area. Again, too many homes face Keystone and it is difficult enough for those residents to get in and out of their driveways. Leave our streets and neighborhoods alone. People are tired of the constant road construction and detours that create undue burdens on the few streets relied on for those detours for months on end. What RTC is engaging in is not good land use planning and anyone who has taken a Land Use 101 course can you tell that. It is clear that RTC is spending money just to be spending money. Your are pushing agendas that are internal and not coming from the community. I have lived in the Old
email	8/13/2014	Stacy Barry													I have attend previous meetings about the Keystone Corridor study and have provided my comments. I'm unable to attend the Aug 21st meeting so I wanted to make sure I present my comments once again. I don't know if anything different or new will be presented at the meeting. I've been online and reviewed the alternative proposals and didn't see anything new. I favor the complete street option from Kings Row to Coleman. I favor the shared road from Kings Row down to the river. Keystone is a major thoroughfare that making it two lanes from Kings Row to the river is just not feasible. I favor the bike route on Vine Street. I don't believe you need to make Vine Street two lanes (one lane each direction). I travel Vine everyday and there isn't enough traffic to warrant changing it. I suggest using the shared road proposal for Vine Street. The Keystone/Booth/California intersection alternatives that I favor are, in order of most favor to least favor: Alt C, Alt A, Alt E, Alt B, Alt D. I do believe that putting a round-a-bout in front of Reno High School is disastrous. The drivers in this city do NOT understand how to drive in a round-a-bout and you would need to do some major driver training and awareness. The amount of pedestrians from the school would clog the round-a-bout and no one would ever get through. Not only do I live up off of Keystone but I work at the Federal Building across from Reno High School. At drop off and pick up times, Booth & Keystone
email	8/14/2014	Pierre Mousset-Jones			Yes										I will be out of town. My comments: Keystone intersection: I find existing set up Alt. A works fine, If you have to change, why ? Alt D makes the most sense. Keystone street section: I prefer complete street but since you propose a bike lane on Vine, a good idea, I don't see why you need a bike lane on Keystone. A bike lane makes absolutely no sense from Sunneyside Dr to 4th St. It will be a complete mess and a nightmare for the cyclists. Take out the bike lane and return some parking for Keystone residents North of Sunneyside, south of Sunneyside needs to be two lanes to California.
email	8/14/2014	Jean Stoess													I have lived at 1600 Royal Drive in olde NW Reno and have watched the area grow and develop over time. I wonder if it would be wise to select either of the two options that would narrow down the roadway from four to two lanes (with or without turn lanes) because of the heavy traffic on Keystone Avenue from Kings Row south, especially from Kings Row south. What does the RTC staff recommend to the board members?
email	8/15/2014	Cecelia and Bob Pearce			Yes										I am planning to attend as I did for the meeting at Reno High School. I have some real concerns about two lanes on Keystone with a turn lane and a bicycle lane. If Vine has a bicycle lane, why does Keystone need one? I'm sure RTC has taken into account the fact that Keystone is an on-ramp to I-80 both East and West and from both North and South. Two lanes at rush hour is ridiculous and even other times is almost impossible. I waited for twelve cars to come from the north going south the other morning at 10:55 a.m. And we have two lanes each way currently! You must remember that Keystone is used as an alternate route going South whenever the Reno downtown corridor is blocked off for special events. It is also heavily travelled during Rancho San Rafael events and during UNR Football and Basketball Games. There is no easy answer to trying to please everyone, but during the Winter months, bicycles are pretty non-existent. The area that encompasses Keystone is composed mostly of retired Senior Citizens and UNR Students; talk about irony. The RTC has spent a lot of time on the Keystone/California/Booth sts problem and you have come up with some viable options. I am looking forward to the meeting.
email	8/20/2014	Amy Ghilieri			Yes										Hello Michael, Sadly I will not be able to attend tomorrow's meeting, but I wanted to email you to support the improvements to Keystone. I live off of Windsor Way and try to commute by bike as often as possible. It is simply unsafe to do so via Keystone. Driving can also be precarious, particularly turning onto Keystone from side streets.

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email	8/20/2014	Gordon Quong			Yes										MICHEAL.... YOU KNOW IT'S ALMOST A DONE DEAL. RIGHT?
email	8/21/2014	Jim Meyers			Yes										This is to let you know I am totally against bike lanes on Keystone, especially from Coleman to University Terrace. This would be a disaster with all the traffic on Keystone plus vehicles from the side streets trying to get on to Keystone. As far as the number of bike riders I believe is a small minority. What few riders there are could use Vine Street, a much safer ride. Traffic already backs up past University Terrace trying to get on the freeway or continuing on Keystone. I think bike lanes creates an accident waiting to happen. THANK YOU SINCERELY JIM MEYERS
email	8/21/2014	Richard and Phyllis Westrup				Yes									We attended the public forum this evening at Peavine School regarding the restriping of Keystone Avenue. Below are our concerns. 1. Where does the money come from? There was no information. We do not need more debt. The city is already in debt. 2. Take care of the fundamentals – the majority. Very few people ride bikes in this hilly environment. We spoke with a young man who lives near the top of Keystone. He told us that he has tried to ride his bike North on Keystone and it is too hard. He is young, strong and vibrant and he can't do it. 3. You have already changed many of our Reno Streets to include bike lanes which impedes the movement of cars and transit. Vine and Washington Streets are the better alternative. We have seen many bikes on those streets. In the past year, I think I have only seen one bike going south on Keystone near Kings Row. 4. No Chicanes or traffic calming. The ones at the North end of Keystone are more of a traffic hazard especially during winter conditions. For safety sake it would be best to remove them. We have not in our years of living here noticed an exceptional amount of speeding on Keystone. 5. No roundabouts. Traffic lights are much better. Roundabouts are confusing to non-locals. Everyone understands traffic signals. 6. Sidewalks are in bad shape and are not present on both sides of the street. We believe this is a higher priority item. The postcard we received in the mail regarding this meeting was the first we have received. Tonight we heard this was the 3rd or 4th such meeting for public imput. We saw the signs previously on Keystone but they only said "Restriping on Keystone, Clayton School and the time." Seeing those had no meaning to us whatsoever. Communication has been lacking.
CF	8/21/2014	Fred Tholke	If you're going to use Vine and Washington for bike routes, then include 7th from Keystone to Washington also. There are many cyclists using this route every day.	Working with Raley's [get an easement] to widen the bus stop on west side of Keystone between University Terrace & 7th. The existing walkway and bus stop is too close to fast traffic traveling south on Keystone.	Yes		Yes								The bus stop mentioned above is dangerous and needs improvement. People waiting at the stop are trapped between a concrete wall and traffic.
CF	8/21/2014	Trent Harshbarger	As I live at the corner of Keystone and University Terrace for nearly 30 years, I've seen the growing traffic over the years as well as safety concerns for cyclists and pedestrians. I think for the section of Keystone from University Terrace to Coleman, Complete Street option would be best.	Also, right turn only from University Terrace onto Keystone would be a good idea to help keep this area safe for both drivers, pedestrians and cyclists.		Yes						Yes			
CF	8/21/2014	David Harshbarger	From University Terrace to Coleman, Complete Street would bring the most safety. No left turn on or off University Terrace.			Yes						Yes			
CF	8/21/2014	Lisa Hill	I want to see the Complete Street option from University Terrace to N. McCarran. Thank you.												
CF	8/21/2014	Ann Pelsue	Love the recommendation - excited about bike lane!			Yes					Yes			Yes	Thank you.
CF	8/21/2014	Davyd Pelsue	None	None		Yes					Yes	Yes			Very excited about the new traffic flow on Keystone. Looking forward to its implementation! Thank you for improving the safety of our streets.
CF	8/21/2014	Lori Bennings	We prefer the Complete Street not the Share the Road option	Crosswalks with flashing lights		Yes									
CF	8/21/2014	Dave Hall	To reduce Keystone to 2 traffic lanes will bottle neck Sunnyside so cars trying to get on Keystone will be impossible. Put the bike lanes on Gear and Vine Street.			Yes	Yes								Please pay some attention to the local neighbors concerns - not just the bicycle clubs.
CF	8/21/2014	Pat Fager	Bike lanes on Keystone from University Terrace to Coleman - there is not enough room for pedestrian and cars - free turn from Kings Row to Keystone good.	In favor of the Starbucks revision. It is too dangerous for all, bike, car, and pedestrian to encourage bike use on N. Keystone - Vine option is better.	Yes							Yes			I have continued concerns for the increased traffic that will come from the apartment complex on Peavine is not being considered for the N. Keystone project. The city plan approved a light at N. McCarran and Keystone and Leadership Parkway upon completion of phase 2.
CF	8/21/2014	Lori Archer	There is little to no bicycle traffic on Keystone from Jones to Highway 80. As a business owner (corner of Vine & 2nd) directing bicycle traffic to Vine serves no purpose. It would create an unnecessary bicycle lane that would affect business traffic and parking. This area is actually dangerous for pedestrians and bicyclists due to the high incidents of crime. Work in this area would disrupt business and would be a waste of funds.			Yes			Yes						

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CF	8/21/2014	Ann Bollinger	I support the Complete Streets concept. As an occasional cyclist, a separated bike lane provides the greatest sense of safety. I support the Vine Street alternatives and, in fact, I already follow this route.	I didn't see it, but I wonder if a no U-turn sign has been identified at the Keystone northbound at 7th Street westbound intersection. This is a simple fix and would be installed tomorrow.	Email			Email from Washoe County	Yes					Yes	I don't drive this section (northern segment) very often, so I'm not aware of issues and/ or I will not be significantly impacted.
CF	8/21/2014	William Huffman	I believe a more comprehensive approach should be taken in providing left turns for bicycles from southbound Keystone to westbound University Terrace. This is an active and busy intersection for motorized and non-motorized modes and the cyclists must be provided concise and safe movement options.	I believe a very firm commitment should be obtained for the reconstruction of the Keystone Bridge as many corridor improvements depend on the condition of this bridge. The streets from Idlewild Park to the Riverside Bike Boulevard should be reduced to 15 or 20 MPH. South to Marsh? - All alternative bicycle route should be determined as soon as possible for the California Street hill between Keystone and top of Hell not as long-term solution.	Yes	Yes	Yes	Member of bike/ped committee	Yes					Yes	For Vine Street/University Terrace bicycle alternative route would like to have sharrows on University Terrace between Keystone and Vine Street. Would like protected green turn lanes in Vine/University Terrace intersection due to configuration - yellow MUTCD "bike crossing" sign on 2nd, 4th and 5th Street approaches to Vine Street. There should be increased cycling with the new Vine Street route designation. [Kimbal Turn] This will serve as a bicycle left turn alternative (southbound Keystone) to University Terrace option.
CF	8/21/2014	Lynette Oqulnick	The safety of motorists and bicycle riders is of primary importance. The proposals at this time to not address these issues.	Using alternative routes from bicycles other than Keystone do not take out the bridge over the Truckee!! A-2 could be implemented and see how it works and least expensive.		Yes									
CF	8/21/2014	Andy TenBrink	Non. Complete Street all the way!	I believe the design is well optimized as is. Eventually when the I-80 SPUI is redesigned continue bike lanes to 4th Street to connect to the future 4th & Prater corridor!	Yes	Yes			Yes			Yes			RTC is doing a great job! Keep it up!
CF	8/21/2014	Carolyn Thomas	Bike lanes off Keystone to less traveled area to the east to avoid bikes crossing over traffic at bottom of hill @ University Terrace (Washington goes from RSR over fairly flat bridge to south side.	The merge lane form Kings Row south with bike lane between merge and drive lane is a disaster waiting to happen. You still can't see traffic coming from Coleman on the corner of Kings Row. Maybe put bike lanes on other side of Keystone since they turn @ University Terrace anyway.	Yes										
CF	8/21/2014	Leah Sanders	No bike lane on Keystone from I-80 to Coleman - direct bikes to Ralstone or Washington. I like the changes to Starbucks.	Take out the stone wall and castle off the corner of Keystone and Kings Row - visibility problem. Please put blinking yellow left turn @ 7th and Keystone (coming out of Raley's to 7th turning onto Keystone.		Yes									Do something about University Terrace and Vine to Washington
CF	8/21/2014	Iain Keesee	Better bike lanes, shelters at bus stops	Option B (roundabout) should not be used. Students would not follow and drive through it. Plus the loss of 7-11 would be a disaster for students.				School			Yes			Yes	
CF	8/21/2014	Anonymous	West 6th near Stoker needs speed bumps. Much Less emphasis on bike lanes. I ride a bike, but most Keystone users are drivers. There are plenty of topographic/scenic and easy to use alternative streets.	Control excessive speeds at 7th Keystone! Use a roundabout, lane controls, medians/barriers. There is a lot of space there. Drivers see the interstate signs and floor it.		Yes	Yes	Prior meeting			Yes			Yes	The underpass area and ramp lanes at I-80 are deplorable! When will this be fixed? Driveway closers - DUH. I disagree with reducing lanes for bikes. Why did City of Reno approve Starbucks driveway? Bike lane 4th-5th on Keystone suicide. Use parking lots.
CF	8/21/2014	Kira Krayk	I was pro-roundabout at California and Keystone, I was sorry to not have more time to organize support in favor.	Time frame for reconfiguration of Keystone to McCarran and Keystone to California	Yes	Yes		Yes				Yes			Social media not always. Youth - streamline communication with less vocals and more facts/highlights. What about under Keystone on 1st - any plans there? Keystone-California: This needs a better long term solution! I think any $ and efforts should go to long term solution rather than short term. Traffic should be streamlined and made safer here! Thank you!
CF	8/21/2014	Brad & Linda Hayes	I am concerned about Coleman Drive in the area of the park. People drive from the Keystone intersection up the hill at accelerated speed.	We need stop sign so they stop - my 2013 Highlander was lowed into and sustained $19000 in damage. We have lived at 1100 Coleman for over 30 years and we know the area and it continues to get worse.		Yes		Live by school					Yes		The kids around Peavinie need to be protected. They often don't use the crosswalks.
CF	8/21/2014	Anthony Fitch	In the Keystone/Booth intersection, I feel like proposal C would be the most traffic efficient as well as the safest. With the experience of driving through the intersection of Booth & Foster everyday for school, I can tell that the most unsafe thing, and the worst idea proposed, was to have a round-about at that intersection with the speed and aggression of high school drivers while behind the wheel, there would be many accidents and pedestrians hit. The most efficient way to move cars through that intersection at lunch and after school would be to widen lanes converging into the intersection. Also widen Booth between Foster and California.	Keep the 7/11 convenience store and the car wash as they are great for the local community and economy.				AP gov't class @ RHS							No roundabouts at Booth & Foster
CF	8/21/2014	Patrick Dempsey	A more detailed plan of how option C for the Keystone and Foster Drive intersection would work.					friends		Yes			Yes		

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CF	8/21/2014	Alexa Armolea	I would not turn the 4-lane road into a 2-lane. The traffic is already congested and the bikers usually stay on streets such as Vine where there is less traffic and less hills to bike up. I feel bike lanes would be an unnecessary addition and restrict motor vehicles further.												1) The northern part of Keystone is too steep for bicyclists to realistically ride for regular commuting. 2) The addition of a bike lane would be a waste of space because it's too hard to ride back up the hill. People won't stop using motor vehicles. The space is better used for motor vehicles. To process the large quantities of traffic.
CF	8/21/2014	Sherry	Bike traffic added to moving models Title with the moving models. I had to ask what I was looking at, i.e. "existing street vs. proposed changes"		Yes	Yes			Yes						Thanks for getting community input! Please tell City of Reno and RTC to get going ASAP with these community supported improvements!! [Kimbal] This one is so tough. I go Kings Row to left turn onto Kimbal by car and bike daily to work. With driving, I see no significant change. But on bike, I'm concerned with crossing lanes on the uphill with merging cars and fast moving southbound traffic just so I can turn left onto Whitaker or Sunnyside. I suppose closing off Kimbal is the best option though. Please remove stone wall at Kings Row. I love that bikers, walkers, and ADA is so thoroughly considered in this planning. Please reconfigure Starbucks entrances. I support the Complete Street 7th to Kings Row.
CF	8/21/2014	Jessica Palmer	Please move forward with Complete Street		Yes	Yes		Enid Jennings		Yes		Yes			Washington isn't great for bikes either (listed as a bike alternative.) I love the Complete Street. Love bikes and pedestrians.
CF	8/21/2014	Jana Vanderhaar	Better bike accommodations going down the California hill to Booth/Keystone - evaluated bike/pedestrian path like Groningen (The Netherlands)	Parking boxes for bikes Harvesting storm water in swales with native/drought tolerant landscaping LID design Street trees (honey locust / black locust)	Yes				Yes			Yes			Activated blinkers for pedestrian crossings really work (example: Plumb Lanes near Kietzke/Parklane Mall [A-1] But dangers for bikers going down California hill (consider traffic calming) Alternative D or C for the Booth, California intersection are best for bikers like me and my family
CF	8/21/2014	Brit Loken	Complete Street on north Keystone please! Looks amazing and intricate in helping me live a safe and healthy lifestyle while biking or driving.	Long term for Keystone, I recommend alternative B - Keystone/California roundabout! So cool!		Yes		Sign on Keystone		Yes		Yes			[ADA ramp] Cheaper right? Save $ for roundabout. Kimbal turn restrictions with Complete Street plan make me okay with eliminating the turns.
CF	8/21/2014	Kenneth Broadhead	Improved bike lanes	Options B and/or D should not be implemented in the California/Keystone intersection.				School			Yes			Yes	Many students will want to prefer the 7-11 near the California/Keystone intersection. I also feel as thought many students will ignore the roundabout circles in Options B and D.
CF	8/21/2014	Ryan McClanahan						School gov't class					Yes		I think option B for the southern park of Keystone is the worst because it demolishes the 7-11 near the high school, which is used by the students on a daily basis.
CF	8/21/2014	Enid Jennings	I want a Complete Street - safe for all including cars north of University Terrace. A woman just died in a car accident that could have been avoided if a center turn lane was available. I think all the recommendations are a huge improvement.	Add left green light arrow 7th to Keystone to ease traffic leaving Raley's				From school	Yes					Yes	I could imagine some would not like this but I see how it would be necessary to improve. Plus there was a death here. More concerned with safety than speed.
CF	8/21/2014	Lauren Torvinen	Make Keystone a Complete Street!	Please consider a dedicated left turn arrow off of Seventh to Keystone both directions.				Friend	Yes					Yes	I think residents could be annoyed if they couldn't make the left, but maybe they prefer?
CF	8/21/2014	Nicole Lubra						Live in community - word of mouth						Yes	Please, a dedicated left turn arrow from 7th to Keystone - both directions. Please make Keystone a Complete Street.
CF	8/21/2014	Alysse McMillen	Being a student at Reno High School, I would like to see changes in the flow of traffic. Though, as a student, I see how aggressive some new drivers are, I feel roundabouts would be too challenging and cause more problems than reduce them.	The options with the roundabouts on Keystone, California, Booth and Foster are bad ideas. Roundabouts will be dangerous with new high school drivers and the chaos of traffic during lunch hours and after school. Accidents will be increased with roundabouts and the inexperience young drivers have with them.				Gov't class	Yes			Yes			I really appreciate the support high school students received attending this meeting. Anything without roundabouts is best (near the school at California/Keystone)
CF	8/21/2014	Frank Patten			Yes	Yes						Yes			Thank you: we need the 3-lane area between Coleman and Kings Row. [Kimbal] Great idea
CF	8/21/2014	Julia Felte	As a student at RHS, it would improve my commute to/from school if there was better traffic flow at Booth & Foster and California & Booth.	It would be difficult to drive through roundabouts near RHS during morning and afternoon commutes. It would be hard for new student drivers to deal with more aggressive drivers and pedestrians that don't follow laws.				Gov't class	Yes			Yes			It was interesting to see ideas on how to improve traffic and improve roadways. P.S. NO ROUNDABOUT NEAR RHS! There would be more accidents (including cars and pedestrians.) Anything without roundabouts would be best near the school.
CF	8/21/2014	Stephanie Zunini	Being a student at RHS I would like to see a change in the flow of traffic between the Booth, California, and Keystone crosses. I like alternative E the most for the reconstruction.	Option B for the Keystone reconstruction is a terrible reconstruction along with D. Any roundabouts near the school would increase the amount of accidents 100% because kids are too aggressive and wont' wait their turn because they are impatient and won't properly make use of the roundabout. Also, it would get ride oft he 7-11?? Not a good idea.				Gov't class	Yes			Yes			I never knew these meetings existed and I really like that you give us the option to express our opinions! Thank you! P.S. No roundabouts near the school at all! Terrible idea. No B or D alternatives. I know they are pushing for B but it is one of the worst ones. I really like E to divert commuters coming north from Keystone so the people coming from Keystone don't have to go through the intersection by school to create even more unnecessary traffic.
CF	8/21/2014	Jamieson Peters	Better bike lanes, skate board lanes	The Plan B for the California/Keystone intersection (and Plan D) should be reworked to save the beloved 7-11, for that is where I go to buy Shaq soda.	Yes			Word of mouth			Yes		Yes		You should put flames on the electric buses.
CF	8/21/2014	Chelsey Hand	I like Alternative E the best.	Please not huge roundabout! A big roundabout right by the school could be really dangerous/confusing for new drivers (which would be a lot of the drivers on it because it's right next to a high school.)				Gov't class	Yes					Yes	

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CF	8/21/2014	Cecile Cardinalli	I prefer idea E for the Keystone/California changes	For the Keystone/California intersection, make sure there is 2 lanes that are devoted to the left turn from Booth onto California.				History teacher	Yes					Yes	
CF	8/21/2014	Jens Morrison	Regarding the Keystone Avenue bicycle alternative, Vine Street is very challenging to get across First and Second Street due to parked cards blocking view of oncoming traffic on First and Second Streets. And that's in a car. It is even harder for bikes and pedestrians due to not crosswalks.	Stop signs (4-way) on Vine & First and Vine & Second would be great to help with the safety of the bicyclists.		Yes		Neighbor	Yes			Yes			
CF	8/21/2014	Alexa Snyder						School	Yes					Yes	Station 1 Keystone & California intersection: A-1 would be the best short term fix. There should be a slow transition into B. B would be the best option. A-1 would be the best short term option but would not fix the problem long term.
CF	8/21/2014	Zoe Mason	Southern segment - Keystone California intersection, Alternative B is the best option					Gov't class	Yes			Yes			
CF	8/21/2014	Mark Broadhead	Access to Raley's (and egress from) needs to be significantly reconsidered. Need to work with Raley's to reconsider flow into lot southbound on Keystone and how people will exit to go northbound onto Keystone.						Yes			Yes			It is clear RTC had modified proposals based on input. Overall I am very pleased with your responsiveness and the modified proposals. Thank you for all your hard work.
CF	8/21/2014	Terry Barker	I wholeheartedly support all the recommendations.	I think it would be a good idea to eliminate left turns from Keystone onto Kimbal, and it might be wise to eliminate left turns from Kimbal onto Keystone	Yes							Yes			Great work! This has been a satisfying and productive process so far. I certainly hope all these recommendations are implemented soon!
CF	8/21/2014	Pam Gormly-Olsen	I am all for Complete Street application. Keystone Avenue is a speeding, car flying by nightmare now.	Make streets are All User fare, safe as possible. Even though we live on the back side of the Lake Park (very quiet except a few speeders - no one goes 15 mph. I use Keystone daily to drive and walk dogs.				Sign on Keystone	Yes			Yes			Make our neighborhood main street safer for everyone. Keystone Avenue is not a sling-shot onto Rt. 80. Keystone Avenue north of 7th is residential and must be safe for residents. Current Keystone is unsafe and dangerous to walkers and cyclists. There are many accidents at Kimbal now from turning left off Keystone and turning left onto Keystone. The hill is there, no visibility, make it safer, no left turns.
CF	8/21/2014	Anna Monte Vierra	Single street with turn lanes! NO roundabouts. New access at Starbucks.	To take the vacant land behind the old P&S Hardware, 5th Street Bakery and make live/work restaurant space, new zoning, and under freeway multi-use bike, pedestrian, ADA access from Vine Street with black top and signage. Also change the street lanes back to their historic original for example, University Terrace from Center Street, etc., 6th to Maple, etc.	Yes				Yes				Yes		
CF	8/21/2014	Northwest Resident	Continue to allow access across Keystone on University Terrace. Medians on this part of the street are counter productive to traffic needs from residents turning left onto Keystone or crossing Keystone. Bikes don't need bike lane on upper Keystone. Don't need free right turn from Kings Row to Keystone.	For the median @ University Terrace, if you are determined to [triangle symbol] it, give it the center turning lane rather than the median. It gives the traffic an opportunity to "pause" when turning left or crossing.				Rex Crouch					Yes		The University Terrace crossing does need to be addressed, but other alternatives to the median need to be presented. No eliminating left turns at University Terrace either.
CF	8/21/2014	Sierra Jickling						Father/ Gov't teacher	Yes					Yes	Bike/cyclist safety is essential! Especially through California Avenue. The roundabout proposal on Booth & Foster is an excellent idea - that intersection before and after school is a backed up, chaotic traffic nightmare.
CF	8/21/2014	Wendy Broadhead	No changes per se, but I think more thought needs to be done for the Keystone and Raley's access.		Yes	Yes			Yes				Yes		I like the considerable thought that has been done for all intersections. I like the Complete Street for Keystone. I think the Kimbal Drive not left turn in not necessary because at many hours the intersection would accommodate a left turn -- if traffic is significant then drivers would take another route or be patient.
CF	8/21/2014	Doug Givens	No changes - Complete Street alternative is good idea.			Yes			Yes			Yes			Providing bike lanes and sidewalks on Keystone over the river would be good as would reconfiguring I-80 off ramps to slow traffic down. Is it possible to prevent left turn from Keystone onto Kimbal but allow left turns onto Keystone?
CF	8/21/2014	Jean-Paul Torres	I am excited to see the potential conflicts point with autos and bikes highlighted in green paint on Keystone and Kings Row	We should identify more opportunities for innovative Complete Street treatments much like the green paint on Kings Row & Keystone. Buffered lanes or even debut directional signage for directing bicycle traffic from N. Keystone onto Vine Street alternative.				Social Media				Yes			

Form	Date	Name	What changes, if any, would you like to see on the recommendations presented for the corridor?	What additional suggestions should be considered as possible recommendations?	Email Notification	Postcard Notification	Newspaper/ Television	Other	A-1	A-2	No Preference	Yes	No	No Preference	Additional Comments
CF	8/21/2014	Sally Sapunor	Fib problem of cars backing up traffic coming off I-80 of ramp (westbound) that are using Starbuck's driveways. (Bad design in the first place!) Your idea of moving driveways further back by Heritage Bank would help. I think Vine Street bike path safer (and pretties) than using Keystone. Sidewalks and ADA compliance = good ideas I'm not crazy about the "no left turn" onto Kimbal for those of us headed south on Keystone. I make that turn almost daily coming off Kings Row to get over to the UNR area. Blinking pedestrian crosswalk at University terrace & Keystone by Raley's really helps.			Yes					Yes		Yes		Get rid of left turn from Kings Row onto Keystone (to get up to Gear). It takes too long and if you've lived in the area long enough, you turn right onto Keystone from Kings Row and then take a left onto Kimbal.
email	9/4/2014	Kristin Lewis													My name is Kristin Lewis. My husband Daniel and I live at 981 Gear St. in Reno. Concerning the northern section of the corridor, I fully support the current plan of complete streets to accommodate pedestrians and bikers as well as motor traffic. I think this is a better and safer option than a shared road, with shared lanes. We would be happy to see a crosswalk at Gear Street. Additionally, I would support eliminating left turns to and from Kimbal Drive. Thank you for your time and consideration.
				TOTALS	19	23	4	24	22	3	7	20	8	13	

PETITION - Stop the Keystone Restriping Project

Submitted as part of public comment at the public meeting.

Name	Date
Alana Broberg	8/13/2014
Virginia Miller	8/13/2014
Joseph S. Battaglieri	8/13/2014
Don Robertson II	8/13/2014
Staci Byrnes	8/13/2014
David Everett	8/13/2014
Martha Melvin-Guerrant	8/13/2014
Lisa Mcoud	8/13/2014
Richard Butler	8/13/2014
Kathryn Butler	8/13/2014
Lenette Oquhiek	8/21/2014

Appendix B

Keystone Avenue Roadside Safety Audit Reports

ROAD SAFETY AUDIT REPORT
KEYSTONE AVENUE FROM 4TH STREET TO CALIFORNIA AVENUE
PRE-CONSTRUCTION PHASE AUDIT
WASHOE COUNTY

Prepared for:

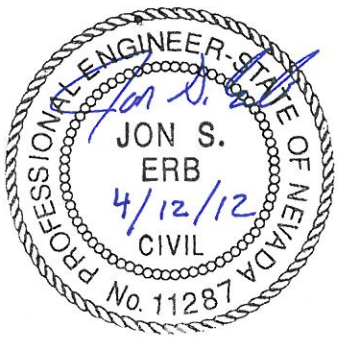
NEVADA DOT

Safety Engineering

Prepared by:

Parsons Transportation Group

April, 2012



Exp. 12-31-12

zero Fatalities
Drive Safe Nevada

EXECUTIVE SUMMARY

NDOT Safety Engineering Division in coordination with Washoe RTC, authorized a Road Safety Audit (RSA) to be conducted on Keystone Avenue from 4th Street to California Avenue, in the City of Reno. The purpose of the RSA is to identify potential road safety issues and recommend countermeasures to mitigate those safety issues for inclusion into future projects along the RSA corridor.

Generally, the study corridor along Keystone Avenue consists of two general purpose lanes in each direction and a two way left turn lane from 4th Street to 2nd Street. All other intersections include left turn lanes. The posted speed limit is 30 MPH. The average annual daily traffic (AADT) is 22,000 vehicles. A total of 54 crashes were identified within the study corridor from July 1, 2008 to June 30, 2011, including 15 injury crashes and 24 injuries.

The kick off meeting discussed the future of the Keystone Avenue bridge over the Truckee River and the opportunity to make some big changes to the roadway. The NDOT Bridge Report has indicated that the bridge is eligible for replacement or retrofit.

During the field review the Team looked at each intersection for safety issues. The signalized intersections of 4th Street and 2nd Street do not meet the ADA standards for ramps and push button placement. The intersection of Keystone Avenue and California Avenue is a skewed intersection with an underpass access from Booth Street and a tight turning westbound to northbound ramp. The intersection is confusing at times with the multiple access points. A feasibility and traffic study is recommended to try and develop some innovative solutions such as, but not limited to, a roundabout.

Looking at the complete corridor, this is a minor arterial, with mainly local traffic. There is on-street parking between 4th Street and Jones Street and no bicycle lanes. Recommend a feasibility study to add bicycle lanes which may require to removal of the on-street parking.

The Keystone Avenue and 4th Street intersection is considered as a high crash location. Adding raised median for the eastbound and westbound left turn lanes is recommended to reduce angle collisions from left turns out of nearby approaches. Review of the signal timing a progression may also help alleviate at this location as well as the entire corridor which is also considered a high crash segment.

A complete listing of the RSA recommendations can be found on pages 16-17 of this document. The RSA team recommendations are subdivided into Priorities 1, 2, and 3, representing short-term, medium-term, and long-term recommendations respectively.

Introduction

NDOT Safety Engineering Division in coordination with Washoe RTC, authorized a Road Safety Audit (RSA) to be conducted on Keystone Avenue from 4th Street to California Avenue, in the City of Reno. The purpose of the RSA is to identify potential road safety issues and recommend countermeasures to mitigate those safety issues for inclusion into future projects along the RSA corridor.

Scope of Audit

The Safety Audit Team conducted a formal Road Safety Audit on Keystone Avenue from 4th Street to California Avenue in the City of Reno, for a total of 0.90 miles, on February 27, 2012. The Safety Audit Team recognizes that compliance with design standards does not necessarily result in an optimally safe road design and that the failure to comply with standards does not necessarily result in an unsafe design. The goal of this road safety audit was to identify potential road safety issues and identify opportunities for improvements in safety for all road users. However, the road safety audit was not intended as a replacement for design quality control or standard compliance checks, a traffic impact or safety impact study, a road safety inventory program, or a traffic safety modeling effort. Neither was the audit intended as a means of evaluating design work, checking compliance with standards, investigating crashes, or providing a safety review. Instead, the Team strived to look at safety issues from a different perspective and develop recommendations for potential safety enhancement.

Objectives

- Identify potential safety issues that may be addressed in the upcoming RTC Corridor Study, thereby reducing the risk and severity of crashes.
- From the road user's viewpoint, identify confusing and or misleading messages.
- Improve awareness of safe maintenance practices.

The Briefing Meeting for the RSA Team was held on Monday, February 27, 2012 at 1:00 PM at the Washoe RTC 3rd floor conference room in Reno. Jon Erb, Parsons, made a brief presentation that covered the NDOT Road Safety Audits Procedures, crash data and traffic volumes. Scott Gibson gave a brief overview of the two RTC Projects.

The Briefing Meeting was attended by:

- Scott Gibson RTC
- Steve Bunnell City of Reno Signal Operations
- Claudia Hanson City of Reno Planning
- Tony Smiraglia NDOT Scoping
- Tonia Andree NDOT Scoping
- MJ Cloud Washoe County School District PD
- Bradd Davidson Reno Police Department
- Jon Erb Parsons (Team Leader)

Topics of Discussion:

- Road Safety Audit purpose, procedures, goals and objectives
- Keystone Avenue Safety Issues
- Crash Data, Three–year study period (July 1, 2008 to June 30, 2011)
- Current Traffic Operations
- Maintenance Issues

Following the meeting, the subject segment of Keystone Avenue was driven in each direction during both daytime and night time. The daytime and night time field reviews were held on February 27, 2012. The daytime field review was attended by Steve Bunnell, Claudia Hanson, Tony Smiraglia, Bradd Davidson, MJ Cloud, Tonia Andree, and Patrice Echola. The night time field review was attended by Steve Bunnell, Tony Smiraglia, Bradd Davidson, MJ Cloud, and Tonia Andree. The debriefing meeting was held on February 27, 2012, and was attended by Patrice Echola, Scott Gibson, Steve Bunnell, Tony Smiraglia, Bradd Davidson, MJ Cloud, and Tonia Andree.

Following is a compilation of the comments and recommendations from the February 27, 2012 field reviews and debriefing meeting:

Note: Bulleted items are team observations**; *recommendations are in bold italics.***

Recommendations are only one method of mitigation presented by the RSA team for discussion, other mitigation strategies can and should be explored by the responsible Design Team of the using agency where possible.

Feasibility Study is defined in this report as a study to determine if the safety recommendations can be included in the project scope considering the project time frame and cost constraints.

Priority 1 - is defined as those improvements that can be done in the immediate future by City of Reno Maintenance staff.

Priority 2 - is defined as those improvements that can be included in the Corridor study or the next scheduled City of Reno/Washoe RTC projects for Keystone Avenue within the 4th Street and California Avenue limits when funding is available.

Keystone Avenue from 4th Street to California Avenue

General Information:

- Keystone Avenue has two general purpose lanes in each direction and a two way left turn lane from 4th Street to 2nd Street. All other intersections include left turn lanes. The functional classification of Keystone Avenue is a major arterial
- The posted speed limit on Keystone Avenue is 30 MPH and appears to be adequate for the area.
- For the three year study period from July 1, 2008 to June 30, 2011 for Keystone Avenue, the following data was compiled:
- Overall Crash Data – There were 54 Total crashes during the time period (07/1/2008 to 06/30/2011) for the (0.90 Miles). There were 15 injury crashes with 24 injuries. There were no fatal crashes. The corridor crash rates are shown in the following table.

	Classification	Crash Rate	Injury Crash Rate	PDO Crash Rate
Keystone Avenue	Minor Arterial	3.70	1.03	2.67
2010 Functional Classification Crash Rate for Nevada	Minor Arterial Urban	2.59	1.07	1.50
Rates per million vehicle miles traveled				

- Predominant Crash Type
  - 26 Rear-end crashes with 6 injury crashes and 12 injuries
  - 15 Angle crashes with 5 injury crashes with 7 injuries
  - 10 Sideswipe, overtaking crashes with 2 injury crashes and 3 injuries
  - 3 Non-collision with 2 injury crashes and 2 injuries
  - 2 Backing crashes with no injuries
  - 1 unknown crashes
- Contributing Factor
  - 25 crashes where driver factor was Apparently Normal with 10 injury crashes and 13 injuries
  - 25 crashes where the factor was Other Improper Driving with 3 injury crashes and 5 injuries
  - 2 crashes where driver had been drinking with 1 injury crash and 2 injuries
  - 1 crash where driver was inattentive or was distracted with 1 injury crash and 4 injuries
  - 1 crash where driver Fell asleep with 1 injury crash and 2 injuries
- Weather Conditions
  - 42 crashes occurred during dry weather with 15 injury crashes and 24 injuries
  - 12 crashes with Non-Listed weather conditions

- Light Conditions
  - 31 Daylight crashes with 8 injury crashes and 14 injuries
  - 9 Non-Listed lighting condition crashes
  - 4 Dark-Spot Lighting crashes with 3 injury crashes and 5 injuries
  - 3 Not Reported lighting condition crashes
  - 2 Dusk crashes with 2 injury crashes and 2 injuries
  - 2 Unknown lighting condition crashes with 1 injury crash and 1 injury
  - 1 Dark-No Lighting crashes with 1 injury crash with 2 injuries
  - 1 Dark-Continuous Lighting crash

- High Crash Locations
  - Keystone and 4th Street intersection with 45 crashes is considered to meet High Crash Location criteria, (Urban, 30 or more crashes in 3 years).
  - The complete roadway segment was found to meet High Crash Location criteria (Urban, 30 or more crashes in 3 years in a one mile segment).
- The audited portion of Keystone Avenue lies within Washoe County.

Observations:

Keystone / 4th Street

- The intersection of Keystone Avenue and 4th Street does not meet current ADA standards for pedestrian crossings. All corners are missing the tactile strip, the north corners the push buttons are not placed at required distances from the crossing or sidewalk.

Photos 1,2,3,4 – Pedestrian Ramps at Keystone Ave. and 4th Street.

- ***Priority 2 – Recommend all pedestrian crossings at the Keystone and 4th Street intersection be upgraded to meet the new ADA standards.***

- The northbound and southbound left turns at Keystone and 4th are protected and the storage area for the southbound often exceeds the pocket.

- ***Priority 2 – Recommend coordinating with NDOT Safety / Traffic divisions to determine if this location as a candidate for the yellow flashing arrow for left turns.***

- Keystone Avenue and 4th Street meets the High Crash criteria for urban intersection due to the 45 crashes of which 11 were rear end crashes and 10 were angle and sideswipe crashes. There are approaches on the east and west leg of Keystone and 4th Street that allow full movements that often cut around or through the queues stopped at the signal. This type of movement increases the chances of angle crashes. See photo 5.

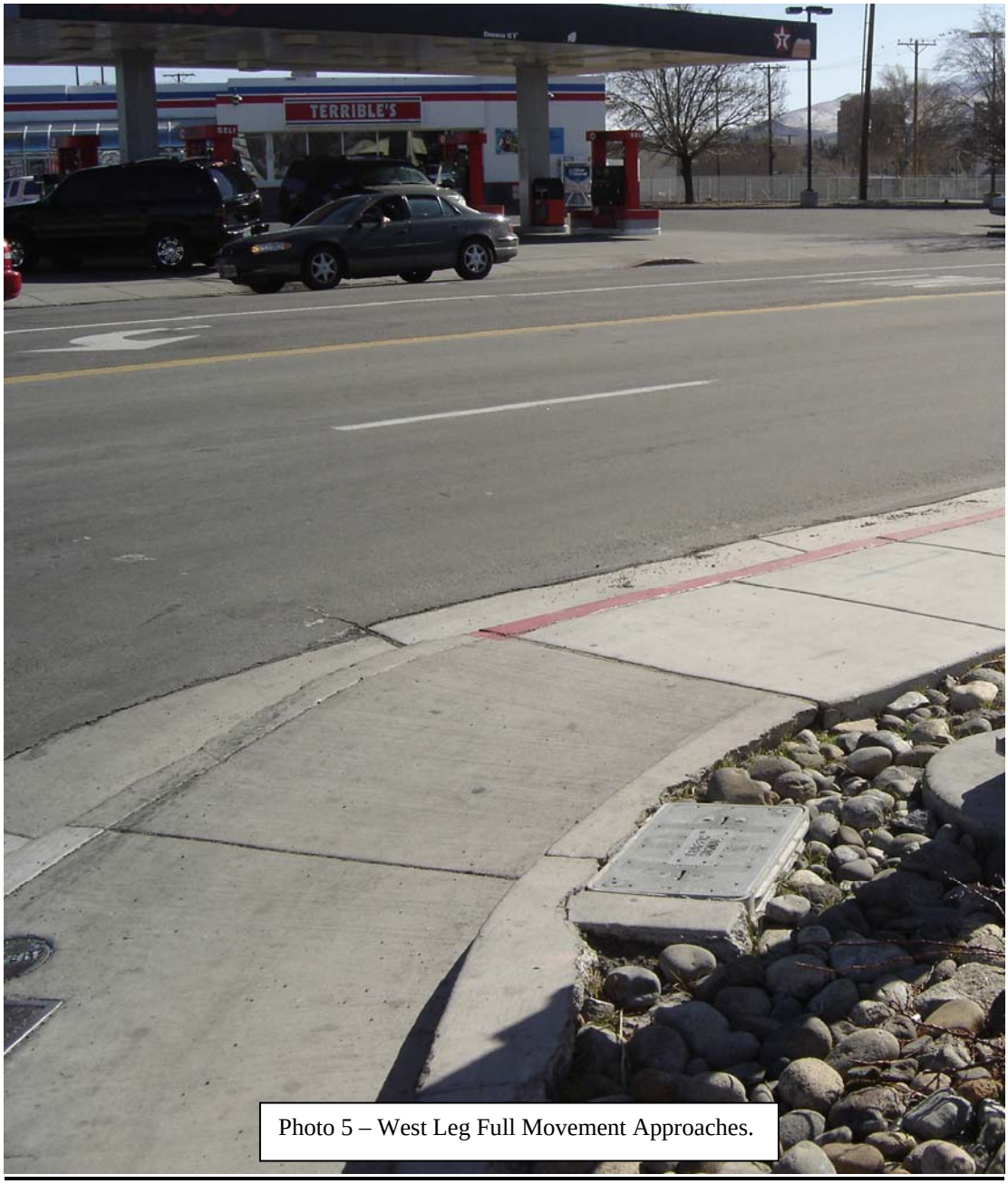


Photo 5 – West Leg Full Movement Approaches.

❖ ***Priority 2 – Recommend placement of median islands for the left turn pockets on the east and west legs of the Keystone and 4th Street intersection.***

- The traffic signal pole on the southwest corner of Keystone Avenue and 4th Street is in the sidewalk and forces people to go walk close to the curb next to vehicular traffic and is also very narrow for wheel chairs. See photo 6.

Photo 6 – Signal Pole at the Southwest corner of Keystone Avenue and 4th Street.

- ***Priority 2 – Recommend relocating the traffic signal pole on the southwest corner of Keystone Avenue and 4th Street to behind the sidewalk.***

- ***Priority 2 – Recommend adding to the width of the sidewalk behind the pole if the pole cannot be relocated.***

Keystone Avenue / 2nd Street

- The westbound traffic signal pole on the northwest corner is no longer a standard pole and appears to have substandard vertical clearance to the traffic below nor does the signal heads line up over the lanes. See photo 7 and 8.

Photo 7 ,8– Keystone Avenue and 2nd Street Westbound Signal

❖ ***Priority 2 – Recommend replacing the westbound traffic signal pole and mast arm on the northwest corner at Keystone and 2nd Street to a standard pole to the approved Standards.***

- The intersection of Keystone Avenue and 2nd Street does not meet current ADA standards for pedestrian crossings. All corners are missing the tactile strip, the north corners the push buttons are not placed at required distances from the crossing or sidewalk.

❖ ***Priority 2 – Recommend all pedestrian crossings at the Keystone and 2nd Street intersection be upgraded to meet the new ADA standards.***

- The pedestrian signal head on the northwest corner for the southwest to northwest crossing is hidden behind a utility pole. See Photo 8.

Photo 8 – View of the pedestrian head at Keystone and 2nd

- ***Priority 1 – Recommend adjusting the pedestrian signal head on the northwest corner of Keystone Avenue and 2nd Street be more visible to pedestrians in the crosswalk or.***

- ***Priority 1 – Recommend coordination with NV Energy to have the utility pole on the northwest corner of Keystone Avenue and 2nd Street relocated to the west to improve sight of the pedestrian signal head.***

- The driveway to the convenient store on the northeast corner of Keystone and 2nd Street has severe cracks and pot holes. This can be a tripping hazard to pedestrians. See photo 9.

Photo 9 – Northeast corner of 2nd Street Driveway

❖ ***Priority 1 – Recommend the replacing the driveway/sidewalk on the northwest corner of Keystone Avenue and 2nd Street.***

Keystone Ave/1st Street

- The pedestrian push buttons on the southeast signal pole at Keystone Avenue and 2nd Street are higher than the required height for ADA standards. See photo 11.

Photo 11– 1st Street Southeast Pedestrian Buttons

❖ ***Priority 1 – Recommend moving the pedestrian push buttons to the required height per ADA requirement of between 42 and 48 inches as per the MUTCD manual section 4E.08.***

- There is a utility pole anchor wire in the sidewalk on the southeast side of the Keystone Avenue and 1st Street intersection that can be a issue to pedestrians during night time hours. See photo 12.

Photo 12– Southeast Side of 1st Street Anchor Wire

❖ ***Priority 1 – Recommend coordinating with NV Energy to remove or add protection to the anchor wire within the sidewalk on the southeast side of Keystone and 1st Street.***

Keystone Avenue / Jones Street (Truckee River Structure)

- The roadway over the Truckee River Bridge is 2 lanes wide in each direction with no bike lanes or sidewalk. Most users will stay on the west side of Keystone Avenue and go down to Riverside Drive via a southbound split in Keystone Avenue and then cross the river to the west at Booth Street. There is signing on the east side of the structure that prohibits pedestrians or bicycles on the bridge. There is no signing to direct the pedestrians and bicycles to use the west side split to cross the river. There is no signing for the southbound pedestrians and bicycles on the west side to use the split and Booth Street as well. See photo 13.

Photo 13 – Truckee River Bridge

❖ ***Priority 2 – Recommend upgrading the signing to direct bicycles and pedestrians to use Riverside Drive and Booth Street to cross the Truckee River.***

Keystone Avenue / California Avenue

- The intersection of Keystone Avenue and California Avenue is a skewed intersection within a grade. There are ramps connecting to Booth Street and a tight radius ramp with California Avenue for westbound to northbound traffic. Pedestrians are limited to Booth Street and access California Avenue via a staircase that takes them from underneath the Keystone structure up to California Avenue. There is an eastbound through lane bypass for California Avenue. There are no bike lanes on any of the roads. This intersection is confusing and is not bike or pedestrian friendly. See photo 14.

Photo 14 – California Ave .Intersection

- ***Priority 2 – Recommend a study to determine if another intersection type such as, but not limited to, a roundabout can improve operations at the Keystone Avenue, Booth Street and California Avenue intersections.***

Keystone Avenue (4th Street to California Avenue)

- The segment of Keystone Avenue from 4th Street to California Avenue currently meets the segment criteria for high crash segments.

❖ ***Priority 2 – Recommend review of the signal timing and progression along the Keystone Avenue segment.***

- The segment of Keystone Avenue from 4th Street to California Avenue currently has on-street parking from 4th to 1st Street and no bicycle lanes. The route serves as a connection point for residential neighborhoods to the commercial area of downtown Reno.

❖ ***Priority 2 – Consider a feasibility study to determine the need for bike lanes along the route for future project planning.***

- The Keystone Bridge structural rating by NDOT was structurally deficient with a rating of 43.7 and considered eligible for replacement or rehabilitation. See appendix for complete bridge report.

❖ ***Priority 2 – Recommend coordination with the NDOT Bridge design division in the event of bridge replacement to meet the need of all modes of traffic.***

SUMMARY OF RECOMMENDATIONS

Keystone Avenue from 4th Street to California Avenue

Pre-Construction Phase RSA

Note: Numbered recommendations can be found on the attached aerial photo plan sheets.

Priority 1 – is defined as those improvements that can be done in the immediate future by the City of Reno Maintenance staff:

2nd Street

1. ***Recommend adjusting the pedestrian signal head on the northwest corner of Keystone Avenue and 2nd Street relocated to the west.***

2. ***Recommend the replacing the driveway/sidewalk on the northwest corner of Keystone Avenue and 2nd Street.***

3. ***Recommend coordination with NV Energy to have the utility pole on the northwest corner of Keystone Avenue and 2nd Street relocated to the west to improve sight of the pedestrian signal head.***

1st Street

4. ***Recommend moving the pedestrian push buttons to the required height per ADA requirement of between 42 and 48 inches as per the MUTCD manual section 4E.08***

5. ***Recommend coordinating with NV Energy to remove or add protection to the anchor wire within the sidewalk on the southeast side of Keystone and 1st Street.***

Priority 2 – is defined as those improvements that can be included in the Corridor study or the next scheduled City of Reno/Washoe RTC projects for Keystone Avenue within the 4th Street and California Avenue limits when funding is available:

4th Street

6. ***Recommend all pedestrian crossings at the Keystone and 4th Street intersection be upgraded to meet the new ADA standards.***

7. ***coordinating with NDOT Safety / Traffic divisions to determine if this location as a candidate for the yellow flashing arrow for left turns***

8. ***Recommend placement of median islands for the left turn pockets on the east and west legs of the Keystone and 4th Street intersection***

9. ***Recommend relocating the pole on the southwest corner of Keystone Avenue and 4th Street to behind the sidewalk.***

10. ***Recommend adding to the width of the sidewalk behind the pole if the pole cannot be relocated.***

2nd Street

11. ***Recommend replacing the westbound traffic signal pole and mast arm on the northwest corner at Keystone and 2nd Street to a standard pole to the approved Standards.***

12. ***Recommend all pedestrian crossings at the Keystone and 2nd Street intersection be upgraded to meet the new ADA standards.***

Jones Street

13. ***Recommend upgrading signing to direct bicycles and pedestrians to use Riverside Drive and Booth Street to cross the Truckee River.***

California Street

14. ***Recommend a study to determine if another intersection type such as, but not limited to, a roundabout can improve operations at the Keystone Avenue, Booth Street and California Avenue intersections.***

Keystone Avenue Corridor

15. ***Consider a feasibility study to determine the need for bike lanes along the route for future project planning***

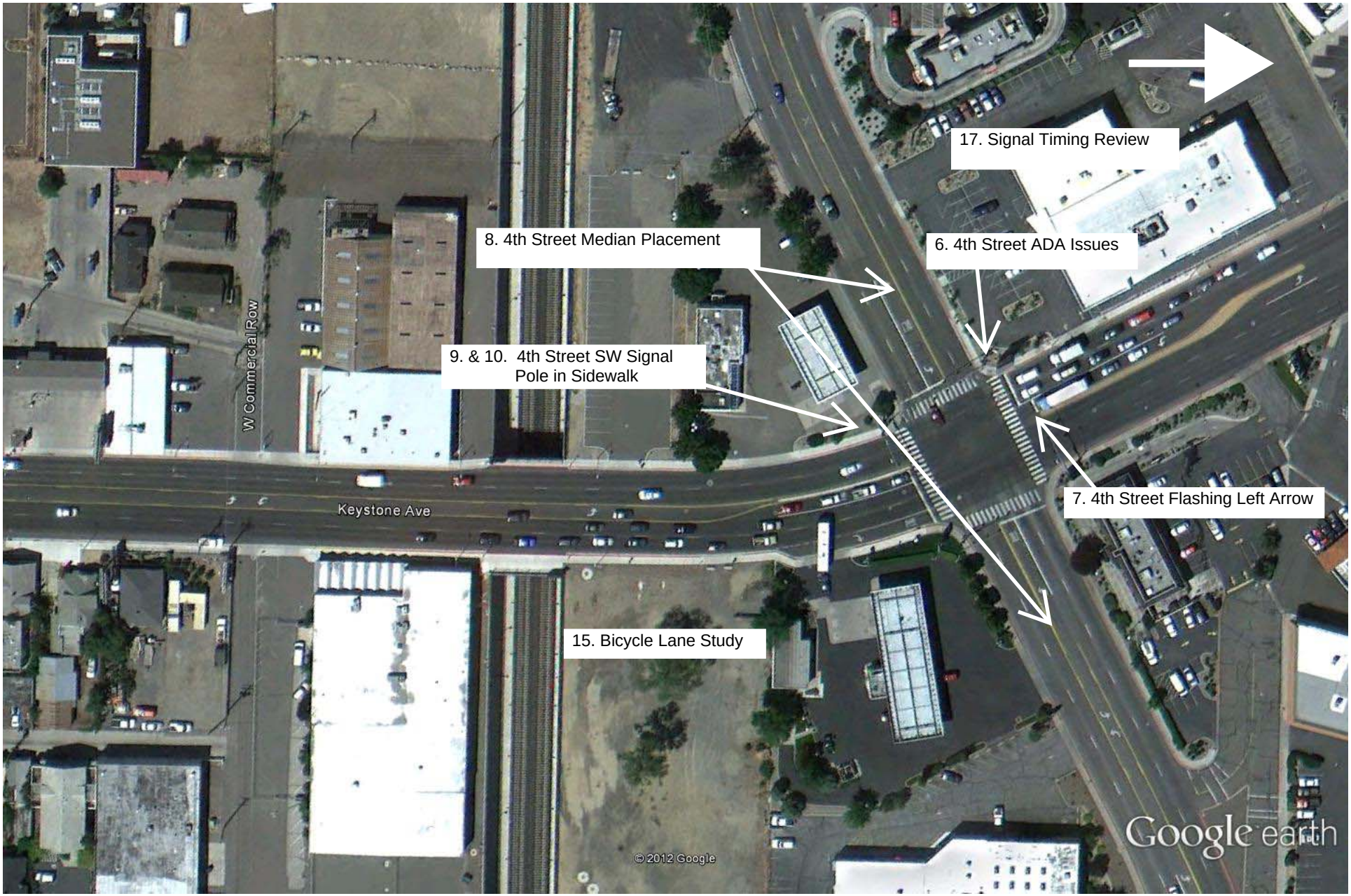
16. ***Recommend coordination with the NDOT Bridge design division in the event of bridge replacement to meet the need of all modes of traffic.***

17. ***Recommend review of the signal timing and progression along the Keystone Avenue segment.***

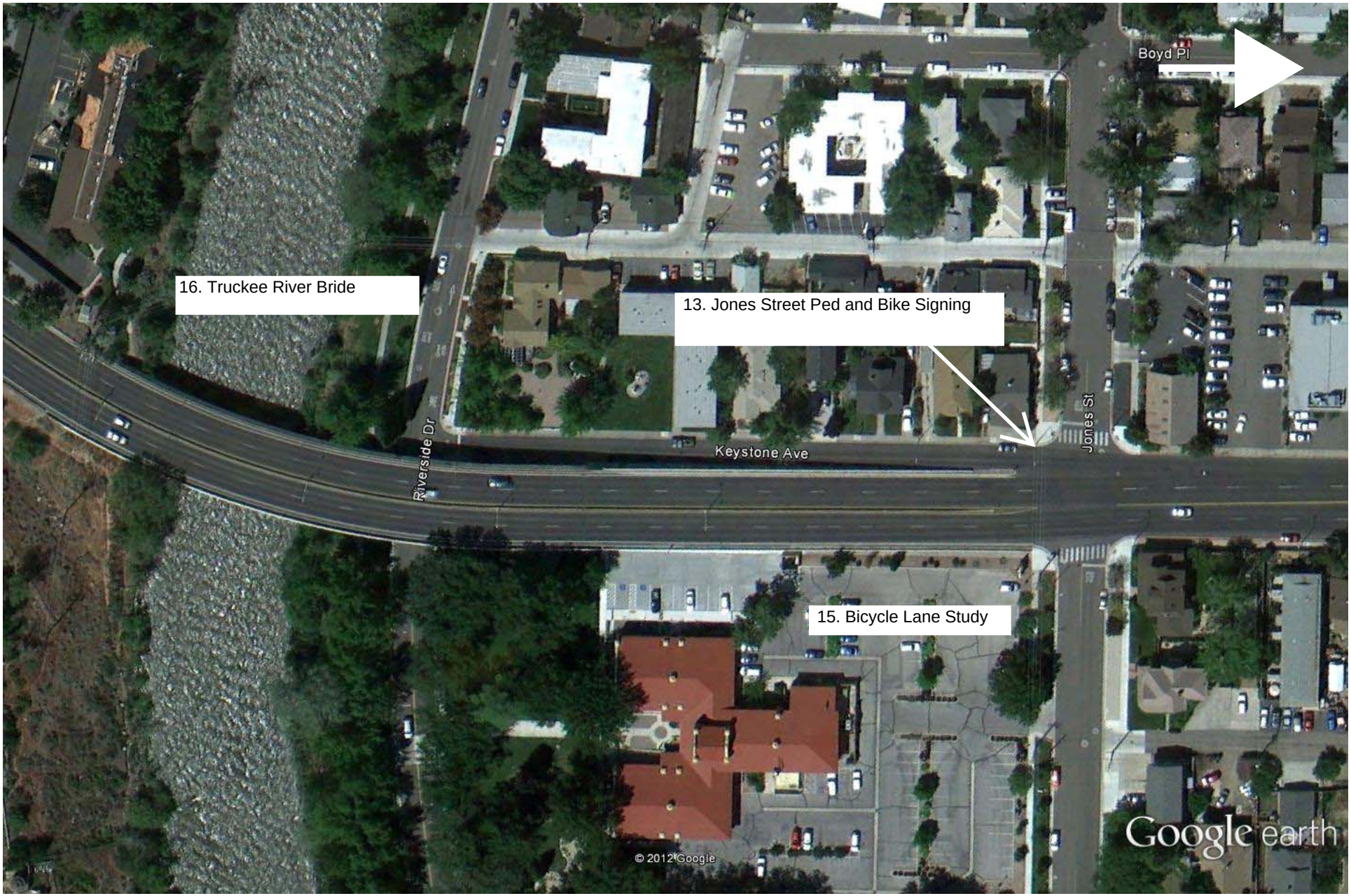
APPENDIX

The following items are found in the appendix:

- **Recommendation Location Maps**
- **Keystone Avenue Crash Data for the RSA segment**
- **Keystone Avenue Raw Crash Data**
- **2010 Functional Classification Crash Rates**
- **NDOT AADT Data**
- **NDOT Bridge Report**
- **RSA Team Members**


17. Signal Timing Review
8. 4th Street Median Placement
6. 4th Street ADA Issues
9. & 10. 4th Street SW Signal Pole in Sidewalk
W Commercial Row
Keystone Ave
7. 4th Street Flashing Left Arrow
15. Bicycle Lane Study
© 2012 Google
Google earth


W 1st St
15. Bicycle Lane Study
Keystone Pl
2. & 3. Pedestrian Signal Head
5. 1st Street NV Energy Anchor Wire
12. 2nd Street Upgrade ADA
Commercial Row
11. 2nd Street Replace Signal Pole
4. 1st Street Pedestrian Push Button
1. 2nd Street Driveway Replacement
17. Signal Timing Review
W 2nd St
© 2012 Google
Google earth


16. Truckee River Bride
13. Jones Street Ped and Bike Signing
15. Bicycle Lane Study
Boyd Pl
Riverside Dr
Keystone Ave
Jones St
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Keystone Ave
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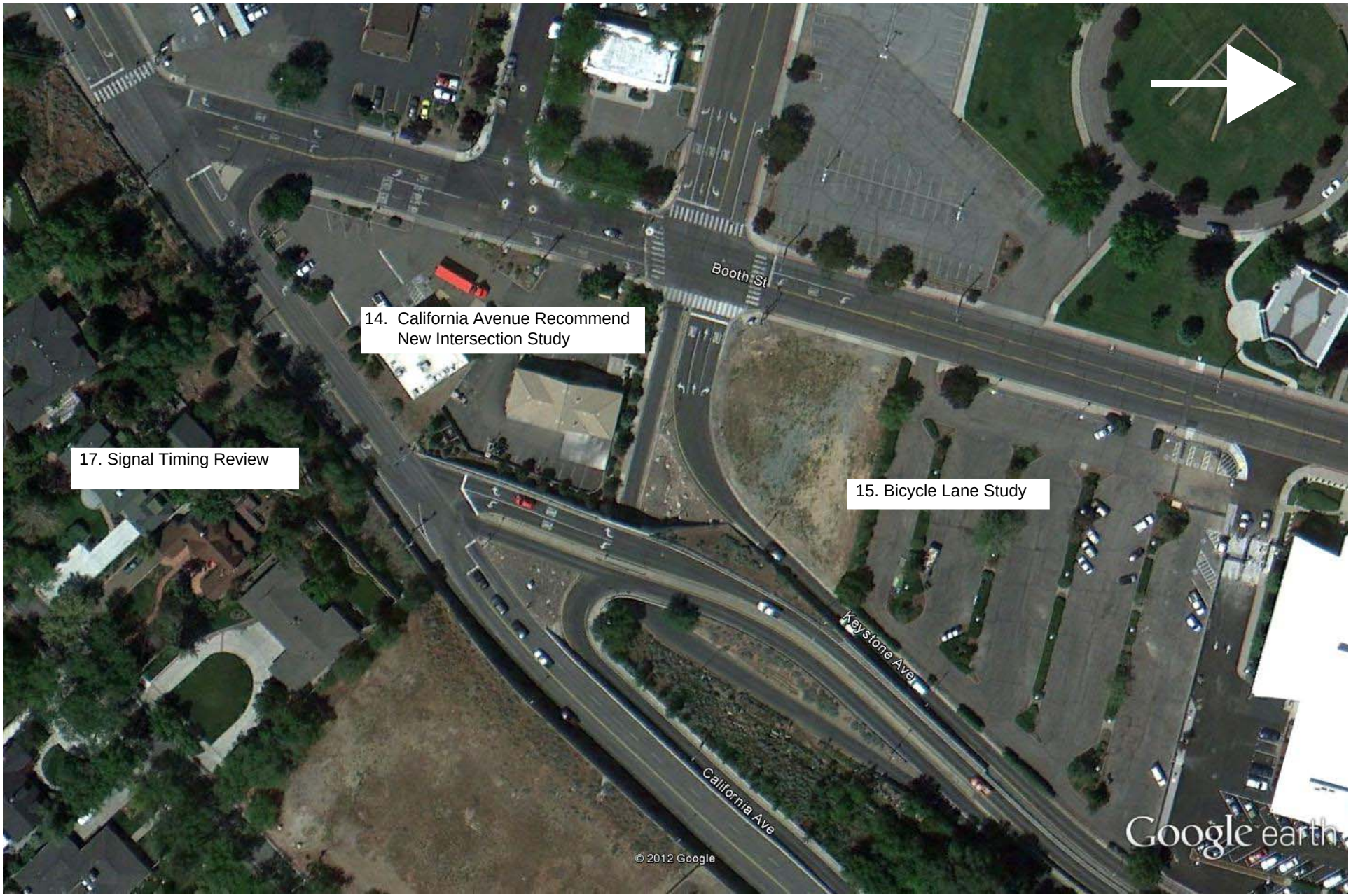

Booth St
14. California Avenue Recommend New Intersection Study
17. Signal Timing Review
15. Bicycle Lane Study
Keystone Ave
California Ave
© 2012 Google
Google earth

Keystone Ave
Road Safety Audit
Crash Analysis
California Ave. to 4th St.

A crash study was conducted for Keystone Ave. from California Ave. to 4th St. The crash data was for the three year study period from July 1, 2008 thru June 30, 2011. The following data was compiled:

Overall Crash Data

- 54 Total crashes during the time period (7/1/2008 to 6/30/2011) (0.90 Miles)
  - 15 injury crashes with 24 injuries.
  - 0 fatal crashes with 0 fatalities

- A overall crash rate of 3.699 crashes per million vehicle miles
  - Fatal crash rate: 0.000 crashes per million vehicle miles
  - Injury crash rate: 1.027 crashes per million vehicle miles
  - PDO crash rate: 2.671 crashes per million vehicle miles

Predominant Crash Type

- 26 Rear-end crashes
  - 6 injury crashes with 12 injuries
- 11 Angle crashes
  - 5 injury crashes with 7 injuries
- 11 Sideswipe crashes
  - 2 injury crashes with 3 injuries
- 3 Non-collision crashes
  - 2 injury crashes with 2 injuries
- 2 Backing crashes
- 1 Unknown crash

Contributing Factor

- 25 crashes where driver factor was Apparently Normal
  - 10 injury crashes with 13 injuries
- 25 crashes where driver factor was Other Improper Driving
  - 3 injury crashes with 5 injuries
- 2 crashes where driver had been drinking
- 1 crash where driver was Inattention or Distracted
  - 1 injury crash with 4 injuries
- 1 crash where driver Fell Asleep
  - 1 injury crash with 2 injuries

Weather Conditions

- 42 crashes occurred during Dry weather
  - 15 injury crashes, with 24 injuries
- 12 crashes with Non-Listed weather conditions

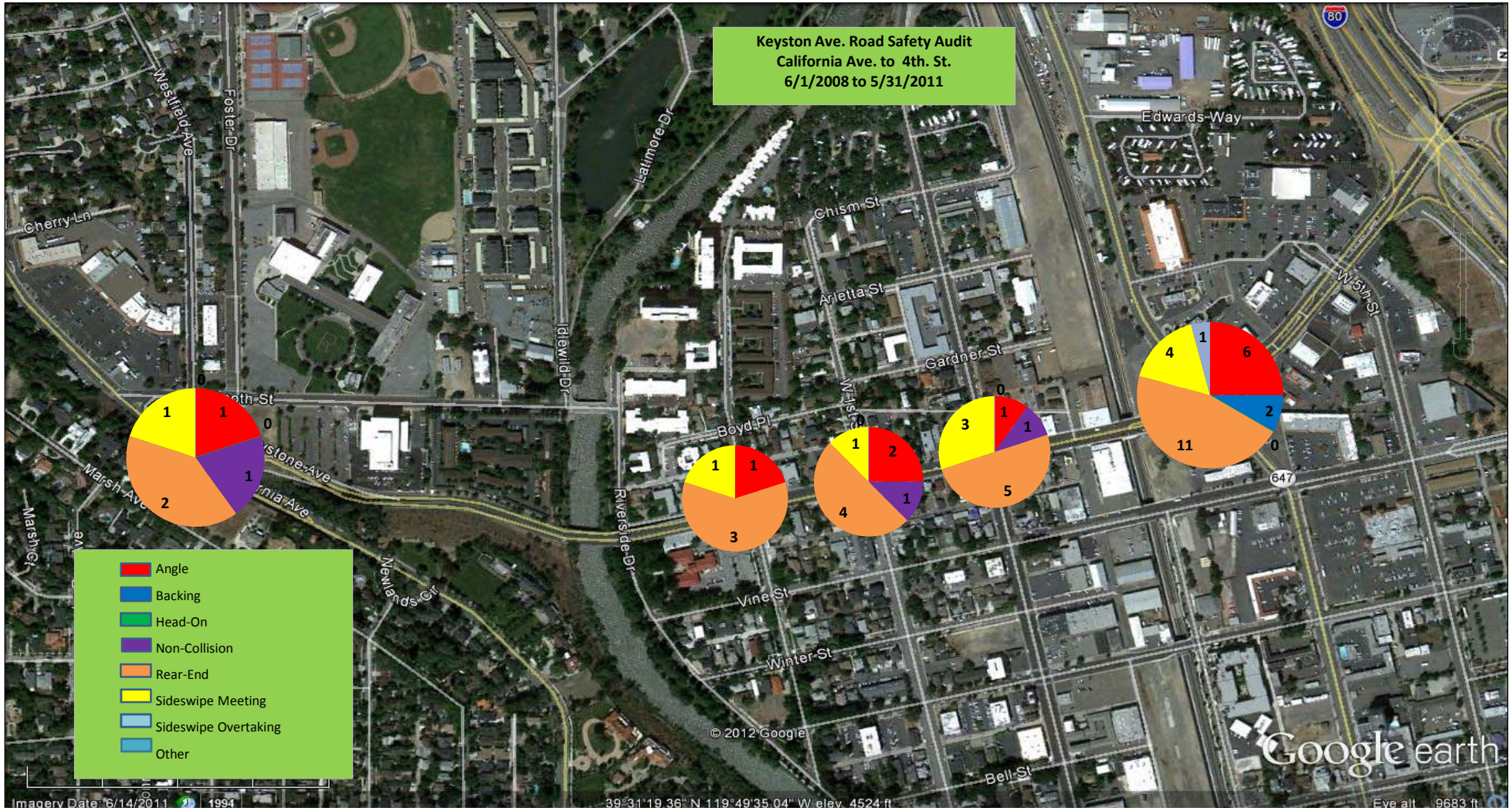
Light Conditions

- 31 Daylight crashes
    - 8 injury crashes with 14 injuries
- 9 Non-Listed lighting condition crashes
- 4 Dark-Spot Lighting crashes
    - 3 injury crashes, 5 injuries
- 3 Not Reported lighting condition crashes
- 2 Dusk crashes
    - 2 injury crashes with 2 injuries
- 2 Unknown lighting condition crashes
    - 1 injury crash, 1 injury
- 1 Dark-No Lighting crashes
    - 1 injury crash with 2 injuries
- 1 Dark-Continuous Lighting crash

High Crash Locations

- The intersection of Keystone Ave. and 4th St. (45 crashes) was found to meet High Crash Location criteria, (Urban, 30 or more crashes in 3 years).

- The complete roadway segment was found to meet High Crash Location criteria (Urban, 30 or more crashes in 3 years, in a one mile segment).


Keyston Ave. Road Safety Audit
California Ave. to 4th. St.
6/1/2008 to 5/31/2011
Angle
Backing
Head-On
Non-Collision
Rear-End
Sideswipe Meeting
Sideswipe Overtaking
Other
Westfield Ave
Foster Dr
Idlewild Dr
Latimore Dr
Cherry Ln
Chism St
Arletta St
Gardner St
Boyd Pl
Riverside Dr
Vine St
Winter St
Bell St
Edwards Way
W 5th St
Marsh Ave
Marsh Ct
Newlands Cir
647
80
© 2012 Google
Google earth
Imagery Date: 6/14/2011
39°31'19.36" N 119°49'35.04" W elev 4524 ft
Eye alt 9683 ft

ROAD SEGMENT
KEYSTONE AVE BETWEEN 4TH ST & CALIFORNIA AVE
01 JUN 08 - 01 SEP 11
County: WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_ Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_D amage_On ly	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_D ir	V1 Drvr Age	V1_Lane_N um	V1_Action	V1_Driver_Factor	V1 Drvr Distracte d	V1_Vehicle_Factor
PROPERTY DAMAGE	05-Oct-2010	2010	07:18 PM	KEYSTONE AVE	400	N	4TH ST	CLOUDY			PDO		ANGLE	2	1	SEDAN, 4 DOOR	W	60	3	GOING STRAIGHT	APPARENTLY NORMAL		HIT AND RUN
PROPERTY DAMAGE	03-Nov-2010	2010	05:25 PM	KEYSTONE AVE	300	N	4TH ST	CLEAR			PDO		ANGLE	2									
INJURY ACCIDENT	21-Jul-2009	2009	10:05 AM	KEYSTONE AVE	175	N	4TH ST	CLEAR		1		B	ANGLE	2	1	HATCHBACK, 4 DOOR	N	88	2	TURNING LEFT	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY
INJURY ACCIDENT	07-Feb-2011	2011	03:26 PM	KEYSTONE AVE	150	N	4TH ST	CLEAR		1		C	REAR-END	3	1	SEDAN, 4 DOOR	S	19	2	GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	26-Jun-2009	2009	03:50 PM	KEYSTONE AVE	125	N	4TH ST	CLEAR			PDO		SIDESWIPE, MEETING	2	1	CARRY-ALL	N			CHANGING LANES			HIT AND RUN
INJURY ACCIDENT	17-Mar-2009	2009	02:48 PM	KEYSTONE AVE	70	N	4TH ST	CLEAR		3		C	REAR-END	3	1	VAN	S	52	2	GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	06-Apr-2009	2009	03:22 PM	KEYSTONE AVE	50	N	4TH ST	CLEAR			PDO		REAR-END	2	1	SEDAN, 2 DOOR	S	18	2	GOING STRAIGHT	APPARENTLY NORMAL		MECHANICAL DEFECTS
PROPERTY DAMAGE	29-Nov-2009	2009	03:54 PM	KEYSTONE AVE	20	N	4TH ST	CLEAR			PDO		BACKING	2	1	HATCHBACK, 4 DOOR	S	63	1	BACKING UP	APPARENTLY NORMAL		UNSAFE BACKING
INJURY ACCIDENT	01-Aug-2008	2008	09:14 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR		1		C	REAR-END	2	1	SEDAN, 4 DOOR	S	58		GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	14-Aug-2008	2008	03:05 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	N	38		GOING STRAIGHT	UNKNOWN		UNKNOWN
PROPERTY DAMAGE	28-Aug-2008	2008	09:50 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	30		GOING STRAIGHT	UNKNOWN		UNKNOWN
PROPERTY DAMAGE	15-Oct-2008	2008	08:42 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1		S	46	1	TURNING RIGHT	APPARENTLY NORMAL		MADE AN IMPROPER TURN
PROPERTY DAMAGE	14-Dec-2008	2008	11:41 PM	KEYSTONE AVE		AT INT	4TH ST	SNOW			PDO		NOT REPORTED	2	1	UTILITY	S			GOING STRAIGHT	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY: DRIVING TOO FAST FOR C
PROPERTY DAMAGE	13-Apr-2009	2009	12:50 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	44	2	GOING STRAIGHT			UNKNOWN
PROPERTY DAMAGE	29-Jun-2009	2009	09:50 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, MEETING	1	1	SEMI	W	49	2	TURNING RIGHT	APPARENTLY NORMAL		FAILURE TO KEEP IN PROPER LANE OR RUNNING OFF ROAD
PROPERTY DAMAGE	11-Oct-2009	2009	01:30 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		ANGLE	2	1	CARRY-ALL	E	27		TURNING RIGHT			MADE AN IMPROPER TURN
PROPERTY DAMAGE	09-Dec-2010	2010	05:45 PM	KEYSTONE AVE		AT INT	4TH ST	UNKNOWN			PDO		ANGLE	2	1	CARRY-ALL	E	77		TURNING RIGHT			UNKNOWN
INJURY ACCIDENT	26-Feb-2010	2010	01:56 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR		1		C	ANGLE	2	1	SEDAN, 4 DOOR	N	84		TURNING LEFT	APPARENTLY NORMAL		MADE AN IMPROPER TURN
PROPERTY DAMAGE	11-Mar-2010	2010	07:55 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	N	18	2	GOING STRAIGHT			UNKNOWN
PROPERTY DAMAGE	29-Apr-2011	2011	10:39 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1		N			PASSING OTHER VEHICLE			DRIVING TOO FAST FOR CONDITIONS
PROPERTY DAMAGE	29-Dec-2010	2010	06:20 PM	KEYSTONE AVE		AT INT	4TH ST	UNKNOWN			PDO		REAR-END	3	1	CARRY-ALL	N			GOING STRAIGHT	APPARENTLY NORMAL		UNKNOWN
PROPERTY DAMAGE	01-Jul-2009	2009	10:27 AM	KEYSTONE AVE	12	S	4TH ST	CLEAR			PDO		REAR-END	2	1	SEDAN, 4 DOOR	N	22	2	GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	06-Mar-2010	2010	10:18 AM	KEYSTONE AVE	20	S	4TH ST	CLOUDY			PDO		REAR-END	2	1	PICKUP	N			STOPPED	APPARENTLY NORMAL		
PROPERTY DAMAGE	04-Aug-2009	2009	02:35 PM	KEYSTONE AVE	150	S	4TH ST	CLEAR			PDO		BACKING	2	1	SEDAN, 4 DOOR	S			BACKING UP			HIT AND RUN: UNSAFE BACKING
PROPERTY DAMAGE	15-Oct-2008	2008	11:47 AM	KEYSTONE AVE	600	N	2ND ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	CARRY-ALL	S		1	CHANGING LANES	APPARENTLY NORMAL		UNSAFE LANE CHANGE
INJURY ACCIDENT	01-Apr-2009	2009	05:49 PM	KEYSTONE AVE	310	N	2ND ST	CLEAR		1		A	ANGLE	2	1	SEDAN, 4 DOOR	E	22	2	NOT REPORTED	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY
PROPERTY DAMAGE	24-Apr-2009	2009	05:02 PM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		REAR-END	2	1	HATCHBACK, 4 DOOR	N			GOING STRAIGHT	APPARENTLY NORMAL		
PROPERTY DAMAGE	08-Oct-2009	2009	02:50 PM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	SEDAN, 4 DOOR	S	45		NOT REPORTED			UNKNOWN
PROPERTY DAMAGE	08-Oct-2009	2009	02:35 PM	KEYSTONE AVE		AT INT	2ND ST	UNKNOWN			PDO		REAR-END	2	1	SEDAN, 4 DOOR	S	29		GOING STRAIGHT			UNSAFE LANE CHANGE
PROPERTY DAMAGE	14-Jun-2010	2010	11:45 AM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		REAR-END	2	1	CARRY-ALL	S			GOING STRAIGHT			HIT AND RUN
INJURY ACCIDENT	10-Nov-2009	2009	10:52 AM	KEYSTONE AVE	10	S	2ND ST	CLEAR		4		C	REAR-END	4	1	CARRY-ALL	S	16	2	GOING STRAIGHT	INATTENTION/DISTRACTE	OTHER	OTHER IMPROPER DRIVING
INJURY ACCIDENT	02-Jul-2010	2010	09:04 PM	KEYSTONE AVE	50	S	2ND ST	CLEAR		1		A	NON-COLLISION	1	1	SEDAN, 4 DOOR	N	45	2	TURNING LEFT	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY
PROPERTY DAMAGE	16-Dec-2010	2010	05:15 PM	KEYSTONE AVE	100	S	2ND ST	UNKNOWN			PDO		SIDESWIPE, OVERTAKING	2	1	PICKUP	N			CHANGING LANES			UNKNOWN
INJURY ACCIDENT	21-May-2009	2009	12:47 PM	KEYSTONE AVE	120	S	2ND ST	CLEAR		1		B	REAR-END	2	1	SEDAN, 4 DOOR	N	19	2	GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
INJURY ACCIDENT	31-Jul-2010	2010	11:20 PM	KEYSTONE AVE	20	N	1ST ST	CLEAR		2		C	REAR-END	2	1	SEDAN, 4 DOOR	S	22	1	GOING STRAIGHT	FELL ASLEEP, FAINTED, FATIGUED		OTHER IMPROPER DRIVING
PROPERTY DAMAGE	01-Nov-2008	2008	12:00 PM	KEYSTONE AVE		AT INT	1ST ST	CLOUDY			PDO		REAR-END	2	1	CARRY-ALL	S	0	1	UNKNOWN	UNKNOWN		UNKNOWN
PROPERTY DAMAGE	28-May-2009	2009	12:00 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR			PDO		REAR-END	2	1	OTHER	N		2	GOING STRAIGHT	APPARENTLY NORMAL		DRIVING TOO FAST FOR CONDITIONS
PROPERTY DAMAGE	02-Jul-2009	2009	11:57 AM	KEYSTONE AVE		AT INT	1ST ST	CLEAR			PDO		SIDESWIPE, MEETING	2	1	SEMI	S	54		TURNING LEFT			FAILURE TO KEEP IN PROPER LANE OR RUNNING OFF ROAD
INJURY ACCIDENT	30-Nov-2009	2009	05:02 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		1		A	NON-COLLISION	1	1	SEDAN, 4 DOOR	S	47		TURNING LEFT	APPARENTLY NORMAL		
PROPERTY DAMAGE	10-Dec-2009	2009	06:31 PM	KEYSTONE AVE		AT INT	1ST ST	CLOUDY			PDO		REAR-END	2	1	CARRY-ALL	S	26		GOING STRAIGHT			UNKNOWN
INJURY ACCIDENT	07-Mar-2009	2009	07:01 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		2		B	ANGLE	2	1	STATION WAGON	S	49	2	TURNING LEFT	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY: MADE AN IMPROPER TURN
INJURY ACCIDENT	23-Sep-2010	2010	05:18 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		2			ANGLE	2									
PROPERTY DAMAGE	09-Oct-2008	2008	01:28 AM	KEYSTONE AVE	30	N	JONES ST	CLEAR			PDO		REAR-END	3	1		N	22		GOING STRAIGHT	HAD BEEN DRINKING		FAILURE TO KEEP IN PROPER LANE OR RUNNING OFF ROAD
INJURY ACCIDENT	28-Nov-2008	2008	06:30 PM	KEYSTONE AVE	30	N	JONES ST	CLEAR		1		C	SIDESWIPE, OVERTAKING	2	1	SEDAN, 4 DOOR	N	0	1	CHANGING LANES	UNKNOWN		UNKNOWN
PROPERTY DAMAGE	01-Apr-2011	2011	12:49 PM	KEYSTONE AVE	25	N	JONES ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	49	1	GOING STRAIGHT	APPARENTLY NORMAL		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	08-Jun-2010	2010	01:24 PM	KEYSTONE AVE		AT INT	JONES ST	CLEAR			PDO		ANGLE	2	1	SEDAN, 2 DOOR	W	71		TURNING LEFT	APPARENTLY NORMAL		FAILED TO YIELD RIGHT OF WAY
PROPERTY DAMAGE	02-Apr-2010	2010	03:15 PM	KEYSTONE AVE		AT INT	JONES ST	CLOUDY			PDO		REAR-END	2	1	SEDAN, 4 DOOR	S			GOING STRAIGHT	OTHER IMPROPER DRIVING		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	16-Aug-2008	2008	09:59 AM	KEYSTONE AVE	200	N	RIVERSIDE DR	CLEAR			PDO		REAR-END	2	1	SEDAN, 2 DOOR	S	40	1	GOING STRAIGHT	HAD BEEN DRINKING		FAILURE TO KEEP IN PROPER LANE OR RUNNING OFF ROAD
INJURY ACCIDENT	20-Dec-2008	2008	08:14 PM	KEYSTONE AVE	150	S	RIVERSIDE DR	CLOUDY		2		C	SIDESWIPE, OVERTAKING	2	1	SEDAN, 2 DOOR	S	20	2	GOING STRAIGHT	UNKNOWN		UNKNOWN
PROPERTY DAMAGE	06-Oct-2008	2008	05:00 PM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		REAR-END	2	1	STATION WAGON	E	66	1	TURNING LEFT	UNKNOWN		FOLLOWED TOO CLOSELY
PROPERTY DAMAGE	27-Dec-2009	2009	04:26 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		NON-COLLISION	1	1	SEDAN, 4 DOOR	W			GOING STRAIGHT			HIT AND RUN
PROPERTY DAMAGE	13-Nov-2010	2010	10:30 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	UNKNOWN			PDO		ANGLE	2	1	PICKUP		22		TURNING LEFT			
PROPERTY DAMAGE	26-Oct-2010	2010	09:25 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		REAR-END	2									
PROPERTY DAMAGE	29-Mar-2010	2010	02:07 PM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	HATCHBACK, 4 DOOR	N	72		TURNING LEFT	APPARENTLY NORMAL		MADE AN IMPROPER TURN
									Sum: 0	Sum: 24	Count: 39												
									Count: 0	Count: 15													
54								TOTAL	Count: 54														

V1_Most_Harmful_Event	V1_Event_1	V1_Event_2	Veh_2	V2_Type	V2_Dir	V2 Drvr Age	V2_Lane_ Num	V2_Action	Factors Nonmotor	Factors_Roadway	Lighting	HWY_Factors	Agency	Accident_Num
MOTOR VEHICLE IN TRANSPORT			2	CARRY-ALL	S	49	3	TURNING LEFT		DRY	DARK - CONTINUOUS LIGHTING	NONE	NHP	NHP1010051506
										DRY	DAYLIGHT	NONE	RPD	RPD1027899
			2	PICKUP	S	40	2	GOING STRAIGHT		DRY	UNKNOWN	NONE	RPD	RPD0923978
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	S	71	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD112745
	SLOW/STOPPED VEHICLE		2	SEDAN, 2 DOOR	S	23		TURNING LEFT		DRY	DAYLIGHT	NONE	RPD	RPD0921203
	SLOW/STOPPED VEHICLE		2	CARRY-ALL	S	32	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD099109
	SLOW/STOPPED VEHICLE		2	CARRY-ALL	S	39	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0911562
SLOW/STOPPED VEHICLE	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	S	25	1	STOPPED		DRY	DAYLIGHT	NONE	NHP	NHP0911290796
NOT REPORTED			2	SEDAN, 4 DOOR	S	30		GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD0826325
NOT REPORTED			2	CARRY-ALL	N	29		GOING STRAIGHT		NOT REPORTED	NOT REPORTED		RPD	RPD0828087
SLOW/STOPPED VEHICLE	SLOW/STOPPED VEHICLE		2	CARRY-ALL	S	59		STOPPED		DRY	DAYLIGHT	UNKNOWN	RPD	RPD0829845
MOTOR VEHICLE IN TRANSPORT			2	SEDAN, 4 DOOR	S	32	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD0835506
NOT REPORTED			2	CARRY-ALL	E	46		TURNING LEFT		NOT REPORTED	NOT REPORTED		RPD	RPD0842545
			2	SEDAN, 4 DOOR	S		2	GOING STRAIGHT		DRY	DAYLIGHT	UNKNOWN	RPD	RPD0912356
)	LIGHT/LUMINARY SUPPORT									DRY	DAYLIGHT	NONE	RPD	RPD0921447
			2	CARRY-ALL	S	62		GOING STRAIGHT		DRY	DAYLIGHT	UNKNOWN	RPD	RPD0933971
			2	PICKUP	S	27		MAKING U-TURN		DRY	DARK - SPOT LIGHTING	UNKNOWN	RPD	RPD10104554
			2	HATCHBACK, 2 D	S	27		GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD105933
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	N	38	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD107210
			2	VAN	N			STOPPED					RPD	RPD118346
			2	PICKUP	N			CHANGING LANES					RPD	RPD10104913SUP
			2	MOTORCYCLE	N	63	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0921724
			2	SEDAN, 4 DOOR	N			GOING STRAIGHT					RPD	RPD106729
			2	PICKUP	S	26		TURNING LEFT		DRY	DAYLIGHT	NONE	RPD	RPD0925655
MOTOR VEHICLE IN TRANSPORT			2	PICKUP	S	36	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD0835527
			2	MOTORCYCLE	S	48	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD0911037
			2	CARRY-ALL	N			GOING STRAIGHT					RPD	RPD0913753
			2	SEDAN, 4 DOOR	S	29		NOT REPORTED					RPD	RPD0933294
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	S	45		STOPPED		DRY	UNKNOWN	UNKNOWN	RPD	RPD0933352
			2	SEDAN, 4 DOOR	S	59		STOPPED		DRY	DAYLIGHT		RPD	RPD1015905
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	S	25	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0937065
	PEDAL CYCLE								NOT VISIBLE (DARK CLOTHING)	DRY	DARK - SPOT LIGHTING	NONE	RPD	RPD1019848
			2	HATCHBACK, 2 D	N			GOING STRAIGHT					RPD	RPD10104709
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	N	22	2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0917047
	SLOW/STOPPED VEHICLE		2	CARRY-ALL	S	47	1	STOPPED		DRY	DARK - SPOT LIGHTING	NONE	RPD	RPD1020044
SLOW/STOPPED VEHICLE	SLOW/STOPPED VEHICLE		2	CARRY-ALL	N	74	1	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0837596
	SLOW/STOPPED VEHICLE		2	PICKUP	N		2	STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0917821
)	SLOW/STOPPED VEHICLE	CROSS MEDIAN/CENTERLINE	2	SEDAN, 4 DOOR	N			STOPPED		DRY	DAYLIGHT	NONE	RPD	RPD0921858
	PEDESTRIAN								FAILURE TO OBEY TRAFFIC SIGNS, SIGNALS, OR C	DRY	DUSK	NONE	RPD	RPD0939090
	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	S	49		STOPPED		DRY	DARK - SPOT LIGHTING	UNKNOWN	RPD	RPD0940431
N			2	CARRY-ALL	N	33	2	GOING STRAIGHT		DRY	DARK - SPOT LIGHTING	NONE	RPD	RPD097884
										DRY	DAYLIGHT	NONE	RPD	RPD1024732
NOT REPORTED			2	SEDAN, 2 DOOR	N			PARKED		NOT REPORTED	NOT REPORTED		RPD	RPD0834842
MOTOR VEHICLE IN TRANSPORT			2	SEDAN, 4 DOOR	N	60	1	CHANGING LANES		DRY	DUSK	NONE	RPD	RPD0840842
	SLOW/STOPPED VEHICLE		2	CARRY-ALL	S	22	1	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD116326
	GUARDRAIL FACE		2	CARRY-ALL	S	19		GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD1015403
			2	SEDAN, 4 DOOR	N			TURNING LEFT					RPD	RPD109597
PARKED MOTOR VEHICLE	RAN OFF ROAD RIGHT	PARKED MOTOR VEHICLE	2	SEDAN, 4 DOOR	S			PARKED		DRY	DAYLIGHT	NONE	RPD	RPD0828282
MOTOR VEHICLE IN TRANSPORT			2	SEDAN, 2 DOOR	S	45	1	GOING STRAIGHT		DRY	DARK - NO LIGHTING	NONE	RPD	RPD0843469
SLOW/STOPPED VEHICLE	SLOW/STOPPED VEHICLE		2	SEDAN, 4 DOOR	E	0	1	TURNING LEFT		DRY	DAYLIGHT	NONE	RPD	RPD0834639
													RPD	RPD0941430
			2	PICKUP				GOING STRAIGHT		DRY	DAYLIGHT	UNKNOWN	RPD	RPD10104154
													RPD	RPD1027266
			2	PICKUP	N	33		GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD	RPD109167

INTERSECTION DETAIL
KEYSTONE AVE @ 4TH ST
01 JUN 08 - 01 SEP 11
County:WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_ Damage_ Only	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_ Num	V1_Action	V1_Driver_Factor
INJURY ACCIDENT	06-Aug-2008	2008	09:57 AM	4TH ST	150	E	KEYSTONE AVE	CLEAR		1		B	ANGLE	1	1	SEDAN, 4 DOOR	E	74	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	03-Oct-2010	2010	01:15 AM	4TH ST	100	E	KEYSTONE AVE	CLEAR			PDO		ANGLE	1	1	SEDAN, 2 DOOR	W	29	0	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	21-Jul-2008	2008	10:24 AM	4TH ST	50	E	KEYSTONE AVE	CLEAR			PDO		REAR-END	2	1	CARRY-ALL	E	21	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	13-Jan-2009	2009	11:10 AM	4TH ST	40	E	KEYSTONE AVE	CLEAR			PDO		REAR-END	2	1	CARRY-ALL	W	39	1	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	02-Mar-2009	2009	06:27 PM	4TH ST	30	E	KEYSTONE AVE	RAIN			PDO		REAR-END	2	1	SEDAN, 4 DOOR	N	35	1	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	29-Aug-2010	2010	01:20 AM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	UNKNOWN	0	0	0	0	0
PROPERTY	19-Jul-2008	2008	12:28 AM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		HEAD-ON	2	1	PICKUP	S	29	0	TURNING LEFT	HAD BEEN DRINKING
INJURY ACCIDENT	17-Apr-2011	2011	11:47 AM	4TH ST		AT INT	KEYSTONE AVE	CLOUDY		1		C	REAR-END	2	1	0	E	0	2	BACKING UP	0
PROPERTY	11-Oct-2009	2009	01:15 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	SEDAN, 4 DOOR	W	0	0	TURNING RIGHT	0
PROPERTY	07-Oct-2009	2009	04:30 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	CARRY-ALL	N	32	0	TURNING LEFT	0
PROPERTY	16-Mar-2009	2009	04:20 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	PICKUP	W	40	0	GOING STRAIGHT	0
PROPERTY	06-Mar-2009	2009	01:50 PM	4TH ST		AT INT	KEYSTONE AVE	CLOUDY			PDO		ANGLE	2	1	SEDAN, 2 DOOR	W	23	0	GOING STRAIGHT	0
PROPERTY	19-May-2009	2009	11:15 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	MOTORIZED HOME	W	59	0	CHANGING LANES	0
INJURY ACCIDENT	26-Feb-2010	2010	08:25 PM	4TH ST		AT INT	KEYSTONE AVE	RAIN		3		C	ANGLE	3	1	SEDAN, 4 DOOR	E	16	1	TURNING LEFT	APPARENTLY NORMAL
INJURY ACCIDENT	25-Jul-2010	2010	08:39 AM	4TH ST		AT INT	KEYSTONE AVE	CLEAR		1		C	ANGLE	2	1	HARDTOP, 4 DOOR	W	59	0	GOING STRAIGHT	APPARENTLY NORMAL
INJURY ACCIDENT	30-Jul-2010	2010	05:07 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR		3		C	HEAD-ON	2	1	OTHER	E	19	0	TURNING LEFT	APPARENTLY NORMAL
PROPERTY	06-Mar-2011	2011	07:42 PM	4TH ST		AT INT	KEYSTONE AVE	CLOUDY			PDO		ANGLE	2	1	CARRY-ALL	S	21	0	GOING STRAIGHT	APPARENTLY NORMAL
INJURY ACCIDENT	22-Feb-2010	2010	05:05 PM	4TH ST		AT INT	KEYSTONE AVE	CLEAR		1		C	REAR-END	2	1	PICKUP	E	22	1	GOING STRAIGHT	0
PROPERTY	08-Apr-2011	2011	04:02 PM	4TH ST	40	W	KEYSTONE AVE	CLOUDY			PDO		ANGLE	2	1	SEDAN, 2 DOOR	N	38	1	NOT REPORTED	APPARENTLY NORMAL
PROPERTY	08-Mar-2010	2010	04:33 PM	4TH ST	60	W	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	OTHER	N	20	1	TURNING LEFT	APPARENTLY NORMAL
INJURY ACCIDENT	19-Jul-2010	2010	01:04 PM	4TH ST	60	W	KEYSTONE AVE	CLEAR		1			SIDESWIPE, OVERTAKING	2	1	UNKNOWN	0	0	0	0	0
PROPERTY	13-Feb-2009	2009	09:26 PM	4TH ST	100	W	KEYSTONE AVE	CLOUDY			PDO		ANGLE	2	1	CARRY-ALL	S	32	1	TURNING LEFT	APPARENTLY NORMAL
PROPERTY	16-Jan-2011	2011	12:58 PM	4TH ST	150	W	KEYSTONE AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	VAN	W	70	1	CHANGING LANES	APPARENTLY NORMAL
INJURY ACCIDENT	05-Oct-2010	2010	10:10 AM	4TH ST	200	W	KEYSTONE AVE	RAIN		2			ANGLE	2	1	UNKNOWN	0	0	0	0	0
INJURY ACCIDENT	21-Jul-2009	2009	10:05 AM	KEYSTONE AVE	175	N	4TH ST	CLEAR		1		B	ANGLE	2	1	HATCHBACK, 4 DOOR	N	88	2	TURNING LEFT	APPARENTLY NORMAL
INJURY ACCIDENT	07-Feb-2011	2011	03:26 PM	KEYSTONE AVE	150	N	4TH ST	CLEAR		1		C	REAR-END	3	1	SEDAN, 4 DOOR	S	19	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	26-Jun-2009	2009	03:50 PM	KEYSTONE AVE	125	N	4TH ST	CLEAR			PDO		SIDESWIPE, MEETING	2	1	CARRY-ALL	N	0	0	CHANGING LANES	0
INJURY ACCIDENT	17-Mar-2009	2009	02:48 PM	KEYSTONE AVE	70	N	4TH ST	CLEAR		3		C	REAR-END	3	1	VAN	S	52	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	06-Apr-2009	2009	03:22 PM	KEYSTONE AVE	50	N	4TH ST	CLEAR			PDO		REAR-END	2	1	SEDAN, 2 DOOR	S	18	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	29-Apr-2011	2011	10:39 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	0	N	0	0	PASSING OTHER V	0
PROPERTY	09-Dec-2010	2010	05:45 PM	KEYSTONE AVE		AT INT	4TH ST	UNKNOWN			PDO		ANGLE	2	1	CARRY-ALL	E	77	0	TURNING RIGHT	0
PROPERTY	13-Apr-2009	2009	12:50 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	44	2	GOING STRAIGHT	0
PROPERTY	14-Dec-2008	2008	11:41 PM	KEYSTONE AVE		AT INT	4TH ST	SNOW			PDO		NOT REPORTED	2	1	UTILITY	S	0	0	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	14-Aug-2008	2008	03:05 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	N	38	0	GOING STRAIGHT	UNKNOWN
INJURY ACCIDENT	01-Aug-2008	2008	09:14 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR		1		C	REAR-END	2	1	SEDAN, 4 DOOR	S	58	0	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	28-Aug-2008	2008	09:50 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	30	0	GOING STRAIGHT	UNKNOWN
PROPERTY	11-Mar-2010	2010	07:55 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		REAR-END	2	1	PICKUP	N	18	2	GOING STRAIGHT	0
INJURY ACCIDENT	26-Feb-2010	2010	01:56 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR		1		C	ANGLE	2	1	SEDAN, 4 DOOR	N	84	0	TURNING LEFT	APPARENTLY NORMAL
PROPERTY	11-Oct-2009	2009	01:30 PM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		ANGLE	2	1	CARRY-ALL	E	27	0	TURNING RIGHT	0
PROPERTY	29-Jun-2009	2009	09:50 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, MEETING	1	1	SEMI	W	49	2	TURNING RIGHT	APPARENTLY NORMAL
PROPERTY	15-Oct-2008	2008	08:42 AM	KEYSTONE AVE		AT INT	4TH ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	0	S	46	1	TURNING RIGHT	APPARENTLY NORMAL
PROPERTY	29-Dec-2010	2010	06:20 PM	KEYSTONE AVE		AT INT	4TH ST	UNKNOWN			PDO		REAR-END	3	1	CARRY-ALL	N	0	0	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	01-Jul-2009	2009	10:27 AM	KEYSTONE AVE	12	S	4TH ST	CLEAR			PDO		REAR-END	2	1	SEDAN, 4 DOOR	N	22	2	GOING STRAIGHT	APPARENTLY NORMAL
PROPERTY	06-Mar-2010	2010	10:18 AM	KEYSTONE AVE	20	S	4TH ST	CLOUDY			PDO		REAR-END	2	1	PICKUP	N	0	0	STOPPED	APPARENTLY NORMAL
PROPERTY	04-Aug-2009	2009	02:35 PM	KEYSTONE AVE	150	S	4TH ST	CLEAR			PDO		BACKING	2	1	SEDAN, 4 DOOR	S	0	0	BACKING UP	0
									Sum: 0	#######	Count: 32										
									Count: 0	#######											
45								TOTAL	Count: 45												

V1_Vehicle_Factor	V1_Most_Harmful_Event	V1 Seq Event1	Veh_2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Factor_Nonmotor	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
UNKNOWN	PEDAL CYCLE	PEDAL CYCLE						DARTING: FAILURE TO YIELD RIGHT OF W	DRY	DAYLIGHT	NONE	RPD0826961
0	0	PEDESTRIAN						OTHER: IMPROPER CROSSING	0	DARK - SPOT LIGHTING	0	RPD1025513
FOLLOWED TOO CLOSELY	MOTOR VEHICLE IN TRANSPOR	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	E	2	STOPPED		DRY	DAYLIGHT	NONE	RPD0824956
FOLLOWED TOO CLOSELY	0	SLOW/STOPPED VEHICLE	2	CARRY-ALL	W	1	STOPPED		DRY	DAYLIGHT	NONE	RPD091419
FOLLOWED TOO CLOSELY	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	N	1	STOPPED		DRY	DARK - SPOT LIGHTING	NONE	RPD097212
0	0	0	2	UNKNOWN	0	0	0		0	0	0	RPD1022482
FAILED TO YIELD RIGHT OF WAY	NOT REPORTED	0	2	0	E	0	GOING STRAIGHT		NOT REPORTED	NOT REPORTED	0	RPD0824729
HIT AND RUN	0	0	2	MOTORCYCLE	E	2	STOPPED		DRY	DAYLIGHT	NONE	RPD117443
UNKNOWN	0	0	2	SEDAN, 4 DOOR	N	0	GOING STRAIGHT		0	0	0	RPD0934072
UNKNOWN	0	0	2	CARRY-ALL	W	0	GOING STRAIGHT		0	0	0	RPD0933280
HIT AND RUN	0	SLOW/STOPPED VEHICLE	2	BUS	W	0	STOPPED		DRY	DAYLIGHT	UNKNOWN	RPD099962
UNKNOWN	0	0	2	STATION WAGON	E	0	TURNING LEFT		0	0	0	RPD097735
UNKNOWN	0	0	2	HATCHBACK, 2 DOOR	W	0	GOING STRAIGHT		0	0	0	RPD0916910
FAILED TO YIELD RIGHT OF WAY	0	0	2	PICKUP	W	1	GOING STRAIGHT		DRY	DARK - SPOT LIGHTING	NONE	RPD105977
DISREGARDED TRAFFIC SIGNS, SIGNALS, ROAD MARK	0	0	2	SEDAN, 4 DOOR	S	0	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD1019384
FAILED TO YIELD RIGHT OF WAY	0	0	2	SEDAN, 4 DOOR	W	0	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD1019933
DISREGARDED TRAFFIC SIGNS, SIGNALS, ROAD MARK	0	0	2	SEDAN, 4 DOOR	S	0	TURNING RIGHT		DRY	DARK - SPOT LIGHTING	NONE	RPD114469
UNKNOWN	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	E	1	STOPPED		DRY	UNKNOWN	UNKNOWN	RPD105573
FAILED TO YIELD RIGHT OF WAY	0	0	2	SEDAN, 2 DOOR	E	1	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD116826
FAILED TO YIELD RIGHT OF WAY	0	0	2	PICKUP	E	1	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD106965
0	0	0	2	UNKNOWN	0	0	0		DRY	DAYLIGHT	NONE	RPD1018903
FAILED TO YIELD RIGHT OF WAY	0	0	2	SEDAN, 4 DOOR	W	1	GOING STRAIGHT		DRY	DARK - SPOT LIGHTING	NONE	RPD094994
UNSAFE LANE CHANGE	0	0	2	SEDAN, 4 DOOR	W	1	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD111119
0	0	0	2	UNKNOWN	0	0	0		DRY	DAYLIGHT	NONE	RPD1025658
FAILED TO YIELD RIGHT OF WAY	0	0	2	PICKUP	S	2	GOING STRAIGHT		DRY	UNKNOWN	NONE	RPD0923978
FOLLOWED TOO CLOSELY	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	S	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD112745
HIT AND RUN	0	SLOW/STOPPED VEHICLE	2	SEDAN, 2 DOOR	S	0	TURNING LEFT		DRY	DAYLIGHT	NONE	RPD0921203
FOLLOWED TOO CLOSELY	0	SLOW/STOPPED VEHICLE	2	CARRY-ALL	S	2	STOPPED		DRY	DAYLIGHT	NONE	RPD099109
MECHANICAL DEFECTS	0	SLOW/STOPPED VEHICLE	2	CARRY-ALL	S	2	STOPPED		DRY	DAYLIGHT	NONE	RPD0911562
DRIVING TOO FAST FOR CONDITIONS	0	0	2	VAN	N	0	STOPPED		0	0	0	RPD118346
UNKNOWN	0	0	2	PICKUP	S	0	MAKING U-TURN		DRY	DARK - SPOT LIGHTING	UNKNOWN	RPD10104554
UNKNOWN	0	0	2	SEDAN, 4 DOOR	S	2	GOING STRAIGHT		DRY	DAYLIGHT	UNKNOWN	RPD0912356
FAILED TO YIELD RIGHT OF WAY: DRIVING TOO FAST F	NOT REPORTED	0	2	CARRY-ALL	E	0	TURNING LEFT		NOT REPORTED	NOT REPORTED	0	RPD0842545
UNKNOWN	NOT REPORTED	0	2	CARRY-ALL	N	0	GOING STRAIGHT		NOT REPORTED	NOT REPORTED	0	RPD0828087
FOLLOWED TOO CLOSELY	NOT REPORTED	0	2	SEDAN, 4 DOOR	S	0	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD0826325
UNKNOWN	SLOW/STOPPED VEHICLE	SLOW/STOPPED VEHICLE	2	CARRY-ALL	S	0	STOPPED		DRY	DAYLIGHT	UNKNOWN	RPD0829845
UNKNOWN	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	N	2	STOPPED		DRY	DAYLIGHT	NONE	RPD107210
MADE AN IMPROPER TURN	0	0	2	HATCHBACK, 2 DOOR	S	0	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD105933
MADE AN IMPROPER TURN	0	0	2	CARRY-ALL	S	0	GOING STRAIGHT		DRY	DAYLIGHT	UNKNOWN	RPD0933971
FAILURE TO KEEP IN PROPER LANE OR RUNNING OFF I	0	LIGHT/LUMINARY SUPPORT							DRY	DAYLIGHT	NONE	RPD0921447
MADE AN IMPROPER TURN	MOTOR VEHICLE IN TRANSPOR	0	2	SEDAN, 4 DOOR	S	2	GOING STRAIGHT		DRY	DAYLIGHT	NONE	RPD0835506
UNKNOWN	0	0	2	PICKUP	N	0	CHANGING LANES		0	0	0	RPD10104913SUP
FOLLOWED TOO CLOSELY	0	0	2	MOTORCYCLE	N	2	STOPPED		DRY	DAYLIGHT	NONE	RPD0921724
0	0	0	2	SEDAN, 4 DOOR	N	0	GOING STRAIGHT		0	0	0	RPD106729
HIT AND RUN: UNSAFE BACKING	0	0	2	PICKUP	S	0	TURNING LEFT		DRY	DAYLIGHT	NONE	RPD0925655

INTERSECTION DETAIL
KEYSTONE AVE @ 2ND ST
01 JUN 08 - 01 SEP 11
County:WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_ Damage_ Only	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_ Num	V1_Action	V1_Driver_Factor	V1 Drvr Distracted
INJURY ACCIDENT	08-Mar-2011	2011	05:30 AM	2ND ST		AT INT	KEYSTONE AVE	UNKNOWN		1		B	UNKNOWN	1	1	PICKUP	E	53	0	TURNING LEFT	0	0
PROPERTY DAMAGE	20-Jul-2010	2010	06:29 PM	2ND ST	125	W	KEYSTONE AVE	CLEAR			PDO		REAR-END	2	1	UNKNOWN	0	0	0	0	0	0
INJURY ACCIDENT	27-Oct-2010	2010	05:58 PM	2ND ST		AT INT	KEYSTONE AVE	CLOUDY		1			ANGLE	2	1	UNKNOWN	0	0	0	0	0	0
PROPERTY DAMAGE	16-Dec-2010	2010	05:15 PM	KEYSTONE AVE	100	S	2ND ST	UNKNOWN			PDO		SIDESWIPE, OVERTAKING	2	1	PICKUP	N	0	0	CHANGING LANES	0	0
PROPERTY DAMAGE	14-Jun-2010	2010	11:45 AM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		REAR-END	2	1	CARRY-ALL	S	0	0	GOING STRAIGHT	0	0
PROPERTY DAMAGE	24-Apr-2009	2009	05:02 PM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		REAR-END	2	1	HATCHBACK, 4 DOOR	N	0	0	GOING STRAIGHT	APPARENTLY NORMAL	0
INJURY ACCIDENT	10-Nov-2009	2009	10:52 AM	KEYSTONE AVE	10	S	2ND ST	CLEAR		4		C	REAR-END	4	1	CARRY-ALL	S	16	2	GOING STRAIGHT	INATTENTION/DISTRACTED	OTHER
INJURY ACCIDENT	29-Jul-2010	2010	09:04 PM	KEYSTONE AVE	50	S	2ND ST	CLEAR		1		A	NON-COLLISION	1	1	SEDAN, 4 DOOR	N	45	2	TURNING LEFT	APPARENTLY NORMAL	0
PROPERTY DAMAGE	08-Oct-2009	2009	02:50 PM	KEYSTONE AVE		AT INT	2ND ST	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	SEDAN, 4 DOOR	S	45	0	NOT REPORTED	0	0
PROPERTY DAMAGE	08-Oct-2009	2009	02:35 PM	KEYSTONE AVE		AT INT	2ND ST	UNKNOWN			PDO		REAR-END	2	1	SEDAN, 4 DOOR	S	29	0	GOING STRAIGHT	0	0
INJURY ACCIDENT	21-May-2009	2009	12:47 PM	KEYSTONE AVE	120	S	2ND ST	CLEAR		1		B	REAR-END	2	1	SEDAN, 4 DOOR	N	19	2	GOING STRAIGHT	APPARENTLY NORMAL	0
									Sum: 0	Sum: 8	Count: 6											
									Count: 0	Count: 5												
11								TOTAL	Count: 11													

KEYSTONE AVE @ 1ST ST
01 JUN 08 - 01 SEP 11
County:WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_ Damage_ Only	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_ Num	V1_Action	V1_Driver_Factor	V1_Vehicle_F actor
PROPERTY DAMAGE	09-Jun-2010	2010	11:45 AM	1ST ST		AT INT	KEYSTONE AVE	CLEAR			PDO		UNKNOWN	2	1	PICKUP	E	0	0	GOING STRAIGHT	APPARENTLY NORMAL	UNKNOWN
INJURY ACCIDENT	31-Jul-2010	2010	11:20 PM	KEYSTONE AVE	20	N	1ST ST	CLEAR		2		C	REAR-END	2	1	SEDAN, 4 DOOR	S	22	1	GOING STRAIGHT	FELL ASLEEP, FAINTED, FATIGU	OTHER IMPRO
PROPERTY DAMAGE	28-May-2009	2009	12:00 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR			PDO		REAR-END	2	1	OTHER	N	0	2	GOING STRAIGHT	APPARENTLY NORMAL	DRIVING TOO
PROPERTY DAMAGE	01-Nov-2008	2008	12:00 PM	KEYSTONE AVE		AT INT	1ST ST	CLOUDY			PDO		REAR-END	2	1	CARRY-ALL	S	0	1	UNKNOWN	UNKNOWN	UNKNOWN
INJURY ACCIDENT	23-Sep-2010	2010	05:18 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		2			ANGLE	2	1	UNKNOWN	0	0	0	0	0	0
PROPERTY DAMAGE	10-Dec-2009	2009	06:31 PM	KEYSTONE AVE		AT INT	1ST ST	CLOUDY			PDO		REAR-END	2	1	CARRY-ALL	S	26	0	GOING STRAIGHT	0	UNKNOWN
INJURY ACCIDENT	30-Nov-2009	2009	05:02 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		1		A	NON-COLLISION	1	1	SEDAN, 4 DOOR	S	47	0	TURNING LEFT	APPARENTLY NORMAL	0
PROPERTY DAMAGE	02-Jul-2009	2009	11:57 AM	KEYSTONE AVE		AT INT	1ST ST	CLEAR			PDO		SIDESWIPE, MEETING	2	1	SEMI	S	54	0	TURNING LEFT	0	FAILURE TO K
INJURY ACCIDENT	07-Mar-2009	2009	07:01 PM	KEYSTONE AVE		AT INT	1ST ST	CLEAR		2		B	ANGLE	2	1	STATION WAGON	S	49	2	TURNING LEFT	APPARENTLY NORMAL	FAILED TO YI
									Sum: 0	Sum: 7	Count: 5											
									Count: 0	Count: 4												
9								TOTAL	Count: 9													

KEYSTONE AVE @ JONES ST
01 JUN 08 - 01 SEP 11
County:WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_ Damage_ Only	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_ Num	V1_Action	V1_Driver_Factor	V1_Vehicle_F actor
PROPERTY DAMAGE	17-Oct-2008	2008	04:55 PM	JONES ST	100	W	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	VAN	S	42	1	GOING STRAIGHT	INATTENTION/DISTRACTED	FAILED TO YI
INJURY ACCIDENT	28-Nov-2008	2008	06:30 PM	KEYSTONE AVE	30	N	JONES ST	CLEAR		1		C	SIDESWIPE, OVERTAKING	2	1	SEDAN, 4 DOOR	N	0	1	CHANGING LANES	UNKNOWN	UNKNOWN
PROPERTY DAMAGE	09-Oct-2008	2008	01:28 AM	KEYSTONE AVE	30	N	JONES ST	CLEAR			PDO		REAR-END	3	1	0	N	22	0	GOING STRAIGHT	HAD BEEN DRINKING	FAILURE TO K
PROPERTY DAMAGE	01-Apr-2011	2011	12:49 PM	KEYSTONE AVE	25	N	JONES ST	CLEAR			PDO		REAR-END	2	1	PICKUP	S	49	1	GOING STRAIGHT	APPARENTLY NORMAL	FOLLOWED T
PROPERTY DAMAGE	08-Jun-2010	2010	01:24 PM	KEYSTONE AVE		AT INT	JONES ST	CLEAR			PDO		ANGLE	2	1	SEDAN, 2 DOOR	W	71	0	TURNING LEFT	APPARENTLY NORMAL	FAILED TO YI
PROPERTY DAMAGE	02-Apr-2010	2010	03:15 PM	KEYSTONE AVE		AT INT	JONES ST	CLOUDY			PDO		REAR-END	2	1	SEDAN, 4 DOOR	S	0	0	GOING STRAIGHT	OTHER IMPROPER DRIVING	FOLLOWED T
									Sum: 0	Sum: 1	Count: 5											
									Count: 0	Count: 1												
6								TOTAL	Count: 6													

KEYSTONE AVE @ CALIFORNIA AVE
01 JUN 08 - 01 SEP 11
County:WASHOE

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_ Damage_ Only	Injury_ Type	Crash_Type	Total Vehicles	Veh_1	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_ Num	V1_Action	V1_Driver_Factor	V1_Vehicle_F actor
PROPERTY DAMAGE	27-Feb-2009	2009	06:10 PM	CALIFORNIA AVE		AT INT	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	1	PICKUP	W	30	0	GOING STRAIGHT	APPARENTLY NORMAL	DISREGARDE
INJURY ACCIDENT	22-Aug-2009	2009	10:00 PM	CALIFORNIA AVE		AT INT	KEYSTONE AVE	CLEAR		1		B	HEAD-ON	2	1	SEDAN, 2 DOOR	W	40	0	GOING STRAIGHT	HAD BEEN DRINKING	DISREGARDE
PROPERTY DAMAGE	01-Jan-2010	2010	05:45 PM	CALIFORNIA AVE		AT INT	KEYSTONE AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	PICKUP	E	46	2	TURNING LEFT	0	UNKNOWN
PROPERTY DAMAGE	29-Dec-2010	2010	05:40 PM	CALIFORNIA AVE		AT INT	KEYSTONE AVE	SNOW			PDO		REAR-END	2	1	0	W	0	0	GOING STRAIGHT	0	HIT AND RUN
PROPERTY DAMAGE	02-Nov-2009	2009	09:00 PM	CALIFORNIA AVE		AT INT	KEYSTONE AVE	UNKNOWN			PDO		REAR-END	2	1	SEDAN, 2 DOOR	W	19	0	GOING STRAIGHT	0	UNKNOWN
PROPERTY DAMAGE	27-Dec-2008	2008	09:00 AM	CALIFORNIA AVE	100	S	KEYSTONE AVE	CLEAR			PDO		UNKNOWN	1	1	SEDAN, 4 DOOR	N	22	0	GOING STRAIGHT	0	UNKNOWN
PROPERTY DAMAGE	29-Mar-2010	2010	02:07 PM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		SIDESWIPE, OVERTAKING	2	1	HATCHBACK, 4 DOOR	N	72	0	TURNING LEFT	APPARENTLY NORMAL	MADE AN IMP
PROPERTY DAMAGE	06-Oct-2008	2008	05:00 PM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		REAR-END	2	1	STATION WAGON	E	66	1	TURNING LEFT	UNKNOWN	FOLLOWED T
PROPERTY DAMAGE	26-Oct-2010	2010	09:25 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		REAR-END	2	1	UNKNOWN	0	0	0	0	0	0
PROPERTY DAMAGE	27-Dec-2009	2009	04:26 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	CLEAR			PDO		NON-COLLISION	1	1	SEDAN, 4 DOOR	W	0	0	GOING STRAIGHT	0	HIT AND RUN
PROPERTY DAMAGE	13-Nov-2010	2010	10:30 AM	KEYSTONE AVE		AT INT	CALIFORNIA AVE	UNKNOWN			PDO		ANGLE	2	1	PICKUP	0	22	0	TURNING LEFT	0	0
									Sum: 0	Sum: 1	Count: 10											
									Count: 0	Count: 1												
11								TOTAL	Count: 11													

V1_Vehicle_Factor	V1_Most_Harmful_Event	V1 Seq Event1	Veh_2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Factor_Nonmotor	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
UNKNOWN	0	PEDESTRIAN						UNKNOWN	DRY	UNKNOWN	UNKNOWN	RPD115886
0	0	0	2	UNKNOWN	0	0	0	0	DRY	DAYLIGHT	NONE	RPD1018998
0	0	0	2	UNKNOWN	0	0	0	0	DRY	DUSK	NONE	RPD1027383
UNKNOWN	0	0	2	HATCHBACK, 2 DOOR	N	0	GOING STRAIGHT	0	0	0	0	RPD10104709
HIT AND RUN	0	0	2	SEDAN, 4 DOOR	S	0	STOPPED	0	DRY	DAYLIGHT	0	RPD1015905
0	0	0	2	CARRY-ALL	N	0	GOING STRAIGHT	0	0	0	0	RPD0913753
OTHER IMPROPER DRIVING	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	S	2	STOPPED	0	DRY	DAYLIGHT	NONE	RPD0937065
FAILED TO YIELD RIGHT OF WAY	0	PEDAL CYCLE						NOT VISIBLE (DARK CLOTHING)	DRY	DARK - SPOT LIGHTING	NONE	RPD1019848
UNKNOWN	0	0	2	SEDAN, 4 DOOR	S	0	NOT REPORTED	0	0	0	0	RPD0933294
UNSAFE LANE CHANGE	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	S	0	STOPPED	0	DRY	UNKNOWN	UNKNOWN	RPD0933352
FOLLOWED TOO CLOSELY	0	SLOW/STOPPED VEHICLE	2	SEDAN, 4 DOOR	N	2	STOPPED	0	DRY	DAYLIGHT	NONE	RPD0917047

V1_Most_Harmful_Event	V1 Seq Event1	V1 Seq Event2	Veh_2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Factor_Nonmotor	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
0	0	0	2	SEDAN, 4 DOOR	0	0	PARKED		0	0	0	RPD1015497
0	SLOW/STOPPED	0	2	CARRY-ALL	S	1	STOPPED		DRY	DARK - SPOT LIGHTING	NONE	RPD1020044
0	SLOW/STOPPED	0	2	PICKUP	N	2	STOPPED		DRY	DAYLIGHT	NONE	RPD0917821
SLOW/STOPPED VEHICLE	SLOW/STOPPED	0	2	CARRY-ALL	N	1	STOPPED		DRY	DAYLIGHT	NONE	RPD0837596
0	0	0	2	UNKNOWN	0	0	0		DRY	DAYLIGHT	NONE	RPD1024732
0	SLOW/STOPPED	0	2	SEDAN, 4 DOOR	S	0	STOPPED		DRY	DARK - SPOT LIGHTING	UNKNOWN	RPD0940431
0	PEDESTRIAN	0						FAILURE TO OBEY TRAFFIC SIGNS,	DRY	DUSK	NONE	RPD0939090
0	SLOW/STOPPED	CROSS	2	SEDAN, 4 DOOR	N	0	STOPPED		DRY	DAYLIGHT	NONE	RPD0921858
0	0	0	2	CARRY-ALL	N	2	GOING STRAIGHT		DRY	DARK - SPOT LIGHTING	NONE	RPD097884

V1_Most_Harmful_Event	V1 Seq Event1	Veh_2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
SLOW/STOPPED VEHICLE	SLOW/STOPPED	2	SEDAN	E	0	STOPPED	DRY	DAYLIGHT	NONE	RPD0836312
MOTOR VEHICLE IN TRANSPORT	0	2	SEDAN	N	1	CHANGIN	DRY	DUSK	NONE	RPD0840842
NOT REPORTED	0	2	SEDAN	N	0	PARKED	NOT REPORTED	NOT REPORTED	0	RPD0834842
0	SLOW/STOPPED	2	CARRY	S	1	GOING ST	DRY	DAYLIGHT	NONE	RPD116326
0	GUARDRAIL FACE	2	CARRY	S	0	GOING ST	DRY	DAYLIGHT	NONE	RPD1015403
0	0	2	SEDAN	N	0	TURNING	0	0	0	RPD109597

V1_Most_Harmful_Event	V1 Seq Event1	Veh_2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Roadway_Factor	Lighting_Cond	Factors_Env	Accident_Num
0	0	2	CARRY	E	0	TURNING	DRY	DARK - SPOT LIGHTING	NONE	RPD096778
0	OTHER NON-	2	0	E	0	TURNING	DRY	DARK - CONTINUOUS LIGHTING	NONE	RPD0927866
0	0	2	SEDAN	E	2	GOING ST	DRY	DUSK	UNKNOWN	RPD103536
0	0	2	CARRY	W	0	GOING ST	0	0	0	RPD10104920
0	SLOW/STOPPED	2	CARRY	W	0	STOPPED	DRY	UNKNOWN	UNKNOWN	RPD0936270
0	FENCE/WALL						DRY	DAYLIGHT	WEATHER:	RPD093017
0	0	2	PICKUI	N	0	GOING ST	DRY	DAYLIGHT	NONE	RPD109167
SLOW/STOPPED VEHICLE	SLOW/STOPPED	2	SEDAN	E	1	TURNING	DRY	DAYLIGHT	NONE	RPD0834639
0	0	2	UNKNO	0	0	0	0	0	0	RPD1027266
0	0						0	0	0	RPD0941430
0	0	2	PICKUI	0	0	GOING ST	DRY	DAYLIGHT	UNKNOWN	RPD10104154

2010 FUNCTIONAL CLASSIFICATION CRASH RATES

2010 FUNCTIONAL CLASSIFICATION RURAL	TOTAL AVM	TOTAL P.D.O. CRASHES	P.D.O. CRASH RATE	TOTAL INJURY CRASHES	INJURY CRASH RATE	TOTAL FATAL CRASHES	FATAL CRASH RATE	TOTAL TRAFFIC CRASHES	CRASH RATE	TOTAL INJURIES	INJURY RATE	TOTAL FATALITIES	FATALITY RATE
RURAL INTERSTATE	1,904,925,666	677	0.36	322	0.17	31	0.02	1,030	0.54	512	0.27	35	0.0184
PRINCIPAL ARTERIAL RURAL	1,580,269,967	669	0.42	319	0.20	39	0.02	1,027	0.65	489	0.31	41	0.0259
MINOR ARTERIAL RURAL	444,689,657	314	0.71	155	0.35	11	0.02	480	1.08	232	0.52	21	0.0472
MAJOR COLLECTOR RURAL	390,764,617	235	0.60	131	0.34	17	0.04	383	0.98	182	0.47	12	0.0307
MINOR COLLECTOR RURAL	212,716,030	21	0.10	13	0.06	3	0.01	37	0.17	14	0.07	4	0.0188
LOCAL RURAL	500,179,816	217	0.43	85	0.17	3	0.01	305	0.61	128	0.26	3	0.0060
TOTAL	5,033,545,753	2,133	0.42	1,025	0.20	104	0.02	3,262	0.65	1,557	0.31	116	0.02

2010 FUNCTIONAL CLASSIFICATION URBAN	TOTAL AVM	TOTAL P.D.O. CRASHES	P.D.O. CRASH RATE	TOTAL INJURY CRASHES	INJURY CRASH RATE	TOTAL FATAL CRASHES	FATAL CRASH RATE	TOTAL TRAFFIC CRASHES	CRASH RATE	TOTAL INJURIES	INJURY RATE	TOTAL FATALITIES	FATALITY RATE
PRINCIPAL ARTERIAL INTERSTATE	3,490,240,119	1,681	0.48	693	0.20	5	0.00	2,379	0.68	982	0.28	5	0.0014
URBAN PRINCIPAL ARTERIAL OTHER FREEWAYS & EXPRESSWAYS	1,694,405,359	723	0.43	302	0.18	4	0.00	1,029	0.61	405	0.24	4	0.0024
PRINCIPAL ARTERIAL-OTHER	2,962,007,527	4,279	1.44	2,818	0.95	22	0.01	7,119	2.40	4,231		23	
MINOR ARTERIAL URBAN	4,500,154,027	6,768	1.50	4,830	1.07	42	0.01	11,640	2.59	7,392	1.64	46	0.0102
MAJOR COLLECTOR URBAN	3,876,115	0	0.00	0	0.00	0		0	0.00	0		0	
COLLECTOR URBAN	2,079,905,763	2,189	1.05	1,607	0.77	12	0.01	3,808	1.83	2,461	1.18	12	0.0058
LOCAL URBAN	2,380,630,195	6,506	2.73	3,846	1.62	46	0.02	10,398	4.37	5,656	2.38	51	0.0214
TOTAL	17,111,219,105	22,146	1.29	14,096	0.82	131	0	36,373	2	21,127	1	141	0

GRAND TOTAL	22,144,764,858	24,279	1.10	15,121	0.68	235	0.01	39,635	1.79	22,684	1.02	257	0.0116

RATES PER MILLION VEHICLE MILES

RATES BASED ON LOCATED CRASHES

NDOT Bridge Program Summary

Funding Source - Federal Highway Bridge Program (HBP)

- Bridge must carry highway traffic and be publicly owned to be HBP eligible
- 95% federal funds, 5% owner match
- 15% of HBP funds are allocated for bridges located off the federal aid system
- Funds may be used for bridge replacement or rehabilitation subject to eligibility requirements
- 15 % of the HBP funds are also used to administer the Bridge Program. Administration activities include conducting federally mandated condition assessment inspections, compiling inventory data, developing and operating a Bridge Management System, and calculating load ratings for existing bridges.

HBP Eligibility

- Bridge sufficiency rating (SR) assessed based on condition assessment and inventory data; value varies from 0 to 100, with 100 representing no deficiencies
- A bridge is considered Structurally Deficient (SD) when key elements reach an established level of deterioration
- A bridge is considered Functionally Obsolete (FO) when it contains restrictive geometrics or clearances that may impact operation of the facilities over and under the bridge
- A bridge is eligible for replacement when its SR < 50 and it is classified as being either SD or FO
- A bridge is eligible for rehabilitation when its SR </= 80 and it is classified as being either SD or FO
- Bridges receiving federal funds within the previous 10 year period are not eligible for HBP funds

Bridge Replacement

- Replacement projects include constructing a new bridge in the same general highway corridor that the existing bridge serves
- Replacement bridge does not have to be built at the same location as the old bridge, but the old bridge must be removed
- A nominal amount of approach work, sufficient to connect the new facility to the existing roadway is also eligible.

Bridge Rehabilitation

- Qualifying rehabilitation work includes widening (non-capacity), seismic retrofitting, strengthening, reconstruction of deteriorated elements and construction of scour countermeasures
- Primary use of HBP funds for rehabilitation work is for seismic retrofitting and scour countermeasures
- Seismic and scour susceptibility studies completed to identify and prioritize at-risk bridges; risk ratings assigned
- Bridge replacement may be considered and accepted by the FHWA in the event rehabilitation costs approach the cost of replacement

Project Identification

- Bridges eligible for HBP participation are identified in the FHWA Selection List
- Identify eligible state owned bridges for potential replacement or rehabilitation

NDOT Bridge Program Summary

- Owners of non-state bridges are notified of HBP eligibility of their bridge(s)
- Non-state bridge owners submit Project Submittal Application Form to have project evaluated for inclusion in the work program

Project Prioritization

- Identified HBP projects scheduled based on priority and funding availability
- Primary priority given to bridge replacement projects
- Replacement and rehabilitation projects prioritized based on the bridge sufficiency ratings
- Include adequate number of projects to meet 15% off-system requirement
- Seismic retrofit and scour countermeasure projects determined based on associated risk ratings

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

8: Structure Number	5: Inventory Route	Inspector	District
B1530	151006570	KELLY/VASILJEVIC	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

58: Deck Rating	7	59: Superstructure Rating	6	59: Superstructure	
Wearing Surface	6	Bearing Devices	6	Collision Damage	4
Deck Struc Condition	7	Stringers	5	Deflection under Load	
Curbs	7	Girders or Beams	6	Alignment of Members	7
Median		Diaphrams or Floor Beams	6	Vibrations under Load	
Sidewalks	5	Trusses: General			
Parapet	4	Portals			
Railing		Bracing			
Paint or Finish	5	Paint or Finish	4		
Drains		Rivets or Bolts	6		
Lighting Standard	7	Welds-Cracks	7		
Utility		Rust	5		
Joint Leakage	3	Timber Decay		Record Last Updated	
Expansion Joint/Devices	5	Concrete Cracking	4	4/19/2010 @ 14:02:31	

60: Substructure Rating	4	60: Substructure		61: Channel and Protection	
Abutments					
Wings	6	Pile Bents		Fender System	
Backwall	5	Cracking/Spalling	3	Spur Dikes and Jetties	
Footing		Steel Corrosion	3	Riprap or Slope Paving	7
Piles		Timber Decay, etc		Adequacy of Opening	8
Erosion	8	Debris on Seats	5	**62: Culvert Rating**	N
Settlement	8	Paint or Finish	6		
Piers or Bents		Collision Damages	7	Barrel	
Caps	4	**61: Channel Rating**	7	Concrete (enter just one value)	
Column	6	Channel Scour	7	Steel	
Footing		Embankment Erosion	6	Timber	
Piles		Drift	7	Headwall	
Scour	7	Vegetation	8	Cutoff Wall	
Settlement	8	Channel Change	7	Adequacy	
				Debris	

Nevada DOT Bridge Inspection Report

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Approach Alignment

Alignment	
Approach Slab	
Relief Joint	
Approach:	
Guardrail	6
Pavement	7
Embankment	7
Reserved	
Load Rating	
Posted Load	
Legibility	
Visibility	

Type of Inspection

Bridgemaster	☑
Special	☐
Routine	☐
Estimated Remaining Life	09 years

NBI Information:

29: ADT	13400
30: Year of ADT	2006
36: Safety Features	0 0 0 0
54: Min Vert Underclearance	H 4.22 m
228: Next Insp Due Date (Mth Year)	Apr 2012
Owner	City/Municipal Hwy Agenc
Maintenance Responsibility	City/Municipal Hwy Agenc

Nevada DOT Bridge Inspection Report

B1530

4/2/2010

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Comments and Notes *Use <Control-Enter> to enter paragraph breaks*

B 1530

04/02/2010 ROUTINE (WITH ACCESS EQUIPMENT) IN-DEPTH INSPECTION COMMENTS:

INSPECTION REPORT:
STRUCTURE INVENTORIED SOUTH TO NORTH.

NOTE: THE ACCESS COVERPLATES AT ABUTMENT 1 HAVE BEEN BOLTED AND TACK WELDED; THEREFORE, NO ACCESS WAS MADE TO THE SUPERSTRUCTURE. AREAS OF THE SUPERSTRUCTURE STEEL GIRDERS, DIAPHRAGMS AND BEARINGS COULD BE OBSERVED AT OPEN JOINTS, AT DROP-IN SECTIONS, AND ABOVE ABUTMENT 2. NDOT CHOSE TO USE THE 62' SNOOPER, SO THE EAST FASCIA AND EASTMOST 10' OF THE SOFFIT WAS INSPECTED FROM THE GROUND. CLOSURE BLOCKS IN THE UNDERSIDE OF SPANS 2 AND 4 ARE LOOSE, WITH THE POSSIBILITY OF FALLING OFF, ESPECIALLY IN SPAN 4 ABOVE A PARKING LOT.

DECK WEARING SURFACE (RATED 6): THE DECK ASPHALT WEARING SURFACE EXHIBITS LONGITUDINAL CRACKS TO 1/4" WIDE, WITH ISOLATED CRACKS TO 3/8" WIDE. THERE IS A 1.5'L x 6"W x 1"D SPALL IN SOUTHBOUND LANE 2 NEAR MIDSPAN OF SPAN 3. NEAR ABUTMENT 2 THE SOUTHBOUND LANE 2 EXHIBITS TWO SPALLS UP TO 2'L x 6"W x 1"D.

SIDEWALKS (RATED 5): THE SIDEWALKS EXHIBIT LOCALIZED AREAS OF SCALE TO 1/8" DEEP, AND AREAS OF SPALLING TO 1/2" DEEP, SOME WITH EXPOSED AND CORRODED REINFORCING STEEL. THE NORTHEAST APPROACH SIDEWALK EXHIBITS UP TO 2-1/2" OF SETTLEMENT IN ONE PANEL. THE SIDEWALKS EXHIBIT DIRT AND DEBRIS ACCUMULATIONS TO 3" DEEP ALONG THE CURBLINES AND TRANSVERSE CRACKS TO 1/32".

PARAPET (RATED 4)/ DECK PAINT-FINISH (RATED 5): THE PAINT/FINISH OF THE CONCRETE PARAPETS/FASCIA PANELS EXHIBIT MODERATE FAILURE AND STAINING. THE TOPS OF SEVERAL PANELS EXHIBIT OPEN/INCIPIENT SPALLING TO 1.5' DIAMETER x 3" DEEP, WITH EXPOSED REINFORCING STEEL. SEVERAL PANELS EXHIBIT INBOARD ROTATION TO 3" WHICH HAS RESULTED IN CRACKING/INCIPIENT SPALLING ALONG THE SUPERSTRUCTURE FASCIA BLOCK JUNCTURES. THE TOP FACE OF THE SPAN 1 RIGHT PARAPET EXHIBITS A 1' H x 5" W x 2" D SPALL, WITH EXPOSED REINFORCING STEEL, 10' NORTH OF ABUTMENT 1. THE LOWER WEST FACE OF THE SPAN 2 LEFT PARAPET EXHIBITS A 1' SQUARE x 4" D SPALL, WITH EXPOSED REINFORCING STEEL, AT EXPANSION JOINT 3. THE TOP OF THE SPAN 3 LEFT PARAPET EXHIBITS A 2.5' L x 1' W OPEN/INCIPIENT SPALL, WITH EXPOSED REINFORCING STEEL. THERE IS A MINOR INCIPIENT SPALL AT THE BASE OF THE SPAN 2 LIGHT POLE. THE MEDIAN PARAPET EXHIBITS VERTICAL CRACKS TO 1/32" WIDE.

LIGHTING STANDARD (RATED 7): THERE IS MINOR IMPACT DAMAGE TO A LIGHT UNDER SPAN 3.

JOINT LEAKAGE (RATED 3)/ EXPANSION JOINT (RATED 5): ALL STRIP SEAL EXPANSION JOINTS EXHIBIT ACTIVE JOINT LEAKAGE RESULTING IN WET, HEAVY SURFACE CORROSION OF THE UNDERLYING GIRDERS, DIAPHRAGMS AND BEARING ASSEMBLIES. THE EXPANSION JOINTS ARE PACKED WITH SAND AND DEBRIS. JOINT 4 EXHIBITS MULTIPLE SEPARATIONS FROM THE HEADER UP TO 3' IN LENGTH. THE SPAN 2 METAL STRAPS/COVERS ON THE UNDERSIDE AND SIDES OF THE BRIDGE ARE EITHER DISLOCATED OR MISSING, EXPOSING THE BEARINGS AND PROVIDING ACCESS FOR PIGEONS. THE ELASTOMERIC JOINT HEADERS TYPICALLY EXHIBIT CRACKS TO 1/16" WIDE AND SOME AREAS OF DISPLACEMENT FROM THE DECK ASPHALT.

BEARING DEVICES (RATED 6): SOME OF THE VISIBLE NEOPRENE BEARINGS SHOW NOTICEABLE DEFLECTION AND MINOR DETERIORATION, BUT APPEAR TO BE PERFORMING ADEQUATELY. STRIP SEAL JOINT FAILURE IS PRESENT AT ABUTMENT 2 IN THE SOUTHBOUND LANE AND PIER 3 IN THE NORTHBOUND LANE. SOME EXPOSED BEARING AREAS WERE NOT VISIBLE DUE TO LARGE AMOUNTS OF PIGEON NESTS AND DEBRIS. GROUT PADS VISIBLE ABOVE THE PIER 2 CAP EXHIBIT DETERIORATED EDGES, EXPOSING UP TO 1" OF THE GIRDER STEEL SOLE PLATES.

STRINGERS (RATED 5)/ CONCRETE CRACKING (RATED 4)/ SUPERSTRUCTURE COLLISION DAMAGE (RATED 4): STRINGERS RATED FOR CONCRETE SOFFIT AND FASCIA MEMBERS OF THE SUPERSTRUCTURE. THE SOFFIT EXHIBITS CRACKS TO 1/32" WIDE. THE FASCIA EXHIBIT MINOR 1/2" DEEP SPALLS WITH EXPOSED REBAR AND CRACKING TO 1/32".
SPAN 2:
ALONG THE JOINTS, THE EDGES OF THE SOFFIT ARE SPALLED UP TO 1" DEEP. THE SOFFIT IN THIS SPAN EXHIBITS MODERATE TO HEAVY STAINING WITH CRACKS TO 1/16". THE SOFFIT BENEATH EXPANSION JOINT 3 IS SPALLED, EXPOSING THE BEARING ASSEMBLY ANCHOR BOLTS OF GIRDERS 1, 5 AND 6. A CLOSURE BLOCK HAS FALLEN OUT ABOVE THE RIVER. THE SOFFIT IS DELAMINATED OVER THE WIDTH OF THE BRIDGE FOR 15' SOUTH OF JOINT 2, AND FOR 5' NORTH OF JOINT 3. AT JOINT 3 THE SOFFIT EDGE IS SPALLED TO 1' W x 6" D WITH 4 EXPOSED AND HEAVILY CORRODED STUDS. THE LEFT FASCIA EXHIBTS MULTIPLE SPALLS AT THE JOINTS.
JOINT 2, 1/2 BRIDGE HEIGHT x 4" W x 4" D WITH EXPOSED AND MODERATELY CORRODED REBAR
JOINT 3, 1.5' L x 2.5' H x 6" D WITH EXPOSED AND MODERATELY CORRODED REBAR (SEE PHOTO 5)
JOINT 3 2' L x 2.5' H x 6" D WITH EXPOSED AND MODERATELY CORRODED REBAR

SPAN 3:
THERE ARE 4 AREAS OF IMPACT DAMAGE TO THE LEFT FASCIA, THE LARGEST MEASURING 3' L x 13" H x 6" D WITH EXPOSED AND LIGHTLY CORRODED STEEL (SEE PHOTO6). SOME OF THE IMPACT SPALLS EXHIBIT LOOSE CONCRETE WHICH COULD FALL ONTO LIVE TRAFFICE BELOW. THERE IS ALSO A LARGE SPALL MEASURING 7.7' L x 2' H x 3" D (SEE PHOTO 7) IN LEFT FASCIA.

SPAN 4:
THE LEFT FASCIA EXHIBITS MULTIPLE SPALLS WITH EXPOSED AND CORRODED REBAR, THE LARGEST MEASURES 2'L x 1/2 FASCIA HEIGHT x 2" D. THE CLOSURE BLOCKS ARE LOOSE WITH A POSSIBILITY OF FALLING ON THE PARKING LOT BELOW (SEE PHOTO 8).

GIRDERS/ DIAPHRAGMS (BOTH RATED 6)/ SUPERSTRUCTURE PAINT-FINISH (RATED 4)/ RIVETS-BOLTS (RATED 6)/ RUST (RATED 5): THE STEEL GIRDERS, DIAPHRAGMS, BEARINGS AND RELATED FASTENERS ARE ONLY PARTIALLY VISIBLE THROUGH OPENINGS AT UNDERBRIDGE JOINTS (MOSTLY IN SPAN 2), AT A HIGH-LOAD HIT IN SPAN 3, AND ABOVE ABUTMENT 2. THE VISIBLE AREAS OF STEEL GIRDERS, DIAPHRAGMS, BEARINGS AND FASTENERS EXHIBIT FAILURE OF THE PAINT SYSTEM, DUE TO RAINWATER LEAKING FROM THE EXPANSION JOINTS, RESULTING IN HEAVY SURFACE CORROSION AND CORROSIVE PITTING TO 1/16" DEEP. THE VISIBLE AREAS OF THE SUPERSTRUCTURE AWAY FROM EXPANSION EXHIBIT AN INTACT PAINT COATING SYSTEM WITH AREAS OF FRECKLE RUST.

ABUTMENT WINGS (RATED 6): THE WINGWALLS EXHIBIT VERTICAL CRACKS TO 1/32" WIDE ISOLATED CRACKS TO 1/8". THE NORTHEAST WINGWALL EXHIBITS SPALLS UP TO 14" H x 6" W x 3" D WITH EXPOSED AND LIGHTLY CORRODED STEEL REINFORCEMENT.

ABUTMENT BACKWALL (RATED 5)/ CRACKING-SPALLING/ STEEL CORROSION (BOTH RATED 3): THE UPPER WEST FACE OF THE ABUTMENT 2 BACKWALL EXHIBITS A 4.5' H x 1.4' W x 4" D SPALL, WITH EXPOSED AND CORRODED REBAR, AT THE NORTHWEST WINGWALL JUNCTURE. THE UPPER EAST FACE OF THE ABUTMENT 2 BACKWALL EXHIBITS A 3' H x 2' W INCIPIENT SPALL WITH AN ASSOCIATED DELAMINATION 4'L X 3'W AT THE NORTHEAST WINGWALL JUNCTURE. THE ABUTMENT BACKWALLS EXHIBIT RAINWATER LEAKAGE STAINING, VERTICAL CRACKS TO 1/2" WIDE AND SCALE DAMAGE TO 4" DEEP. 40% OF THE TOP OF ABUTMENT 2 WALL IS SPALLING UP TO 2" DEEP OVER LENGTHS OF UP TO 6'

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PIER CAPS (RATED 4)/ CRACKING-SPALLING/ STEEL CORROSION (BOTH RATED 3): THE PIER CAPS EXHIBIT WIDESPREAD CONCRETE DETERIORATION RESULTING IN LARGE, TO FULL CAP HEIGHT OPEN/INCIPIENT SPALLS, SOME WITH EXPOSED AND HEAVILY CORRODED REBAR. THE PIER CAPS EXHIBIT VERTICAL CRACKS TO 1/32" WIDE AND SCALE DAMAGE TO 3/4" DEEP. PIER CAP 1 EXHIBITS SPALLS ALONG THE LOWER NORTH EDGE UP TO 4' L x 6" H WITH EXPOSED AND MODERATELY CORRODED REBAR. PIER CAP 2 EXHIBITS A MINOR 3" L x 3" W x 1" D SPALL NEAR THE WEST END OF THE NORTH FACE. THE WEST END OF PIER CAP 3 EXHIBITS HEAVY DETERIORATION IN THE FORM OF SPALLS/INCIPIENT SPALLS WITH EXPOSED AND MODERATELY CORRODED REBAR (SEE PHOTO 9). THERE ARE SPALLS/INCIPIENT SPALLS ALONG THE TOP EDGE EDGE OF THE NORTH FACE OF PIER CAP 3 FOR THE ENTIRE LENGTH. THE NORTH FACE OF PIER CAP 3 EXHIBITS A SPALL ABOVE EACH COLUMN MEASUIRNG UP TO 2' L x 5" H .

PIER COLUMN (RATED 6)/ CRACKING-SPALLING (RATED 3): THE UPPER WEST FACE OF COLUMN 1, PIER 3 EXHIBITS A 3.2' H x 1.2' W INCIPIENT SPALL AT THE CAP. THE UPPER EAST FACE OF COLUMN 2, PIER 3 EXHIBITS A 5' H x 2' W INCIPIENT SPALL AT THE CAP.

DEBRIS ON SEATS (RATED 5): THE VISIBLE AREAS OF THE ABUTMENT AND PIER SEATS ARE COVERED WITH DIRT, DEBRIS AND BIRD EXCREMENT TO 5" DEEP.

SUBSTRUCTURE PAINT-FINISH (RATED 6): THE PAINT SYSTEM OF ABUTMENT WALL 1 HAS FAILED AND IT EXHIBITS LIGHT GRAFITTI COVERAGE.

EMBANKMENT EROSION (RATED 6)/ CHANNEL CHANGE (RATED 7): THE UPSTREAM AND DOWNSTREAM SOUTH CHANNEL EMBANKMENT EXHIBITS CUT-BANK EROSION TO VERTICAL.

WATERWAY MEASUREMENTS:
WATERWAY MEASUREMENTS WERE TAKEN ALONG THE UPSTREAM (WEST) SIDE OF THE BRIDGE AND ARE REFERENCED TO THE TOP OF THE CONCRETE PARAPET:

DATE	04/02/10	04/14/06	04/10/08	04/02/10
LOCATION	WATERLINE	MUDLINE	MUDLINE	MUDLINE
ABUT 1	DRY	8.2'	7.8'	7.9'
MIDSPAN 1	DRY	15.8'	15.6'	15.4'
PIER 1	27.5'	27.2'	28.5'	29.1'
MIDSPAN 2	27.5'	29.8'	29.3'	29.5'
PIER 2	DRY	22.8'	22.7'	22.8'
MIDSPAN 3	RDWY	RDWY	RDWY	
PIER 3	RDWY	RDWY	RDWY	
MIDSPAN 4	LOT	LOT	LOT	
ABUT 2	LOT	LOT	LOT	

APPROACH GUARDRAIL (RATED 6): THE APPROACH PARAPET EXHIBITS VERTICAL CRACKS TO 1/16". THE TOP OF THE MEDIAN APPROACH PARAPET EXHIBITS A 1.3' H x 2.4' W x 4" D SPALL, WITH EXPOSED STEEL, APPROXIMATELY 50' NORTH OF THE STRUCTURE AND A 2'L X 1'W X 4"D SPALL WITH EXPOSED STEEL APPROXIMATELY 10' NORTH OF THE STRUCTURE. THE APPROACH GUARDRAILS EXHIBIT MINOR IMPACT DAMAGE AND MODERATE PAINT SYSTEM FAILURE. THE GAURDRAIL EXHIBITS SPOTS OF LIGHT SURFACE CORROSION.

APPROACH PAVEMENT (RATED 7): THE APPROACH PAVEMENT EXHIBITS LONGITUDINAL AND TRANSVERSE CRACKING TO 3/16" WIDE.

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

8: Structure Number	5: Inventory Route	Inspector	District
B1530	151006570	KELLY/VASILJEVIC	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

MAINTENANCE REPORT:
>MONITOR CRACKS IN DECK ASPHALT WEARING SURFACE AND REPAIR SPALLS IN SOUTHBOUND LANE 3.
>REPAIR SPALLING IN SIDEWALKS, SETTLEMENT IN NORTHEAST APPROACH SIDEWALK AND BROOM SIDEWALKS.
>MONITOR CRACKS IN BRIDGE & MEDIAN PARAPETS, ELASTOMERIC JOINT HEADERS, WINGWALLS, BACKWALLS AND PIER CAPS AND APPROACH PARAPET.
>REPAIR OPEN/INCIPIENT SPALLING AND INBOARD ROTATION IN CONCRETE PARAPETS/FASCIA PANELS.
>MONITOR SPAN 3 LIGHT IMPACT DAMAGE.
>REPLACE DAMAGED SECTIONS OF STRIP SEAL EXPANSION JOINTS AND REMOVE/REPLACE METAL STRAPS/COVERS ON UNDERSIDE OF BRIDGE. CLEAN THE EXPANSION JOINTS.
>REPAIR LOOSE/MISSING CLOSURE BLOCKS IN SPANS 2 AND 4 SOFFIT.
>CONSIDERATION SHOULD BE GIVEN TOWARD REPLACEMENT OR REHABILITATION OF SUPERSTRUCTURE CONCRETE SOFFIT AND FASCIA PANELS.
>REPAIR CRACKS, OPEN/INCIPIENT SPALLS AND HIGH-LOAD HIT DEFICIENCIES THROUGHOUT SUPERSTRUCTURE CONCRETE SOFFIT AND FASCIA PANELS.
>BLAST AND PAINT EXPOSED AREAS OF GIRDERS, DIAPHRAGMS, BEARINGS AND FASTENERS.
>REPAIR SPALLS IN NORTHWEST WINGWALL.
>REPAIR SPALLS IN ABUTMENT 2 BACKWALL AND REPAIR PIER 3 COLUMN DELAMINATIONS.
>REHABILITATE PIER CAPS.
>REPAINT ABUTMENT 1.
>REPAIR EROSION IN UPSTREAM AND DOWNSTREAM SOUTH CHANNEL EMBANKMENTS.
>REPAIR SPALL IN TOP OF MEDIAN APPROACH PARAPET, AND BLAST & PAINT APPROACH GUARDRAIL PANELS.
>MONITOR CRACKS IN APPROACH ROADWAY.

NOTE: RECOMMEND THAT REMAINING METAL COVERS/STRAPS AT BEARING LOCATIONS BE TEMPORARILY REMOVED FROM BOTTOM OF BRIDGE AND PARAPET EXTERIORS. ALL PIGEON DEBRIS SHOULD THEN BE REMOVED FROM BEARING AREAS AND THOROUGH INSPECTION AND REPAINTING OF ACCESSIBLE AREAS SHOULD BE COMPLETED. THESE OPEN AREAS SHOULD THEN BE "PIGEON-PROOFED".

Element Condition Values
Bridge: B1530 / Inspection Date: 4/2/2010 (JMAH)

Key: 0 Structure Unit ID: 0 Type: M Main

Elem / Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4	Qty5
13 / 2	Unp Conc Deck/AC Ovl (ea	1.00	ea.	0	1	0	0	0
300 / 2	Strip Seal Exp Joint	89.00	m.	0	44	45	0	0
107 / 2	Paint Stl Opn Girder	1,080.00	m.	1,018	22	22	18	0
331 / 2	Conc Bridge Railing	360.00	m.	214	144	2	0	0
310 / 2	Elastomeric Bearing	56.00	ea.	47	9	0	0	0
205 / 2	R/Conc Column	6.00	ea.	5	0	1	0	0
215 / 2	R/Conc Abutment	37.00	m.	27	9	1	0	0
220 / 2	R/C Sub Pile Cap/Ftg	8.00	ea.	8	0	0	0	0
234 / 2	R/Conc Cap	56.00	m.	11	3	34	8	0
362 / 2	Traf Impact SmFlag (ea)	1.00	ea.	0	1	0	0	0
363 / 2	Section Loss SmFlag (ea)	1.00	ea.	0	1	0	0	0

User Maintenance Report

Structure No:	Inventory Route:	District:
B1530	151006570	02
Bridge Name:	**Inspection Date:**	**County:**
KEYSTONE AV./TRUCKEE I	04/02/2010	Washoe

Deck Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Structural Deck Repairs:							0
Wearing Surface Repairs:	4	2	X X	1	2	SQFT	1
Expansion Joint Repairs:	3	2	X X X X X	2	2	LFT	292
Drain Cleaning/Repairs:							0
Parapet/Rail Repairs:	2	3	XXXXXXXXXX	0	2	LFT	400
Curbs, Median, Sidewalk:	3	2	X X XX X X	1	2	LS	1

Superstructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Girder, Floorbeam, Stringer:	3	2	XX X	1	3	LS	1
Truss Repairs:							0
Bearing Repairs:							0
Diaphragm Repairs:							0
Paint/Finish Maintenance:	2	2	X X X XX	2	2	LS	1

Substructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Wingwall/Backwall Repairs:	4	2	X	1	3	CUFT	4
Cap Repairs:	2	4	X X	3	3	LFT	184
Column/Pier Wall Repairs:	4	1	X	1	3	CUFT	1
Foundation Repairs:							0
Erosion/Scour Repairs:							0
Settlement Repairs:							0
Paint/Finish Maintenance:	4	1	X	0	2	SQFT	400
Clean Abutment/Pier Seats:	3	1	X X X	1	2	CUYD	3

Channel Protection

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Erosion/Scour Repairs:	4	2	XX	1	2	CUYD	30
Drift Removal:							0
Vegetation Removal:							0
Spur Dike/Jetty Repairs:							0
Riprap/Slope Paving Repairs:							0

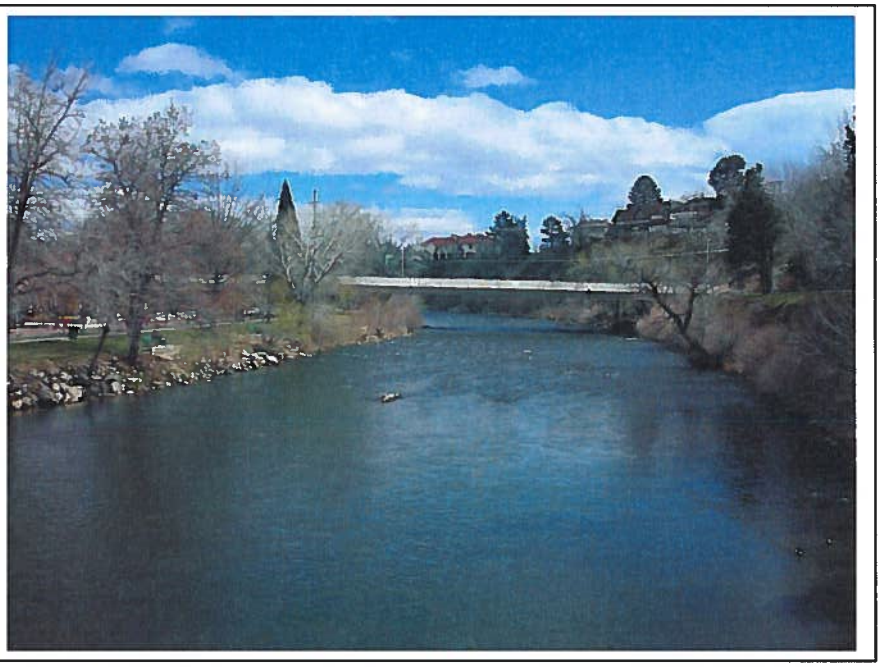
Culvert Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Barrel Repairs:							0
Headwall Repairs:							0
Barrel Debris Removal:							0

Approach Repairs

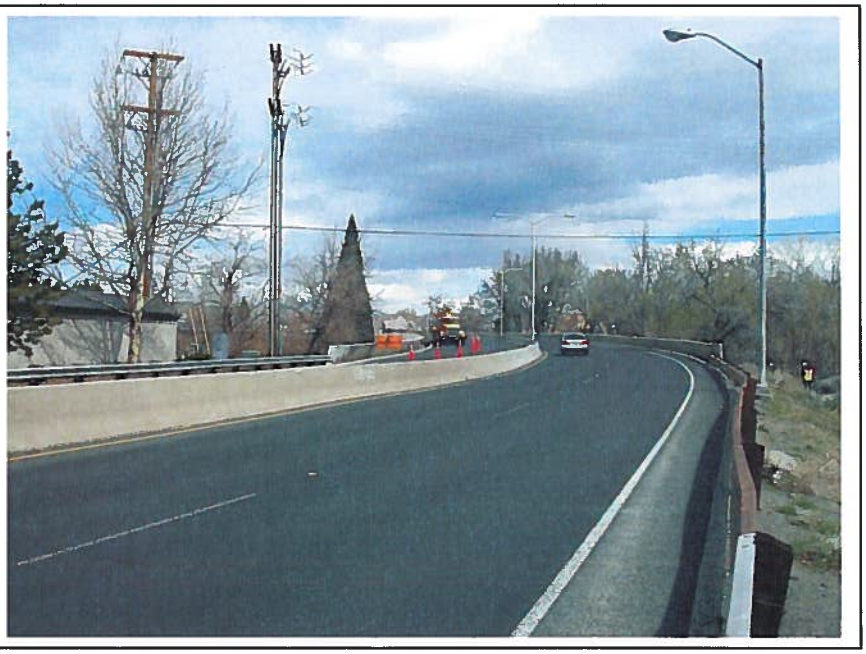
	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Approach Slab Repairs:							0
Pavement Repairs:	5						0
Embankment Repairs:							0
Guardrail Repairs:	4	1	X X	0	2	LS	1
Relief Joint Repairs:							0

State of Nevada
Department of Transportation



Bridge No.: B1530
Date: 4/02/2010

West Elevation



Bridge No.: B1530
Date: 4/02/2010

South Approach

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

58: Deck Rating	7	59: Superstructure Rating	7	59: Superstructure	
Wearing Surface	7	Bearing Devices		Collision Damage	7
Deck Struc Condition	7	Stringers		Deflection under Load	
Curbs	7	Girders or Beams	7	Alignment of Members	8
Median	6	Diaphrams or Floor Beams		Vibrations under Load	
Sidewalks	7	Trusses: General			
Parapet		Portals			
Railing	7	Bracing			
Paint or Finish	7	Paint or Finish	7		
Drains		Rivets or Bolts			
Lighting Standard	8	Welds-Cracks			
Utility		Rust			
Joint Leakage		Timber Decay		Record Last Updated	
Expansion Joint/Devices		Concrete Cracking	7	4/12/2010 @ 15:53:33	

60: Substructure Rating	6	60: Substructure		61: Channel and Protection	
Abutments					
Wings	7	Pile Bents		Fender System	
Backwall	6	Cracking/Spalling	5	Spur Dikes and Jetties	
Footing		Steel Corrosion		Riprap or Slope Paving	
Piles		Timber Decay, etc		Adequacy of Opening	
Erosion	7	Debris on Seats			
Settlement	7	Paint or Finish	7	62: Culvert Rating	N
Piers or Bents		Collision Damages	8	Barrel	
Caps		61: Channel Rating	N	Concrete (enter just one value)	
Column		Channel Scour		Steel	
Footing		Embankment Erosion		Timber	
Piles		Drift		Headwall	
Scour		Vegetation		Cutoff Wall	
Settlement		Channel Change		Adequacy	
				Debris	

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

Approach Alignment

Alignment	
Approach Slab	
Relief Joint	
Approach:	
Guardrail	7
Pavement	7
Embankment	6
Reserved	
Load Rating	
Posted Load	
Legibility	
Visibility	

Type of Inspection

Bridgemaster	☐
Special	☐
Routine	☑
Estimated Remaining Life	08 years

NBI Information:

29: ADT	14740
30: Year of ADT	2006
36: Safety Features	0 0 0 0
54: Min Vert Underclearance	H 4.51 m
228: Next Insp Due Date (Mth Year)	Mar 2012
Owner	City/Municipal Hwy Agenc
Maintenance Responsibility	City/Municipal Hwy Agenc

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

Comments and Notes *Use <Control-Enter> to enter paragraph breaks*

H1529

03/22/2010 ROUTINE INSPECTION COMMENTS:

INSPECTION REPORT:
STRUCTURE INVENTORIED SOUTH TO NORTH.

DECK STRUCTURAL CONDITION / GIRDERS / SUPERSTRUCTURE CONCRETE CRACKING (ALL RATED 7): THE DECK UNDERSIDE EXHIBITS LONGITUDINAL AND DIAGONAL CRACKS UP TO 1/64" WIDE, SOME WITH EFFLORESCENCE AND RUST STAINING. THE EXTERIOR FASCIAS OF THE FLAT SLAB EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE AND MINOR MAP CRACKING.

CURBS / SIDEWALKS (BOTH RATED 7): THE CURBS AND SIDEWALKS CONTAIN CRACKING TO 1/16" WIDE AND SPALLING/SCALING TO 1/2" DEEP. THE APPROACH CURBS EXHIBIT MODERATE SPALLS AND CRACKS UP TO 1/8" WIDE.

MEDIAN (RATED 6): THE MEDIAN EXHIBITS MODERATE TO HEAVY CRACKING, DELAMINATION AND SPALLING AROUND RAIL POSTS.

RAILING (RATED 7): MINOR IMPACT SCRAPES ARE EXHIBITED ALONG THE RIGHT RAILING AND ON THE LEFT RAILING AT THE SOUTHEAST CORNER OF THE STRUCTURE. THE PEDESTRIAN RAILING UNDER THE STRUCTURE EXHIBITS MODERATE IMPACT DAMAGE TO ONE POST AND TWO PANELS.

ABUTMENT WINGS (RATED 7): THE WINGWALLS TYPICALLY EXHIBIT DIAGONAL AND VERTICAL CRACKS UP TO 1/32" WIDE. THE NORTHWEST, SOUTHWEST AND NORTHEAST WINGWALLS EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE WITH MINOR SPALLING AT THE FIRST CONSTRUCTION JOINT.

ABUTMENT BACKWALL (RATED 6) / SUBSTRUCTURE CRACKING-SPALLING (RATED 5): THE BACKWALLS EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE. THE NORTH BACKWALL EXHIBITS DELAMINATED/SPALLED AREAS ALONG THE LOWER 2' IN A 25' WIDE SECTION.

APPROACH EMBANKMENT (RATED 6): A 24' LONG SECTION OF THE NORTHWEST APPROACH CURB IS UNDERMINED TO 1.5' WITH ASSOCIATED SETTLEMENT BEGINNING AT BRIDGE.

APPROACH PAVEMENT (RATED 7): THE APPROACH PAVEMENT EXHIBITS LONGITUDINAL CRACKING UP TO 1/32" W AND TRANSVERSE CRACKING MEASURING UP TO 1/8" W.

MAINTENANCE REPORT:
>MONITOR CRACKING IN CURBS, SIDEWALKS, DECK UNDERSIDE AND FASCIAS, WINGWALLS, AND BACKWALLS.
>MONITOR SPALLING/SCALING IN SIDEWALKS AND CURBS.
>PATCH SPALLS IN MEDIAN CONCRETE AT RAIL POSTS.
>MONITOR IMPACT DAMAGE TO RAILING AT SOUTHEAST CORNER.
>REPAIR SPALLED/DELAMINATED AREAS IN NORTH BACKWALL.
>REPAIR UNDERMINING OF NORTHWEST APPROACH CURB.
>MONITOR APPROACH PAVEMENT CRACKING.

Element Condition Values

Bridge: H1529 / Inspection Date: 3/22/2010 (LXNN)

Key: 0 Structure Unit ID: 0 Type: M Main

Elem / Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4	Qty5
39 / 2	Unp Conc Slab/AC Ovl (ea	1.00	ea.	1	0	0	0	0
334 / 2	Metal Rail Coated	24.00	m.	21	3	0	0	0
215 / 2	R/Conc Abutment	38.00	m.	25	5	8	0	0
359 / 2	Soffit Smart Flag (ea)	1.00	ea.	0	1	0	0	0

User Maintenance Report

Structure No:	Inventory Route:	Dist:
H1529	151000000	02
Bridge Name:	**Inspection Date:**	**County:**
KEYSTONE AV /FOSTER D	03/22/2010	Washoe

Deck Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Structural Deck Repairs:	5						0
Wearing Surface Repairs:							0
Expansion Joint Repairs:							0
Drain Cleaning/Repairs:							0
Parapet/Rail Repairs:	5						0
Curbs, Median, Sidewalk:	4	1	X	0	2	LS	1

Superstructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Girder, Floorbeam, Stringer:	5						0
Truss Repairs:							0
Bearing Repairs:							0
Diaphragm Repairs:							0
Paint/Finish Maintenance:							0

Substructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Wingwall/Backwall Repairs:	3	2	X	1	3	LS	1
Cap Repairs:							0
Column/Pier Wall Repairs:							0
Foundation Repairs:							0
Erosion/Scour Repairs:							0
Settlement Repairs:	5						0
Paint/Finish Maintenance:							0
Clean Abutment/Pier Seats:							0

Channel Protection

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Erosion/Scour Repairs:							0
Drift Removal:							0
Vegetation Removal:							0
Spur Dike/Jetty Repairs:							0
Riprap/Slope Paving Repairs:							0

Culvert Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Barrel Repairs:							0
Headwall Repairs:							0
Barrel Debris Removal:							0

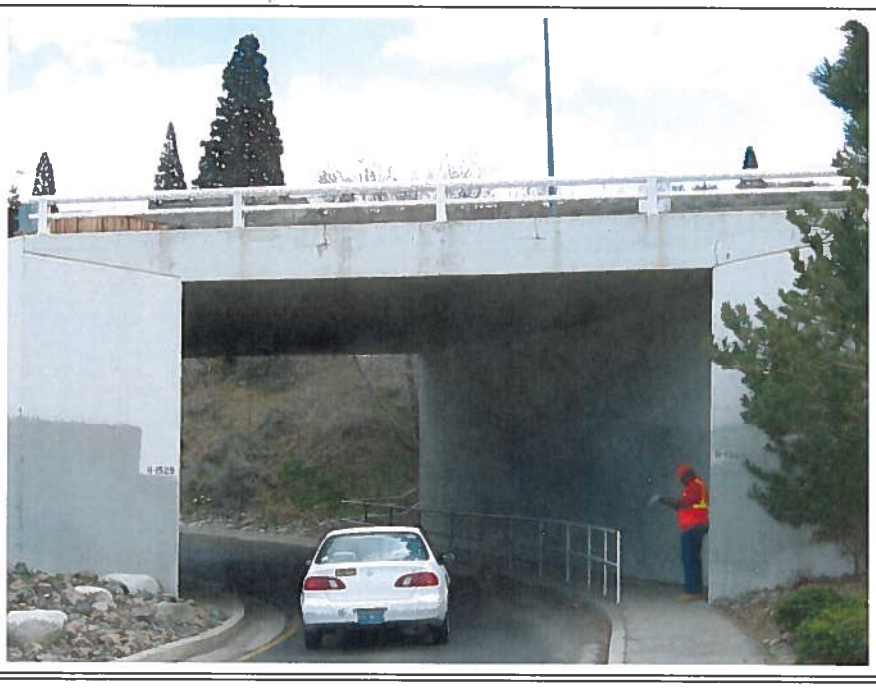
Approach Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Approach Slab Repairs:							0
Pavement Repairs:	5						0
Embankment Repairs:	4	1	X	0	2	CUYD	1
Guardrail Repairs:							0
Relief Joint Repairs:							0

State of Nevada
Department of Transportation

Bridge No.: H1529
Date: 03/22/10

Photo 1: South Approach



Bridge No.: H1529
Date: 03/22/10

Photo 2: West Elevation

Station Detail Information

Station	0310535
Route	Keystone Av
Location	100ft S of Jones St.
From Cross Street	Mayberry
To Cross Street	2nd
Functional Class	4 - Minor Arterial
Latitude	39:31:18.133
Longitude	-119:49:28.797
Lat Decimal	39.521703
Lon Decimal	-119.824665

Station Data For: 0310535

Average Annual Daily Traffic

Year	AADT
2000	14500
2001	13500
2002	13600
2003	13500
2004	14000
2005	13400
2006	16000
2007	12000
2008	14000
2009	13000
2010	13000

Station Detail Information

Station	0310537
Route	Keystone Av
Location	300ft S of SR-647 (W 4th St).
From Cross Street	2nd
To Cross Street	4th
Functional Class	4 - Minor Arterial
Latitude	39:31:34.193
Longitude	-119:49:34.866
Lat Decimal	39.526164
Lon Decimal	-119.826351

Station Data For: 0310537

Average Annual Daily Traffic

Year	AADT
2000	24000
2001	24000
2002	21900
2003	25000
2004	25000
2005	24900
2006	26100
2007	22000
2008	24000
2009	23000
2010	22000

Plumas and Keystone Safety Audit Team Members - Monday, February 27, 2012						
ader - Jon Erb	Parsons	jon.erb@parsons.com	775-885-2249			
NAME	**AGENCY**	**E-Mail Address**	**Telephone No.**	**Initial**	D	N
Tony Smiraglia	NDOT	Tsmiraglia@dot.	888-7068	T.S.	X	X
Tonia Andree	NDOT	tandree@dot.state.nv.us	775-888 ~~7837~~ 7307	TA	✓	✓
Scott Gibson	RTC	sgibson@rtcwashoe.com	775-335-1874	SDG	✓	
MJ Cloud	WCSD PD	mcloud@washoeschools.net	762-7991	MJC	✓	✓
Brad Davidson	Reno PD	davidsonbradd@reno.gov	560-6295	BD	✓	✓
Steve Bunnell	COR	BUNNELLS@RENO.GOV	334-2333	SB	X	
Claudia Hanson	COR	~~HANSONC@RENO.GOV~~	HANSONC@RENO.GOV 334-2381	CH	✓	

ROAD SAFETY AUDIT REPORT
KEYSTONE AVENUE FROM 4TH STREET TO NORTH MCCARRAN BLVD.
PRE-CONSTRUCTION PHASE AUDIT
WASHOE COUNTY

Prepared for:

NEVADA DOT

Safety Engineering

Prepared by:

Parsons Transportation Group

February, 2014

DRAFT

Exp. 12-31-14

zero Fatalities
Drive Safe Nevada

EXECUTIVE SUMMARY

NDOT Safety Engineering Division in coordination with Washoe RTC, authorized a Road Safety Audit (RSA) to be conducted on Keystone Avenue from 4th Street to North McCarran Boulevard, in the City of Reno. The RSA is a continuation of an RSA that was performed in 2013 for Keystone Avenue from California Street to 4th Street. The purpose of the RSA is to identify potential road safety issues and recommend countermeasures to mitigate those safety issues for inclusion into the current RTC Corridor Study for Keystone Avenue.

Keystone Avenue has two general purpose lanes in each direction and left turn pockets at various intersections from 4th Street to University Terrace. From University Terrace to Coleman Drive, Keystone Avenue has 2 general purpose lanes in each direction with no left turn lanes for side street except for a very small left turn pocket for Kings Row. From Coleman Drive to North McCarran Boulevard Keystone Avenue is a two lane residential street with private driveways and on-street parking. Bike lanes exist in the residential area along with traffic calming chicanes between Peavine Road and North McCarran Boulevard. The functional classification of Keystone Avenue is an Urban Minor Arterial. The posted speed limit on Keystone Avenue is 30 MPH and changes to 25 MPH north of Coleman Drive and appears to be adequate for the area. For the three year study period from June 16, 2010 to June 15, 2013 for Keystone Avenue, there were 95 Total crashes during the time period, 38 were injury crashes with 53 injuries. There were no fatal crashes.

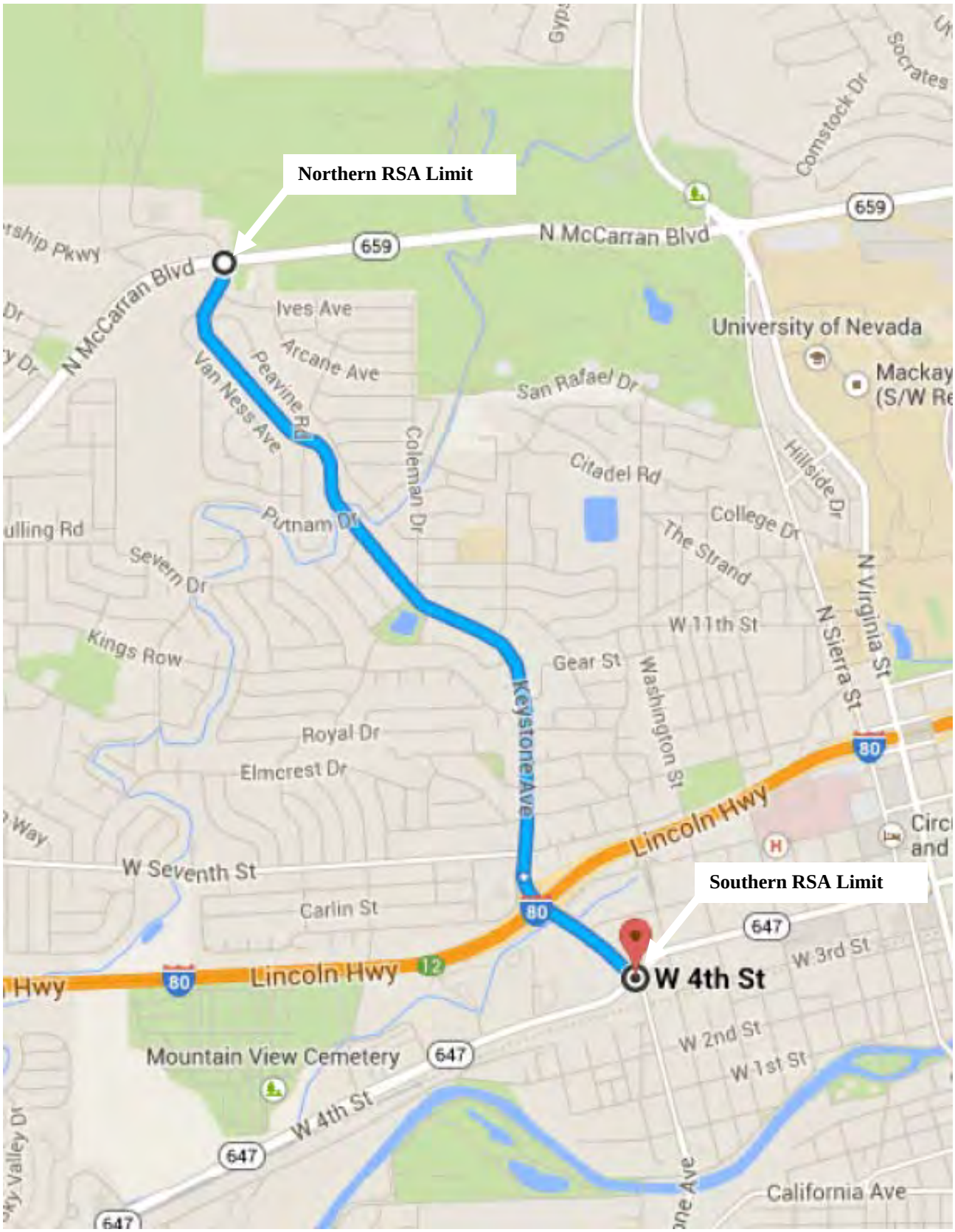
During the field review the Team looked at each intersection and sections for safety issues. The section between 4th Street and 5th Street experiences a high number of pedestrians and cut through traffic from the adjacent driveways. The team witnessed several pedestrians crossing the roadway at the mid block area even though a crossing does not exist and the signalized intersections are not that far away.

One of the biggest issues that was viewed and also discussed in the kick off meeting was the south east corner of Keystone and 7th Street where the Starbucks is located. The drive through for Starbucks backs up several times a day during peak traffic periods and inhibits traffic movement on 7th Street and sometimes into the intersection of 7th and Keystone. The drive through is located too close to the ingress point of the Starbucks driveway. Once the drive though backs up into the driveway traffic turning into Starbucks is blocked and people will wait in the travel lanes until it clears.

The segment between University Terrace and Coleman Drive is 4 lanes with no bike lanes or turn lanes. This is a residential area with driveways at each property. Traffic volumes for this area are approximately 13,650 AADT and a P.M. combined peak hour of 1,325 vehicles for the 4 lanes.

Some of the recommendations for the RSA include, reducing the roadway to 2 lanes with a center turn lane and bike lanes between University Terrace and Coleman Drive. This will also aid in residents entering and exiting their driveways safely. Communicating with Starbucks to close the affected approach and signing traffic to come into the parking lot from the access off of Alvaro Street. Lastly, adding a midblock crossing to the area between 4th Street and 5th Street to protect the high number of pedestrians that are currently crossing at that location.

A complete listing of the RSA recommendations can be found on pages 23-25 of this document. The RSA team recommendations are subdivided into Priorities 1, 2, and 3 representing short-term, and long-term recommendations respectively.


Northern RSA Limit
N McCarran Blvd
659
Ives Ave
Arcane Ave
Peavine Rd
Van Ness Ave
Coleman Dr
Putnam Dr
Severn Dr
Kings Row
Royal Dr
Elmcrest Dr
Keystone Ave
Gear St
Washington St
W 11th St
The Strand
College Dr
Citadel Rd
San Rafael Dr
University of Nevada
Hillside Dr
N Virginia St
N Sierra St
Comstock Dr
Socrates
Lincoln Hwy
80
W Seventh St
Carlin St
Southern RSA Limit
W 4th St
647
W 3rd St
W 2nd St
W 1st St
Mountain View Cemetery
California Ave

RSA Limits

Introduction

NDOT Safety Engineering Division in coordination with Washoe RTC, authorized a Road Safety Audit (RSA) to be conducted on Keystone Avenue from 4th Street to North McCarran Boulevard, in the City of Reno. The RSA is a continuation of an RSA that was performed in 2013 for Keystone Avenue from California Street to 4th Street. The purpose of the RSA is to identify potential road safety issues and recommend countermeasures to mitigate those safety issues for inclusion into the current RTC Corridor Study for Keystone Avenue.

Scope of Audit

The Safety Audit Team conducted a formal Road Safety Audit on Keystone Avenue from 4th Street to North McCarran Boulevard in the City of Reno, for a total of 2.0 miles, on February 4, 2014. The Safety Audit Team recognizes that compliance with design standards does not necessarily result in an optimally safe road design and that the failure to comply with standards does not necessarily result in an unsafe design. The goal of this road safety audit was to identify potential road safety issues and identify opportunities for improvements in safety for all road users. However, the road safety audit was not intended as a replacement for design quality control or standard compliance checks, a traffic impact or safety impact study, a road safety inventory program, or a traffic safety modeling effort. Neither was the audit intended as a means of evaluating design work, checking compliance with standards, investigating crashes, or providing a safety review. Instead, the Team strived to look at safety issues from a different perspective and develop recommendations for potential safety enhancement.

Objectives

- Identify potential safety issues that may be addressed in the upcoming RTC Corridor Study, thereby reducing the risk and severity of crashes.
- From the road user's viewpoint, identify confusing and or misleading messages.
- Improve awareness of safe maintenance practices.

The Briefing Meeting for the RSA Team was held on Monday, February 4, 2014 at 2:00 PM at the NDOT District II conference room in Reno. Jon Erb, Parsons, made a brief presentation that covered the NDOT Road Safety Audits Procedures, crash data and traffic volumes. Patrice Echola, RTC and Bryan Gant of Jacobs gave a brief overview of the current RTC Keystone Corridor Study Project.

The Briefing Meeting was attended by:

- Patrice Echola RTC
- Julie Masterpool RTC
- Craig Schoenky City of Reno Signal Operations
- Tom Lightfoot NDOT Safety
- Anita Lyday NDOT District II
- Albert Vacques NDOT Peds and Bike
- Bill Story NDOT Peds and Bike
- Bryan Gant Jacobs
- Jon Erb Parsons (Team Leader)

Topics of Discussion:

- Road Safety Audit purpose, procedures, goals and objectives
- Keystone Avenue Safety Issues
- Crash Data, Three–year study period (June 16, 2010 to June 15, 2013)
- Current Traffic Operations
- Maintenance Issues

Following the meeting, the subject segment of Keystone Avenue was driven in each direction during both daytime and night time. The daytime and night time field reviews were held on February 4, 2014. The daytime and nighttime field reviews were attended by Patrice Echola, Julie Masterpool, Craig Schoenky, Tom Lightfoot, Anita Lyday, Albert Vacques, Bill Story and Jon Erb. The debriefing meeting was held on February 4, 2014, and was attended by Patrice Echola, Julie Masterpool, Craig Schoenky, Tom Lightfoot, Anita Lyday, Albert Vacques, Bill Story and Jon Erb.

Following is a compilation of the comments and recommendations from the February 4, 2014 field reviews and debriefing meeting:

Note: Bulleted items are team observations**; *recommendations are in bold italics.***

Recommendations are only one method of mitigation presented by the RSA team for discussion, other mitigation strategies can and should be explored by the responsible Design Team of the using agency where possible.

Feasibility Study is defined in this report as a study to determine if the safety recommendations can be included in the project scope considering the project time frame and cost constraints.

Priority 1A - is defined as those improvements that can be done in the immediate future through coordination between Washoe RTC and the City of Reno Maintenance staff.

Priority 1B - is defined as those improvements that can be done in the immediate future by NDOT District II.

Priority 2 - is defined as those improvements that can be included in the Corridor study or the next scheduled City of Reno/Washoe RTC projects for Keystone Avenue within the 4th Street and North McCarran Boulevard limits when funding is available.

Priority 3 - is defined as those improvements that can be included in NDOT long range planning.

Keystone Avenue from 4th Street to North McCarran Boulevard

General Information:

- Keystone Avenue has two general purpose lanes in each direction and left turn pockets at various intersections from 4th Street to University Terrace. From University Terrace to Coleman Drive, Keystone Avenue has 2 general purpose lanes in each direction with no left turn lanes for side street except for a very small left turn pocket for Kings Row. From Coleman Drive to North McCarran Boulevard Keystone Avenue is a two lane residential street with private driveways and on-street parking. Bike lanes exist in the residential area along with traffic calming chicanes between Peavine Road and North McCarran Boulevard. The functional classification of Keystone Avenue is an Urban Minor Arterial.
- The posted speed limit on Keystone Avenue is 30 MPH and appears to be adequate for the area.
- For the three year study period from June 16, 2010 to June 15, 2013 for Keystone Avenue, the following data was compiled:
- RTC bus service RIDE Route 3 serves Keystone between 4th Street to Kings Row with hourly service from 5AM to 10PM.
- Overall Crash Data – There were 95 Total crashes during the time period (06/16/2010 to 06/15/2013) for the (2.0 Miles). There were 38 injury crashes with 53 injuries. There were no fatal crashes. The corridor crash rates are shown in the following table.

	Classification	Crash Rate	Injury Crash Rate	PDO Crash Rate	Fatality Rate
Keystone Avenue	Minor Arterial	1.919	0.768	1.152	0.0
2011 Functional Classification Crash Rate for Nevada	Minor Arterial Urban	2.41	1.03	1.38	0.0067
Rates per million vehicle miles traveled					

- Predominant Crash Type
  - 37 Angle crashes with 15 injury crashes with 23 injuries
  - 24 Rear-end crashes with 13 injury crashes and 18 injuries
  - 15 Sideswipe, overtaking crashes with no injuries
  - 13 Non-collision with 7 injury crashes and 7 injuries
  - 2 Head-on crashes with I injury crash and 3 injuries
  - 4 unknown crashes with 2 injury crashes and 2 injuries
- Contributing Factor
  - 48 crashes where driver factor was Apparently Normal with 22 injury crashes and 30 injuries
  - 5 crashes where driver had been drinking with 3 injury crashes and 6 injuries
  - 4 crashes where driver was inattentive or was distracted with 3 injury crashes and 5 injuries
  - 2 crashes where the factor was Other Improper Driving with no injuries
  - 36 unknown crashes with 10 injury crashes and 36 injuries

- Weather Conditions
  - 71 crashes occurred during dry weather with 33 injury crashes and 45 injuries
  - 9 crashes occurred during cloudy weather with 3 injury crashes and 4 injuries
  - 3 crashes occurred during rain and snowy weather with 1 injury crash with 3 injuries
  - 12 crashes occurred where the weather was not reported with 1 injury crash and 1 injury

- Light Conditions
  - 47 Daylight crashes with 26 injury crashes and 33 injuries
  - 27 Unknown lighting condition crashes with 1 injury crash and 1 injury
  - 14 Dark-Spot Lighting crashes with 7 injury crashes and 13 injuries
  - 3 Dusk crashes with 2 injury crashes and 2 injuries
  - 3 Dark-Continuous Lighting crashes with 2 injury crashes and 4 injuries
  - 1 Dark-No Lighting crashes with no injuries

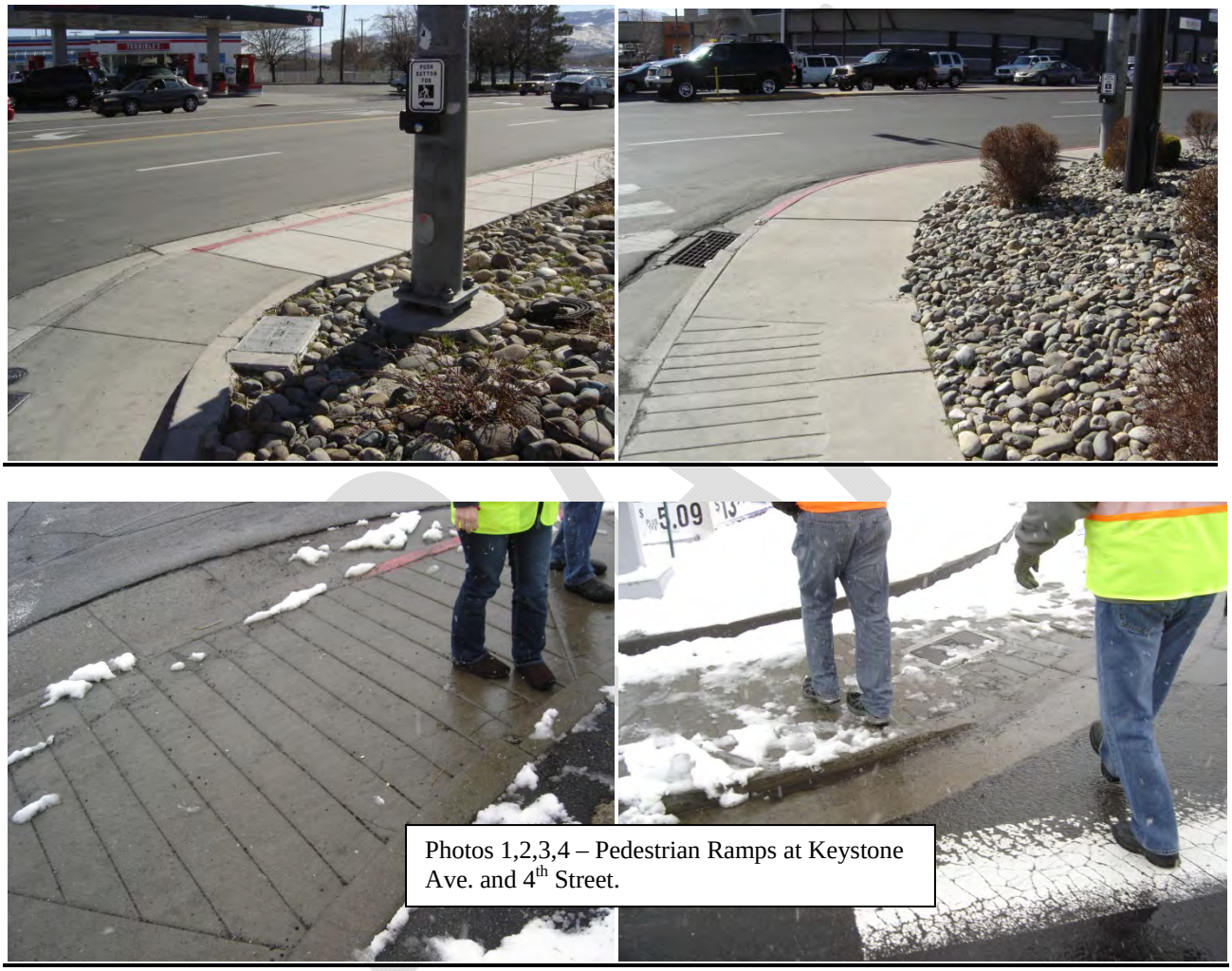
- High Crash Locations
  - Keystone and 4th Street intersection with 32 crashes was identified as a High Crash Location. This is down from the previous RSA of 45 crashes, possibly due to the closing of the gas station on the southwest corner.

- The audited portion of Keystone Avenue lies within Washoe County.

Observations:

Keystone / 4th Street

- The intersection of Keystone Avenue and 4th Street does not meet current ADA standards for pedestrian crossings PROWAG. All corners are missing the tactile strip, the north corner the push buttons are not placed at required distances from the crossing or sidewalk. These were also discussed in the past RSA for Keystone from 4th Street to California Street. See photos 1,2,3, and 4.



Photos 1,2,3,4 – Pedestrian Ramps at Keystone Ave. and 4th Street.

❖ ***Priority 2 – Upgrade all pedestrian crossings at the Keystone and 4th Street intersection to meet the PROWAG requirements.***

- Keystone Avenue and 4th Street was identified as a High Crash location for urban intersection due to the 32 crashes of which 5 were rear end crashes and 15 were angle and 7 were sideswipe crashes. There are approaches on the east and west leg of Keystone and 4th Street that allow full movements that often cut around or through the queues stopped at the signal. This type of movement increases the chances of angle crashes. However, since the last RSA, the gas station shown below has been closed and the current 3 year crash data has shown a decrease in crashes by 10 crashes. See photo 5.

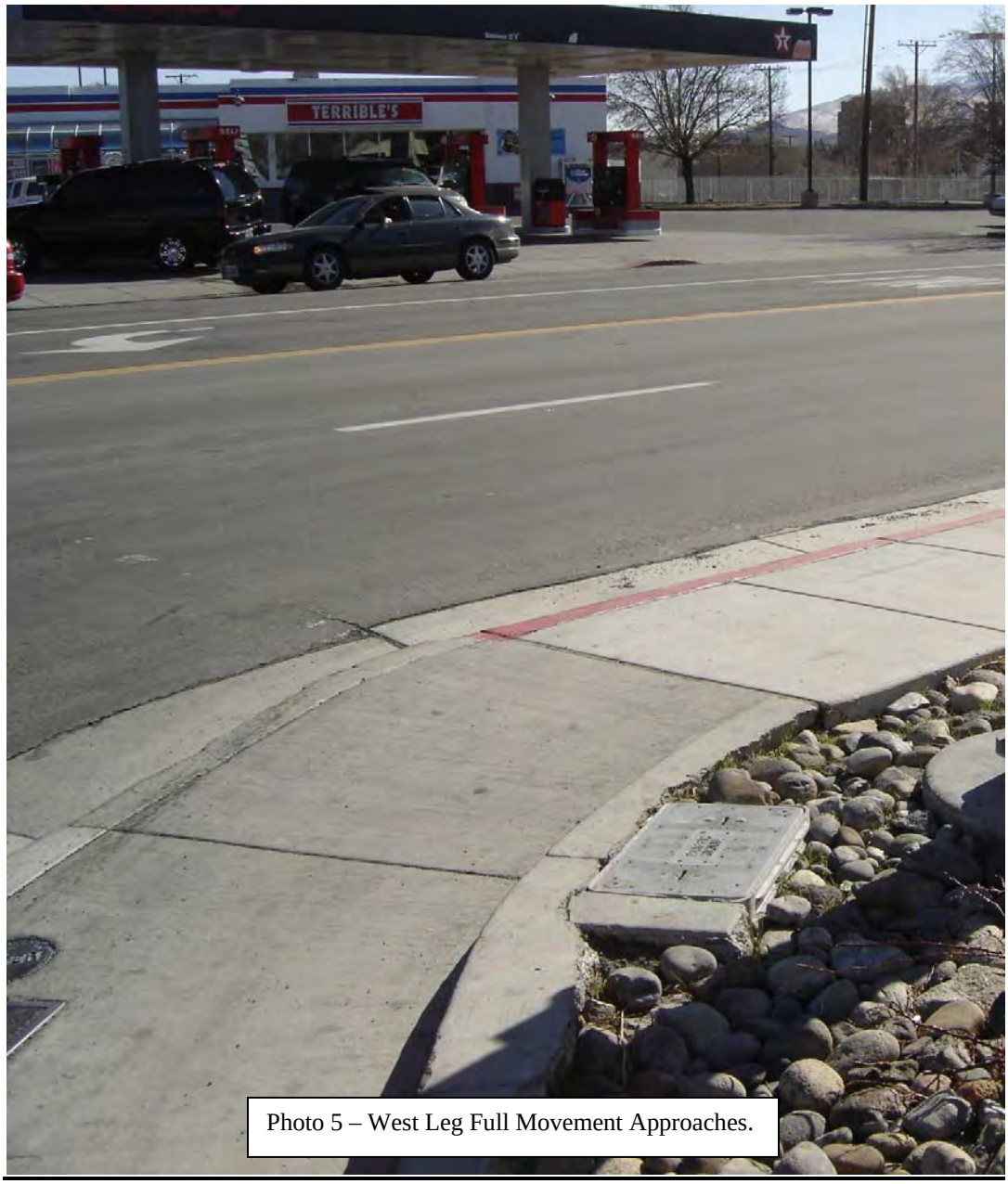


Photo 5 – West Leg Full Movement Approaches.

❖ ***Priority 2 – Add median islands for the left turn pockets on the east and west legs of the Keystone and 4th Street intersection.***

- The traffic signal pole on the southwest corner of Keystone Avenue and 4th Street is in the sidewalk and forces people to go walk close to the curb next to vehicular traffic and is also very narrow for wheel chairs. See photo 6.

Photo 6 – Signal Pole at the Southwest corner of Keystone Avenue and 4th Street.

❖ ***Priority 2 – Relocate the traffic signal pole on the southwest corner of Keystone Avenue and 4th Street to behind the sidewalk, or add to the width of the sidewalk behind the pole on the southwest corner of Keystone Avenue and 4th Street, if the pole cannot be relocated.***

- The team observed a high number of pedestrians crossing at the mid block location in the area of McDonalds and Wellsfargo. This seemed to be a usual pedestrian pattern due to the area locations of businesses. See photo 7.

Photo 7 – Pedestrians crossing at non crosswalk locations between 5th Street and 4th Street.

❖ ***Priority 1A – Perform a pedestrian study to determine the feasibility for a mid-block pedestrian crossing. The crossing location could use the median island to direct pedestrians to that they are facing traffic before entering the lanes on the opposite side. If warranted add a mid-block Danish Offset pedestrian crossing between 4th Street and 5th Street.***

- The driveway to McDonalds has access to 4th Street and Keystone Avenue. The team observed vehicles cutting through the parking lot on the north east corner to avoid the queue at the 4th Street and Keystone Intersection. See photo 7.

Photo 7 – Traffic Cut Through Pattern from 4th Street.

❖ ***Priority 2 – Review the approach on 4th Street just east of Vine Street and determine if curb and gutter to remove the direct access can be add to discourage drivers from cutting the north east corner of 4th Street and Keystone Avenue.***

- The shoulder width for northbound Keystone Avenue drops considerably before the McDonalds Driveway. The reduction has no warning and forces bicycles into the travel lane. See photo 8.

Photo 8 – Lane and Shoulder Width Reduction Area.

❖ ***Priority 1A – Add advance signing before the shoulder drop to warn bicyclist that the shoulder ends ahead.***

- There are two back to back median openings between 4th Street and 5th Street to access businesses. The southbound opening crosses 3 lanes of traffic with the outside lane containing a higher volume due to direct access to I-80. All the properties that the medians serve also have access from either 4th Street or 5th Street both of which have signalized intersections with Keystone Avenue. The median openings have a potential to add to angle collisions on Keystone Avenue. See photo 9.

Photo 9 – Multiple Median Opening on Keystone

❖ ***Priority 2 – Access management standards be considered for the median openings between 4th Street and 5th Street. Determine if the two median openings can be combined or closed.***

- The Starbucks at northeast corner of 7th Street and Keystone Avenue is creating a daily issue in the a.m. and p.m. peak hours. The entrance to the Starbucks drive through is immediately on the driver's right when entering the driveway from 7th Street. The location of the menu and speaker only allows for approximately 3 vehicles to queue before the driveway is blocked and cars begin to stack out onto 7th Street. The stacked cars on 7th Street then blocks traffic through the Keystone and 7th Street intersection. See photo 10.

Photo 10 – Starbucks Drive Through Traffic Blocking Traffic on 7th Street.

❖ ***Priority 1A – Coordinate with Starbucks to consider closing off the 7th Street driveway and signing traffic to enter from Alvero Street to the east of Starbucks. This would allow for a longer queue for Starbucks without impeding traffic on 7th Street or Keystone Avenue.***

- The Starbucks entrance from Keystone Avenue has a "Do Not Enter" sign for the drive through. The direction of the sign may be miss leading as to whether it is intended for the drive through or for the Keystone Avenue approach. See Photo 11.

Photo 11 – Confusing Starbucks Sign at Approach.

❖ ***Priority 1A – Contact Starbucks to move the sign to the opposite side of the drive through approach.***

- The southeast corner of Keystone Avenue and 7th Street the pedestrian pushbutton is not accessible without having to step up onto a curb area. See photo 12.

Photo 12 – Signal Pole at the Southeast corner of Keystone Avenue and 7th Street.

❖ ***Priority 2 – Modify the raised curb area and develop the appropriate PROWAG features for the southeast corner of Keystone Avenue and 7th Street. Lowering only half of the raised island around the pole may be appropriate due to the existing utility lids.***

- The northbound outside lane width narrows down to approximately 9.5 feet approaching University Terrace to allow for a left turn pockets. The southbound narrows to 10 feet. The narrow lane width puts bicyclist out into the travel lane. See photo 13

Photo 13 – Lane Width Reduction at University Terrace.

❖ ***Priority 1A – Add share the road signs approaching the University Terrace intersection from both directions.***

- The southeast corner of Sunnyside Drive has sight distance issue due to the over growth of trees on the corner property.

❖ ***Priority 1A –Contact the property owner and having the trees trimmed to improve the sight distance on the southeast corner of Sunnyside Drive and Keystone Avenue.***

- There is a private driveway into a cluster of homes on the east side of the roadway across from Wesley Drive which also has a utility pole locate on the south side of the driveway. Due to the location of the pole vehicles cannot make a right turn from the far right lane and therefore has to swing out into the inside lane to turn right into the driveway.

❖ ***Priority 1A – Coordinate with NVEnergy to relocate the utility pole to the south to allow for a better access radius into the driveway serving the cluster of homes on the east side of Keystone Avenue and across from Wesley Drive.***

- Coleman Drive has an "All Way Stop" controlled intersection with Keystone Avenue. There have not been any issues with this intersection.

❖ ***Priority 2 – Perform a feasibility study for the intersection of Keystone Avenue and Coleman Drive to be a Roundabout in the future if issues arise.***

- There is only a single marked pedestrian crossing between University Terrace and Coleman Drive and is located at the intersection of Kings Row. The crossing is not lit at night and the east side of the crossing, the sidewalk ends approximately 25 feet each side of the marked crossing. Pedestrians on the east side have to walk on the shoulder approaching the crossing location from either side due to landscaping or other yard features. See photo 14.

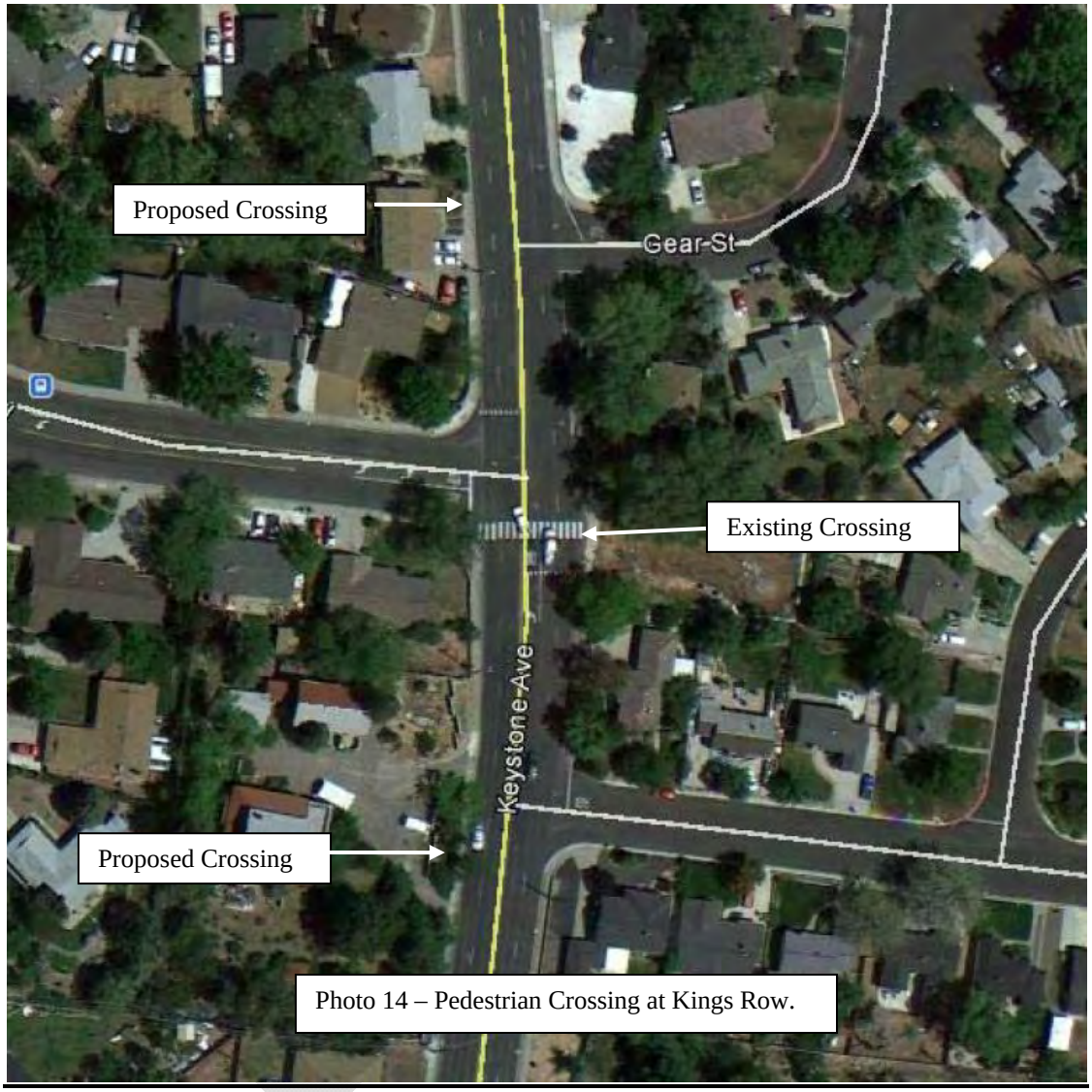


Photo 14 – Pedestrian Crossing at Kings Row.

❖ ***Priority 1A – Remove the pedestrian crossing at Kings Row and Keystone Avenue and replace it with two separate crossings. The first crossing would be located on the south corner of Keystone Avenue and Kimbal Drive and the second crossing would be located at the north corner of Keystone Avenue and Gear Street. Review both locations to determine if the pedestrian activated flashers would be warranted. Add all PROWAG features and lighting necessary for the new crossings.***

- There is a designated bike lane that begins just north of Peavine Road. The first 250 feet of the northbound bike lane is located from the curb and gutter to the shoulder stripe roughly 5 feet in width. This section was observed with parked vehicles in the bike lane.

❖ ***Priority 1A – Add no parking signs to the first 250 feet of bike lane north of Peavine Road.***

- The first traffic calming chicane just north of Peavine Road blocks the northbound bike lane.

❖ ***Priority 1A – Reconfigure the chicane north of Peavine Road to allow for unimpeded bicycle flow through the traffic calming device.***

- There is no continuation of the bike lane south of Peavine Road, but there appears to be enough roadway width to have a bike lane striped for the northbound uphill section starting at Coleman Drive.

❖ ***Priority 1A – Add striping and signing for a bike lane from Coleman Drive to Peavine Road on the northbound sided and add share the road signs for the southbound direction.***

- The pedestrian crossing at Putman Drive has school crossing signs that are not florescent yellow-green per the MUTCD.

❖ ***Priority 1A – Change the pedestrian crossing signs at Putman Drive to florescent yellow-green per the MUTCD.***

- The pedestrian crossing at Putman Drive is not lit at night.

❖ ***Priority 2 – Add street lights to the pedestrian crossing at Putman Drive.***

- The Reno Sparks Bike Ped Master Plan has the following bike facilities proposed on Keystone:

Street Name	From	To	Proposed Facility
Keystone Ave	N of Peavine Rd	Coleman Ave	Bike Route/Sharrows
Keystone Ave	Coleman Dr	W 7th St	Bike Lane
Keystone Ave	4th St	Riverside Dr	Bike Route
Kietzke Ln	Railroad Bridge	Victorian Ave	Bike Lane

- The segment between University Terrace and Coleman Drive is 4 lanes with no bike lanes or turn lanes. This is a residential area with driveways at each property. Traffic volumes for this area are approximately 13,650 AADT and a P.M. combined peak hour of 1,325 vehicles for the 4 lanes. Vehicles either pull out or back out of driveways into the flow of traffic. See photo 15.

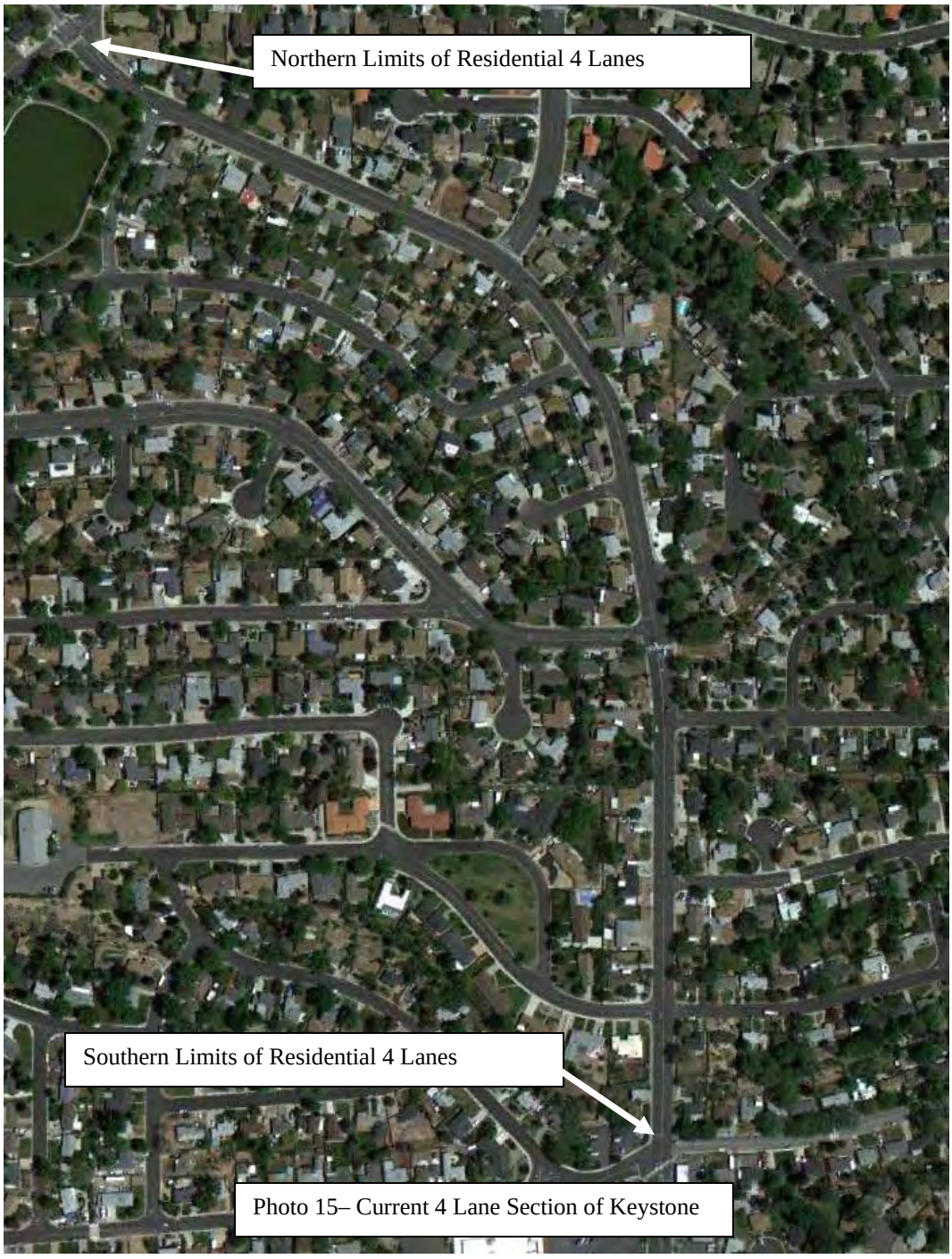


Photo 15– Current 4 Lane Section of Keystone

❖ ***Priority 2 – Consider reducing the number of general purpose lanes from 2 in each direction to 1 in each direction and include bicycle lanes on each shoulder and a two way left turn lanes down the middle.***

- The intersection of North McCarran Boulevard and Keystone Avenue has been previously modified with a worm island to restrict left turn from Keystone Avenue onto North McCarran Boulevard. The worm island does not extend beyond the left turn pocket medians on North McCarran allowing for traffic from Keystone to proceed around the worm island and make the left turn onto North McCarran. See photo 16.

Photo 16– North McCarran Blvd Worm Island.

❖ ***Priority 1B – NDOT District II to extend the worm island in the east and west direction beyond the nose of the left turn islands.***

- The configuration of the Single Point Interchange at I-80 and Keystone allow for high speed on ramps due to the large radiuses of the curves. The pedestrians crossing at the on-ramps have to give extra caution in crossing the on-ramps. See photo 17 for an example.

Photo 17– Example of Interchange Modification

❖ ***Priority 3 – Reconfigure the on ramps at I-80 and Keystone Avenue to allow for a tighter radius and a slower entry speed and a separate right turn lane approaching the ramp.***

SUMMARY OF RECOMMENDATIONS

Keystone Avenue from 4th Street to California Avenue

Pre-Construction Phase RSA

Note: Numbered recommendations can be found on the attached aerial photo plan sheets.

Priority 1A – is defined as those improvements that can be done in the immediate future through coordination between Washoe RTC and the City of Reno Maintenance staff:

1. ***Perform a pedestrian study to determine the feasibility for a mid-block pedestrian crossing. The crossing location could use the median island to direct pedestrians to that they are facing traffic before entering the lanes on the opposite side. If warranted add a mid-block Danish Offset pedestrian crossing between 4th Street and 5th Street.***

2. ***Add advance signing before the shoulder drop to warn bicyclist that the shoulder ends ahead.***

3. ***Coordinate with Starbucks to consider closing off the 7th Street driveway and signing traffic to enter from Alvero Street to the east of Starbucks. This would allow for a longer queue for Starbucks without impeding traffic on 7th Street or Keystone Avenue.***

4. ***Contact Starbucks to move the sign to the opposite side of the drive through approach.***

5. ***Add share the road signs approaching the University Terrace intersection from both directions.***

6. ***Contact the property owner and having the trees trimmed to improve the sight distance on the southeast corner of Sunnyside Drive and Keystone Avenue.***

7. ***Coordinate with NVEnergy to relocate the utility pole to the south to allow for a better access radius into the driveway serving the cluster of homes on the east side of Keystone Avenue and across from Wesley Drive.***

8. ***Remove the pedestrian crossing at Kings Row and Keystone Avenue and replace it with two separate crossings. The first crossing would be located on the south corner of Keystone Avenue and Kimbal Drive and the second crossing would be located at the north corner of Keystone Avenue and Gear Street. Review both locations to determine if the pedestrian activated flashers would be warranted. Add all PROWAG features and lighting necessary for the new crossings.***

9. ***Add no parking signs to the first 250 feet of bike lane north of Peavine Road.***

10. ***Reconfigure the chicane north of Peavine Road to allow for unimpeded bicycle flow through the traffic calming device.***

11. ***Change the pedestrian crossing signs at Putman Drive to florescent yellow-green per the MUTCD.***

12. ***Add striping and signing for a bike lane from Coleman Drive to Peavine Road on the northbound sided and add share the road signs for the southbound direction.***

Priority 1A – is defined as those improvements that can be done in the immediate future by NDOT District II:

13. ***NDOT District II to extend the worm island in the east and west direction beyond the nose of the left turn islands.***

Priority 2 – is defined as those improvements that can be included in the Corridor study or the next scheduled City of Reno/Washoe RTC projects for Keystone Avenue within the 4th Street and California Avenue limits when funding is available:

14. ***Upgrade all pedestrian crossings at the Keystone and 4th Street intersection to meet the PROWAG requirements.***

15. ***Add median islands for the left turn pockets on the east and west legs of the Keystone and 4th Street intersection.***

16. ***Relocate the traffic signal pole on the southwest corner of Keystone Avenue and 4th Street to behind the sidewalk, or add to the width of the sidewalk behind the pole on the southwest corner of Keystone Avenue and 4th Street, if the pole cannot be relocated.***

17. ***Review the approach on 4th Street just east of Vine Street and determine if curb and gutter to remove the direct access can be add to discourage drivers from cutting the north east corner of 4th Street and Keystone Avenue.***

18. ***Access management standards be considered for the median openings between 4th Street and 5th Street. Determine if the two median openings can be combined or closed.***

19. ***Modify the raised curb area and develop the appropriate PROWAG features for the southeast corner of Keystone Avenue and 7th Street. Lowering only half of the raised island around the pole may be appropriate due to the existing utility lids.***

20. ***Perform a feasibility study for the intersection of Keystone Avenue and Coleman Drive to be a Roundabout in the future if issues arise.***

21. ***Add street lights to the pedestrian crossing at Putman Drive.***

22. ***Consider reducing the number of general purpose lanes from 2 in each direction to 1 in each direction and include bicycle lanes on each shoulder and a two way left turn lanes down the middle.***

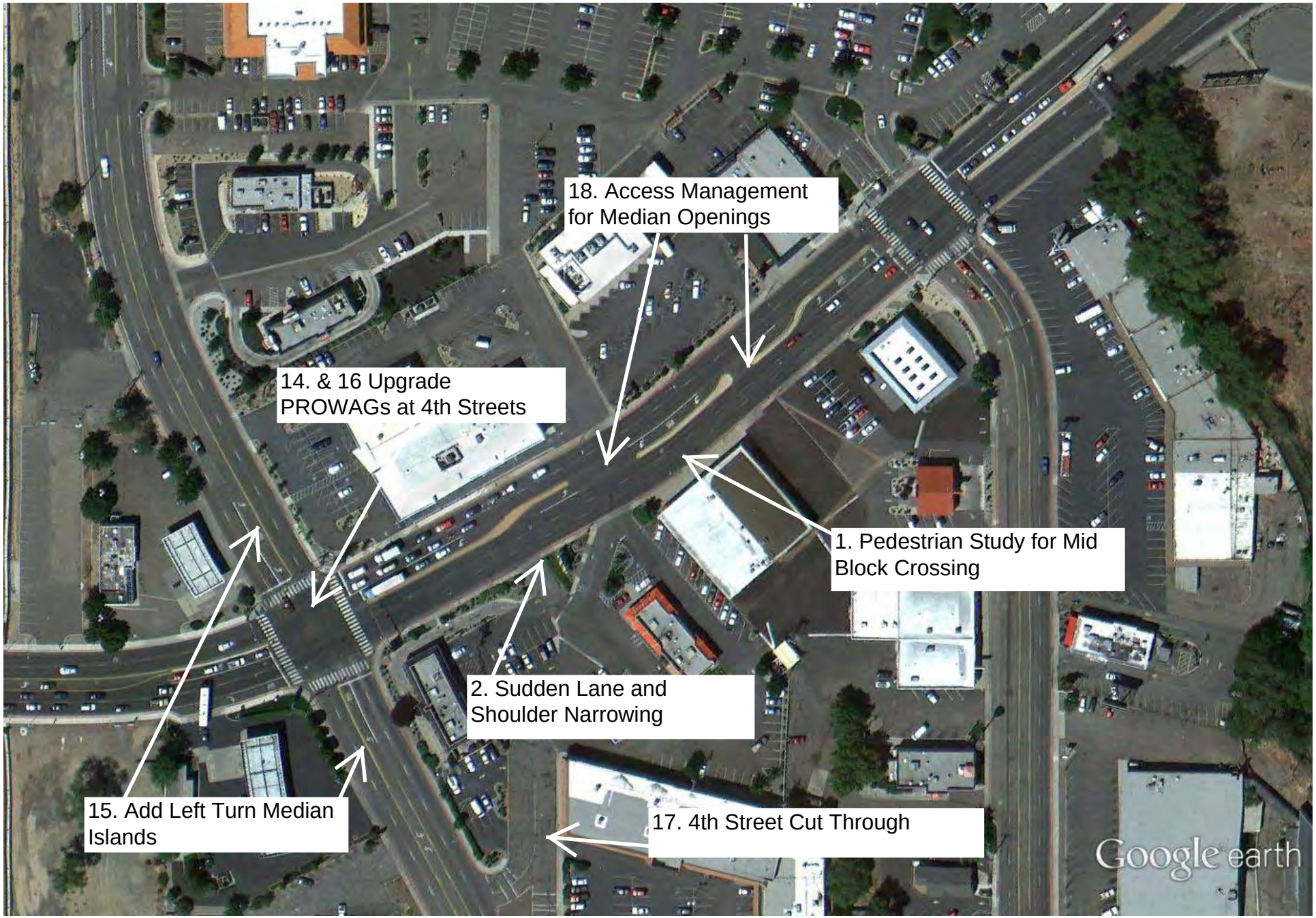
Priority 3 – is defined as those improvements that can be included in NDOT long range planning:

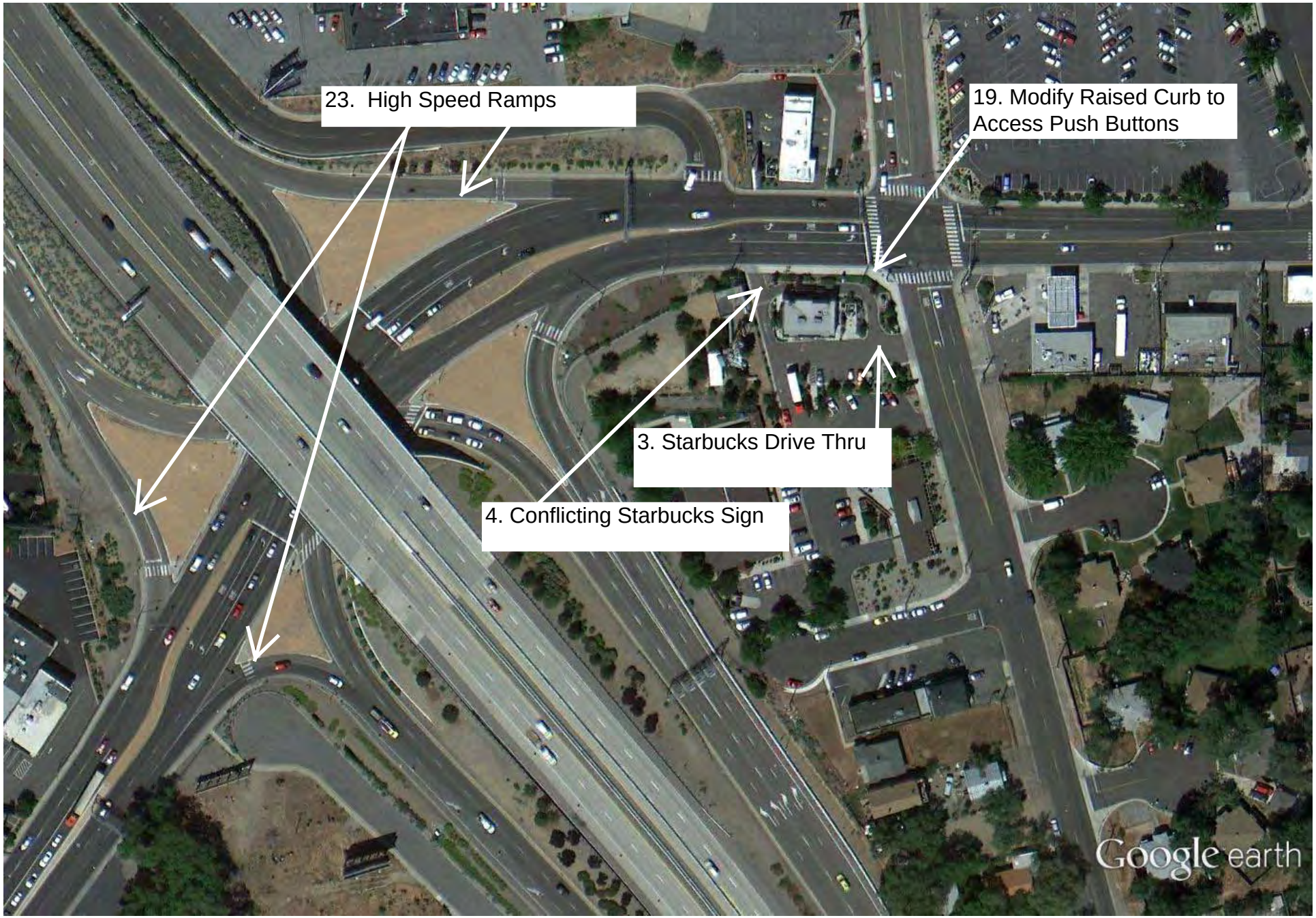
23. ***Reconfigure the on ramps at I-80 and Keystone Avenue to allow for a tighter radius and a slower entry speed and a separate right turn lane approaching the ramp.***

APPENDIX

The following items are found in the appendix:

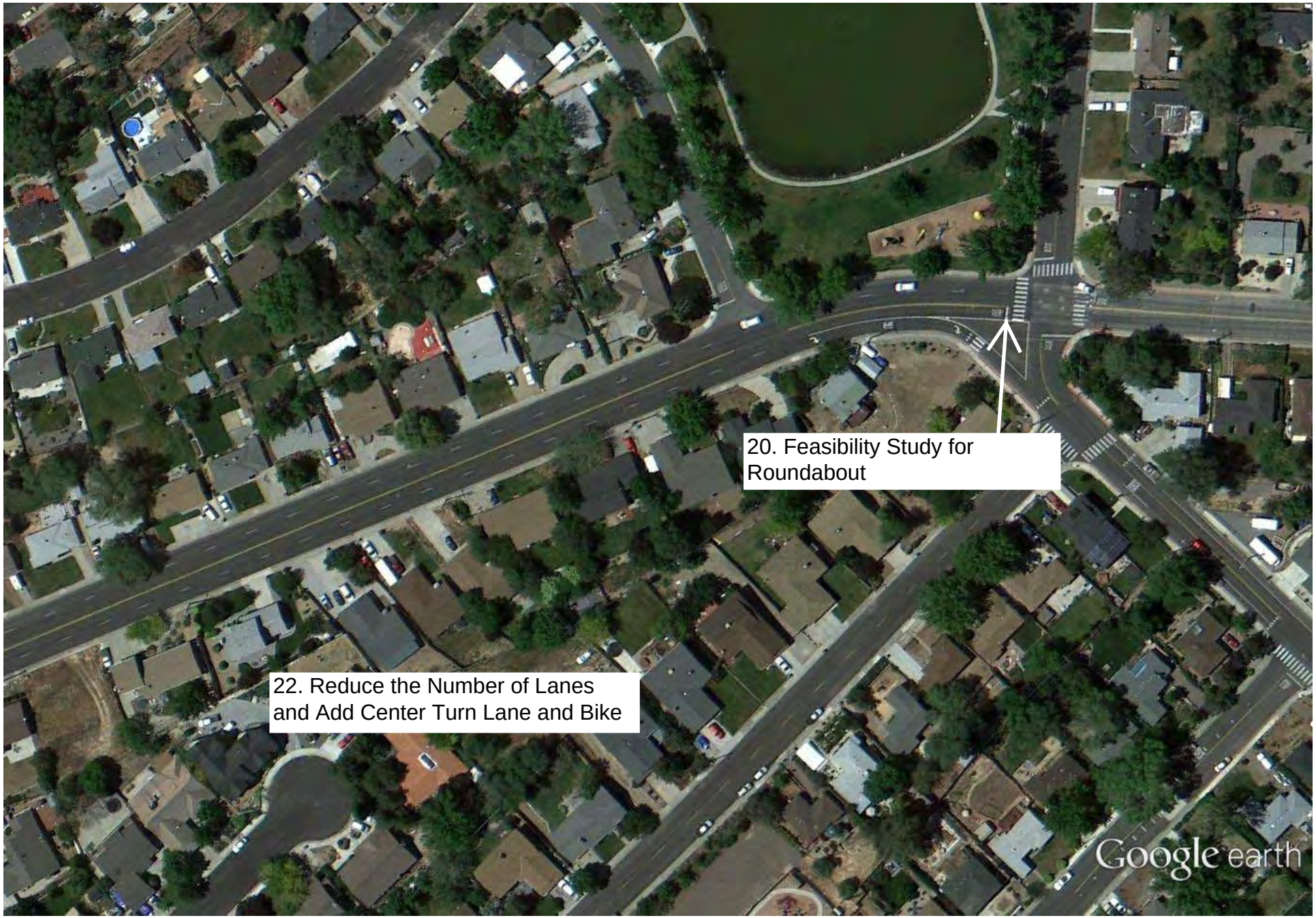
- **Recommendation Location Maps**
- **Keystone Avenue Crash Data for the RSA segment**
- **Keystone Avenue Raw Crash Data**
- **2011 Functional Classification Crash Rates**
- **NDOT AADT Data**
- **RSA Team Members**


18. Access Management for Median Openings
14. & 16 Upgrade PROWAGs at 4th Streets
1. Pedestrian Study for Mid Block Crossing
2. Sudden Lane and Shoulder Narrowing
15. Add Left Turn Median Islands
17. 4th Street Cut Through
Google earth


23. High Speed Ramps
19. Modify Raised Curb to Access Push Buttons
3. Starbucks Drive Thru
4. Conflicting Starbucks Sign
Google earth


22. Reduce the Number of Lanes and Add Center Turn Lane and Bike
6. Trim Trees for Sight Distance.
5. Lane and Shoulder Narrows
Google earth


22. Reduce the Number of Lanes
and Add Center Turn Lane and Bike
8. Ped Crossing Location
7. Utility and Turn Conflict
Google earth


20. Feasibility Study for Roundabout
22. Reduce the Number of Lanes and Add Center Turn Lane and Bike
Google earth


22. Reduce the Number of Lanes and Add Center Turn Lane and Bike
11. & 21. School Crossing Signs and Street Lighting for Crossing
12. Add Bike Lane NB and Share the Road Signs SB
Google earth


12. Add Bike Lane NB and
Share the Road Signs SB
Google earth


10. Reconfigure Chicane for Bike Lane Continuation
9. Add "No Parking" Signs
Google earth


10. Reconfigure Chicane for Bike Lane Continuation
10. Reconfigure Chicane for Bike Lane Continuation
Google earth


13. Extend Worm Island
Google earth

Keystone Avenue
Road Safety Audit
Crash Analysis
4th Street to North McCarran Blvd.

A crash study was conducted for Keystone Avenue from 4th Street to North McCarran Blvd. The crash data was for the three year study period from June 16, 2010 thru June 15, 2013. The following data was compiled:

Overall Crash Data

- 95 Total crashes during the time period (6/16/2010 to 6/15/2013)(2.0 Miles)
  - 38 injury crashes with 53 injuries.
  - 0 fatal crashes with 0 fatalities
- A overall crash rate (Urban Minor Arterial) of 1.919 crashes per million vehicles miles
  - Fatal crash rate: 0.0 crashes per million vehicles miles
  - Injury crash rate: 0.768 crashes per million vehicles miles
  - PDO crash rate: 1.152 crashes per million vehicles miles

Predominant Crash Type

- 37 Angle Crashes
  - 15 injury crashes with 23 injuries
- 24 Rear-End Crashes
  - 13 injury crashes with 18 injuries
- 15 Sideswipe Crashes
  - 0 injury crash with 0 injuries
- 13 Non-collision Crashes
  - 7 injury crashes with 7 injuries
- 2 Head-On Crashes
  - 1 injury crash with 3 injuries
- 4 Crashes Listed as Unknown
  - 2 injury crashes with 2 injuries

Contributing Factor

- 48 crashes where driver factor was Apparently Normal
  - 22 injury crashes with 30 injuries
- 5 crashes where driver had been drinking
  - 3 injury crashes with 6 injuries
- 4 crash where driver was inattention or distracted
  - 3 injury crashes with 5 injuries
- 2 crash where improper driving was the factor
- 36 crashes that the factor was unknown
  - 10 injury crashes with 36 injuries

Weather Conditions

- 71 crashes occurred during Clear weather
  - 33 injury crashes, with 45 injuries
- 9 crashes occurred during Cloudy weather
  - 3 injury crashes, with 4 injuries
- 3 crashes occurred during Rain and Snowy weather
  - 1 injury crash, with 3 injuries
- 12 crashes occurred where the weather was unkown
  - 1 injury crash, with 1 injury

Light Conditions

- 47 daylight crashes
    - 26 injury crashes with 33 injuries
- 14 dark-spot lighting
    - 7 injury crashes with 13 injuries
- 3 dark-continuous lighting
    - 2 injury crashes with 4 injuries
- 1 dark-no lighting
- 3 dusk lighting
    - 2 injury crashes with 2 injuries
- 27 lighting unknown
    - 1 injury crash with 1 injury

High Crash Locations

- Keystone Avenue and 4th Street intersection was found to meet High Crash Location criteria, (Urban, 30 or more crashes in 3 years).

Intersections

- 4th Street
    - 32 Total Crashes
        - 13 Injury Crashes with 20 injuries
- 5th Street
    - 18 Total Crashes
        - 9 Injury Crashes with 11 injuries
- I-80 Interchange
    - 26 Total Crashes
        - 8 Injury Crashes with 11 injuries
- 7th Street
    - 25 Total Crashes
        - 7 Injury Crashes with 9 injuries
- University Terrace
    - 6 Total Crashes
        - 3 Injury Crashes with 4 injuries
- Kings Row
    - 9 Total Crashes
        - 5 Injury Crashes with 8 Injuries
- North McCarran
    - 14 Total Crashes
        - 3 Injury Crashes with 5 Injuries

2011 FUNCTIONAL CLASSIFICATION CRASH RATES

2011 FUNCTIONAL CLASSIFICATION RURAL	TOTAL AVM	TOTAL P.D.O. CRASHES	P.D.O. CRASH RATE	TOTAL INJURY CRASHES	INJURY CRASH RATE	TOTAL FATAL CRASHES	FATAL CRASH RATE	TOTAL TRAFFIC CRASHES	CRASH RATE	TOTAL INJURIES	INJURY RATE	TOTAL FATALITIES	FATALITY RATE
RURAL INTERSTATE	1,904,925,666	569	0.30	235	0.12	16	0.01	820	0.43	388	0.20	17	0.0089
PRINCIPAL ARTERIAL RURAL	1,580,269,967	625	0.40	235	0.15	26	0.02	886	0.56	511	0.32	28	0.0177
MINOR ARTERIAL RURAL	444,689,657	289	0.65	134	0.30	5	0.01	428	0.96	194	0.44	6	0.0135
MAJOR COLLECTOR RURAL	390,764,617	219	0.56	128	0.33	5	0.01	352	0.90	164	0.42	7	0.0179
MINOR COLLECTOR RURAL	212,716,030	30	0.14	14	0.07	1	0.00	45	0.21	19	0.09	1	0.0047
LOCAL RURAL	500,179,816	116	0.23	49	0.10	6	0.01	171	0.34	69	0.14	6	0.0120
TOTAL	**5,033,545,753**	**1,848**	**0.37**	**795**	**0.16**	**59**	**0.01**	**2,702**	**0.54**	**1,345**	**0.27**	**65**	**0.01**
2011 FUNCTIONAL CLASSIFICATION URBAN	TOTAL AVM	TOTAL P.D.O. CRASHES	P.D.O. CRASH RATE	TOTAL INJURY CRASHES	INJURY CRASH RATE	TOTAL FATAL CRASHES	FATAL CRASH RATE	TOTAL TRAFFIC CRASHES	CRASH RATE	TOTAL INJURIES	INJURY RATE	TOTAL FATALITIES	FATALITY RATE
PRINCIPAL ARTERIAL INTERSTATE	3,490,240,119	2,469	0.71	1,020	0.29	8	0.00	3,497	1.00	1,468	0.42	10	0.0029
URBAN PRINCIPAL ARTERIAL OTHER FREEWAYS & EXPRESSWAYS	1,694,405,359	1,205	0.71	506	0.30	1	0.00	1,712	1.01	664	0.39	1	0.0006
PRINCIPAL ARTERIAL-OTHER	2,962,007,527	3,811	1.29	2,724	0.92	31	0.01	6,566	2.22	4,164	1.41	31	0.0105
MINOR ARTERIAL URBAN	4,500,154,027	6,195	1.38	4,639	1.03	30	0.01	10,864	2.41	4,164	0.93	30	0.0067
MAJOR COLLECTOR URBAN	3,876,115	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0000
COLLECTOR URBAN	2,079,905,763	2,078	1.00	1,497	0.72	7	0.00	3,582	1.72	2,229	1.07	7	0.0034
LOCAL URBAN	2,380,630,195	2,681	1.13	1,279	0.54	13	0.01	3,973	1.67	1,744	0.73	14	0.0059
TOTAL	**17,111,219,105**	**18,439**	**1.08**	**11,665**	**0.68**	**90**	**0**	**30,194**	**2**	**14,433**	**1**	**93**	**0**

GRAND TOTAL	**22,144,764,858**	**20,287**	**0.92**	**12,460**	**0.56**	**149**	**0.01**	**32,896**	**1.49**	**15,778**	**0.71**	**158**	**0.0071**

RATES PER MILLION VEHICLE MILES

RATES BASED ON LOCATED CRASHES ONLY
TOTAL AVM ARE 2010 NUMBERS 2011 NOT AVAILABLE UNTIL FALL/WINTER 2012

Station Data For: 0310259

Average Annual Daily Traffic

Year	AADT
2000	31500
2001	31500
2002	34000
2003	32700
2004	33000
2005	35500
2006	31500
2007	29000
2008	23000
2009	28000
2010	30000
2011	30000
2012	29500

Nevada Department of Transportation

Daily Volume from 06/02/2010 through 06/09/2010

Site Names: 310259, 356357, , SR-657 (Keystone Av)
County: Washoe
Funct. Class: Urban Minor Arterial
Location: .1 mi S of IR-80 and 100ft N of 5th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 01

	05/30/2010			05/31/2010			06/01/2010			06/02/2010			06/03/2010			06/04/2010			06/05/2010		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													373	166	207	378	183	195	565	235	330
01:00													257	106	151	296	124	172	416	168	248
02:00													190	66	124	209	82	127	308	120	188
03:00													146	51	95	158	63	95	223	70	153
04:00													150	62	88	138	60	78	186	70	116
05:00													356	175	181	350	181	169	233	103	130
06:00													887	477	410	861	476	385	512	249	263
07:00													1,820	984	836	1,821	966	855	850	461	389
08:00													1,927	1,028	899	2,000	1,067	933	1,262	639	623
09:00										1,734	908	826	1,798	941	857	1,897	991	906	1,702	890	812
10:00										1,728	864	864	1,845	939	906	1,886	940	946	1,912	1,034	878
11:00										1,920	933	987	2,026	974	1,052	2,089	1,059	1,030	2,220	1,133	1,087
12:00										2,303	1,089	1,214	2,215	1,090	1,125	2,455	1,167	1,288	2,415	1,185	1,230
13:00										2,072	970	1,102	2,188	1,092	1,096	2,383	1,210	1,173	2,204	1,034	1,170
14:00										2,409	1,149	1,260	2,338	1,105	1,233	2,503	1,187	1,316	2,078	983	1,095
15:00										2,440	1,112	1,328	2,618	1,240	1,378	2,615	1,253	1,362	2,084	981	1,103
16:00										2,431	1,071	1,360	2,542	1,186	1,356	2,622	1,228	1,394	1,914	941	973
17:00										2,547	1,134	1,413	2,708	1,137	1,571	2,604	1,187	1,417	1,798	911	887
18:00										1,965	852	1,113	2,176	1,028	1,148	2,035	997	1,038	1,601	826	775
19:00										1,665	719	946	1,810	840	970	1,674	831	843	1,345	688	657
20:00										1,340	563	777	1,413	730	683	1,371	675	696	1,262	593	669
21:00										1,045	431	614	1,266	678	588	1,258	586	672	1,171	571	600
22:00										785	378	407	880	450	430	1,059	484	575	1,045	480	565
23:00										552	235	317	570	300	270	865	359	506	757	335	422
Volume										26,936	12,408	14,528	34,499	16,845	17,654	35,527	17,356	18,171	30,063	14,700	15,363
AM Peak Vol													2,026	1,028	1,052	2,089	1,067	1,030	2,220	1,133	1,087
AM Peak Fct													1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AM Peak Hr													11:00	8:00	11:00	11:00	8:00	11:00	11:00	11:00	11:00
PM Peak Vol										2,547	1,149	1,413	2,708	1,240	1,571	2,622	1,253	1,417	2,415	1,185	1,230
PM Peak Fct										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PM Peak Hr										17:00	14:00	17:00	17:00	15:00	17:00	16:00	15:00	17:00	12:00	12:00	12:00
Seasonal Fct										0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Nevada Department of Transportation

Daily Volume from 06/02/2010 through 06/09/2010

Site Names: 310259, 356357, , SR-657 (Keystone Av)
County: Washoe
Funct. Class: Urban Minor Arterial
Location: .1 mi S of IR-80 and 100ft N of 5th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 01

	06/06/2010			06/07/2010			06/08/2010			06/09/2010			06/10/2010			06/11/2010			06/12/2010		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	521	225	296	261	118	143	323	137	186	334	177	157									
01:00	436	185	251	168	70	98	204	90	114	183	68	115									
02:00	307	124	183	132	58	74	138	56	82	134	62	72									
03:00	247	79	168	91	35	56	129	60	69	102	43	59									
04:00	191	72	119	138	64	74	165	79	86	168	76	92									
05:00	204	88	116	351	179	172	358	181	177	341	165	176									
06:00	329	138	191	774	415	359	786	398	388	797	416	381									
07:00	556	255	301	1,792	992	800	1,924	1,060	864	1,905	989	916									
08:00	800	364	436	1,789	962	827	1,848	969	879	1,803	964	839									
09:00	1,290	605	685	1,771	903	868	1,781	921	860												
10:00	1,521	742	779	1,731	839	892	1,797	894	903												
11:00	1,683	821	862	1,984	954	1,030	2,094	1,059	1,035												
12:00	1,873	926	947	2,380	1,137	1,243	2,284	1,145	1,139												
13:00	1,671	826	845	2,102	1,035	1,067	2,179	1,048	1,131												
14:00	1,638	800	838	2,080	1,017	1,063	2,158	1,033	1,125												
15:00	1,576	744	832	2,317	1,106	1,211	2,281	1,051	1,230												
16:00	1,676	816	860	2,338	1,065	1,273	2,523	1,169	1,354												
17:00	1,528	740	788	2,450	1,092	1,358	2,623	1,117	1,506												
18:00	1,409	703	706	1,796	814	982	1,953	922	1,031												
19:00	1,251	609	642	1,540	702	838	1,538	691	847												
20:00	1,135	538	597	1,212	596	616	1,282	618	664												
21:00	906	422	484	1,001	473	528	1,032	494	538												
22:00	683	329	354	781	381	400	784	383	401												
23:00	404	197	207	484	220	264	422	193	229												
Volume	23,835	11,348	12,487	31,463	15,227	16,236	32,606	15,768	16,838	5,767	2,960	2,807									
AM Peak Vol	1,683	821	862	1,984	992	1,030	2,094	1,060	1,035												
AM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
AM Peak Hr	11:00	11:00	11:00	11:00	7:00	11:00	11:00	7:00	11:00												
PM Peak Vol	1,873	926	947	2,450	1,137	1,358	2,623	1,169	1,506												
PM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PM Peak Hr	12:00	12:00	12:00	17:00	12:00	17:00	17:00	16:00	17:00												
Seasonal Fct	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949	0.949									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Station Data For: 0310538

Average Annual Daily Traffic

Year	AADT
2000	30000
2001	30000
2002	30000
2003	30000
2004	30000
2005	32000
2006	28000
2007	28000
2008	26000
2009	25000
2010	25000
2011	23000
2012	22500

Nevada Department of Transportation

Daily Volume from 05/08/2013 through 05/15/2013

Site Names: 0310538, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 120ft S of 7th St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/05/2013			Mon 05/06/2013			Tue 05/07/2013			Wed 05/08/2013			Thu 05/09/2013			Fri 05/10/2013			Sat 05/11/2013		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													220	91	129	254	95	159	441	211	230
01:00													113	46	67	190	77	113	343	155	188
02:00													78	24	54	134	63	71	262	114	148
03:00													87	49	38	130	71	59	188	89	99
04:00													182	139	43	168	123	45	173	96	77
05:00													370	279	91	417	319	98	295	192	103
06:00													888	709	179	893	687	206	400	272	128
07:00													1,814	1,270	544	1,799	1,251	548	768	512	256
08:00													1,727	1,063	664	1,740	1,072	668	1,120	685	435
09:00													1,524	944	580	1,531	902	629	1,568	962	606
10:00													1,354	797	557	1,500	883	617	1,671	1,014	657
11:00													1,423	752	671	1,680	901	779	1,709	949	760
12:00										1,639	901	738	1,599	847	752	1,814	989	825	1,752	945	807
13:00										1,638	862	776	1,605	835	770	1,717	870	847	1,636	819	817
14:00										1,862	921	941	1,793	870	923	1,782	841	941	1,720	912	808
15:00										1,963	920	1,043	2,196	1,059	1,137	2,256	1,067	1,189	1,699	825	874
16:00										2,213	974	1,239	2,218	977	1,241	2,260	995	1,265	1,716	875	841
17:00										2,257	974	1,283	2,219	914	1,305	2,287	1,020	1,267	1,582	801	781
18:00										1,690	745	945	1,769	818	951	1,795	856	939	1,395	677	718
19:00										1,294	588	706	1,268	568	700	1,454	705	749	1,190	591	599
20:00										1,142	529	613	1,195	530	665	1,280	570	710	1,132	517	615
21:00										896	409	487	931	404	527	1,165	486	679	898	388	510
22:00										557	234	323	585	268	317	975	400	575	863	395	468
23:00										386	184	202	397	185	212	664	296	368	705	310	395
Volume										17,537	8,241	9,296	27,555	14,438	13,117	29,885	15,539	14,346	25,226	13,306	11,920
AM Peak Vol													1,847	1,270	671	1,827	1,251	779	1,767	1,038	760
AM Peak Fct													0.93	0.91	0.93	0.91	0.89	0.88	0.95	0.89	0.90
AM Peak Hr													7:15	7:00	11:00	7:15	7:00	11:00	10:30	10:30	11:00
PM Peak Vol										2,368	1,018	1,355	2,314	1,059	1,344	2,353	1,067	1,357	1,763	947	880
PM Peak Fct										0.94	0.92	0.90	0.98	0.97	0.96	0.96	0.97	0.93	0.94	0.91	0.96
PM Peak Hr										16:30	16:15	16:30	16:30	15:00	16:45	16:30	15:00	16:30	16:30	16:30	15:30
Seasonal Fct										0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Collected by: NDOT
Created 06/05/2013 1:12:56PM

ROAD AADT 22,790 **S AADT 11,906** **N AADT 10,884**

Nevada Department of Transportation

Daily Volume from 05/08/2013 through 05/15/2013

Site Names: 0310538, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 120ft S of 7th St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/12/2013			Mon 05/13/2013			Tue 05/14/2013			Wed 05/15/2013			Thu 05/16/2013			Fri 05/17/2013			Sat 05/18/2013		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	414	189	225	215	89	126	188	75	113	233	103	130									
01:00	284	112	172	110	51	59	134	60	74	139	58	81									
02:00	191	83	108	79	30	49	89	40	49	107	47	60									
03:00	149	61	88	94	59	35	83	54	29	93	52	41									
04:00	110	56	54	171	125	46	185	140	45	153	111	42									
05:00	166	114	52	404	302	102	418	324	94	428	327	101									
06:00	285	187	98	869	666	203	897	674	223	933	711	222									
07:00	595	375	220	1,766	1,177	589	1,849	1,279	570	1,852	1,263	589									
08:00	975	600	375	1,668	1,003	665	1,677	1,027	650	1,736	1,096	640									
09:00	1,370	826	544	1,409	852	557	1,563	938	625	1,500	933	567									
10:00	1,535	848	687	1,292	703	589	1,392	813	579	1,367	764	603									
11:00	1,666	959	707	1,548	830	718	1,416	784	632												
12:00	1,659	882	777	1,586	866	720	1,503	807	696												
13:00	1,531	826	705	1,571	811	760	1,464	752	712												
14:00	1,464	750	714	1,780	881	899	1,721	801	920												
15:00	1,480	757	723	2,104	1,068	1,036	2,062	975	1,087												
16:00	1,554	782	772	2,133	913	1,220	2,084	895	1,189												
17:00	1,345	698	647	2,186	900	1,286	2,164	864	1,300												
18:00	1,268	566	702	1,576	667	909	1,693	786	907												
19:00	1,096	488	608	1,207	562	645	1,251	547	704												
20:00	1,098	478	620	1,095	505	590	1,094	510	584												
21:00	809	360	449	824	360	464	918	403	515												
22:00	574	231	343	539	225	314	608	247	361												
23:00	352	153	199	365	177	188	451	206	245												
Volume	21,970	11,381	10,589	26,591	13,822	12,769	26,904	14,001	12,903	8,541	5,465	3,076									
AM Peak Vol	1,684	959	744	1,818	1,184	718	1,849	1,279	666												
AM Peak Fct	0.98	0.96	0.94	0.91	0.90	0.84	0.88	0.84	0.84												
AM Peak Hr	10:30	11:00	10:30	7:15	7:15	11:00	7:00	7:00	8:15												
PM Peak Vol	1,659	882	820	2,239	1,068	1,346	2,164	975	1,300												
PM Peak Fct	0.89	0.83	0.90	0.92	0.94	0.89	0.96	0.92	0.96												
PM Peak Hr	12:00	12:00	15:45	16:30	15:00	16:30	17:00	15:00	17:00												
Seasonal Fct	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Collected by: NDOT
Created 06/05/2013 1:12:56PM

ROAD AADT 22,790 **S AADT 11,906** **N AADT 10,884**

Station Data For: 0310539

Average Annual Daily Traffic

Year	AADT
2000	17200
2001	16000
2002	16500
2003	16500
2004	16200
2005	17100
2006	16600
2007	15000
2008	17000
2009	17000
2010	16000
2011	14000
2012	13500

Nevada Department of Transportation

Daily Volume from 05/17/2011 through 05/24/2011

Site Names: 310539, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 200ft N of W 7th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/15/2011			Mon 05/16/2011			Tue 05/17/2011			Wed 05/18/2011			Thu 05/19/2011			Fri 05/20/2011			Sat 05/21/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00										103	28	75	103	29	74	121	41	80	224	77	147
01:00										58	23	35	64	18	46	78	27	51	151	61	90
02:00										56	15	41	55	19	36	82	30	52	122	41	81
03:00										44	23	21	46	24	22	67	36	31	80	37	43
04:00										92	65	27	86	66	20	89	60	29	79	42	37
05:00										184	132	52	193	147	46	188	145	43	102	72	30
06:00										445	355	90	467	365	102	440	346	94	213	150	63
07:00										996	714	282	1,030	755	275	996	703	293	423	266	157
08:00										930	648	282	910	603	307	900	631	269	532	354	178
09:00										755	479	276	758	496	262	754	476	278	740	460	280
10:00										678	378	300	596	331	265	686	379	307	933	529	404
11:00										682	344	338	703	365	338	749	396	353	923	522	401
12:00										792	412	380	815	411	404	903	473	430	893	449	444
13:00							740	379	361	825	430	395	795	383	412	877	423	454	891	460	431
14:00							893	424	469	983	471	512	976	460	516	1,022	467	555	868	432	436
15:00							1,165	533	632	1,091	512	579	1,183	559	624	1,271	604	667	935	467	468
16:00							1,091	451	640	1,159	469	690	1,213	484	729	1,212	517	695	880	410	470
17:00							1,364	509	855	1,300	499	801	1,265	480	785	1,323	538	785	991	466	525
18:00							1,024	390	634	1,014	417	597	1,038	430	608	1,014	426	588	802	372	430
19:00							781	364	417	743	299	444	764	303	461	806	372	434	672	323	349
20:00							677	293	384	664	272	392	724	289	435	705	287	418	577	262	315
21:00							449	155	294	517	201	316	520	212	308	623	249	374	523	201	322
22:00							342	120	222	336	117	219	320	146	174	472	183	289	444	184	260
23:00							197	73	124	172	62	110	209	88	121	337	130	207	324	124	200
Volume							8,723	3,691	5,032	14,619	7,365	7,254	14,833	7,463	7,370	15,715	7,939	7,776	13,322	6,761	6,561
AM Peak Vol										996	714	338	1,030	755	338	996	703	353	933	529	404
AM Peak Fct										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AM Peak Hr										7:00	7:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00	10:00	10:00	10:00
PM Peak Vol										1,300	512	801	1,265	559	785	1,323	604	785	991	467	525
PM Peak Fct										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PM Peak Hr										17:00	15:00	17:00	17:00	15:00	17:00	17:00	15:00	17:00	17:00	15:00	17:00
Seasonal Fct							0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963
Daily Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct							0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct							2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Nevada Department of Transportation

Daily Volume from 05/17/2011 through 05/24/2011

Site Names: 310539, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 200ft N of W 7th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/22/2011			Mon 05/23/2011			Tue 05/24/2011			Wed 05/25/2011			Thu 05/26/2011			Fri 05/27/2011			Sat 05/28/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	209	75	134	94	30	64	110	35	75												
01:00	124	50	74	58	21	37	55	22	33												
02:00	119	45	74	50	18	32	42	19	23												
03:00	104	34	70	37	22	15	35	16	19												
04:00	83	37	46	81	57	24	77	56	21												
05:00	82	53	29	180	136	44	174	135	39												
06:00	167	112	55	466	372	94	474	380	94												
07:00	271	156	115	1,048	750	298	1,047	768	279												
08:00	387	243	144	925	627	298	890	590	300												
09:00	662	386	276	754	456	298	779	471	308												
10:00	790	467	323	682	384	298	625	357	268												
11:00	836	459	377	668	344	324	710	384	326												
12:00	953	542	411	806	428	378	743	386	357												
13:00	915	478	437	756	364	392															
14:00	839	428	411	969	450	519															
15:00	807	387	420	1,175	562	613															
16:00	890	439	451	1,173	489	684															
17:00	880	401	479	1,299	468	831															
18:00	735	332	403	987	384	603															
19:00	572	261	311	723	312	411															
20:00	528	220	308	586	226	360															
21:00	406	145	261	430	165	265															
22:00	272	99	173	285	120	165															
23:00	176	66	110	177	62	115															
Volume	11,807	5,915	5,892	14,409	7,247	7,162	5,761	3,619	2,142												
AM Peak Vol	836	467	377	1,048	750	324	1,047	768	326												
AM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
AM Peak Hr	11:00	10:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00												
PM Peak Vol	953	542	479	1,299	562	831															
PM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00															
PM Peak Hr	12:00	12:00	17:00	17:00	15:00	17:00															
Seasonal Fct	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963												
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000												
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500												
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000												

Station Data For: 0310541

Average Annual Daily Traffic

Year	AADT
2000	4250
2001	3900
2002	3900
2003	4100
2004	4250
2005	4300
2006	4150
2007	3400
2008	3800
2009	3800
2010	3800
2011	3900
2012	3700

Nevada Department of Transportation

Daily Volume from 05/31/2012 through 06/07/2012

Site Names: 0310541, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 300ft N of Coleman Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/27/2012			Mon 05/28/2012			Tue 05/29/2012			Wed 05/30/2012			Thu 05/31/2012			Fri 06/01/2012			Sat 06/02/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00																56			61		
01:00																27			49		
02:00																18			34		
03:00																9			22		
04:00																23			24		
05:00																41			28		
06:00																129			59		
07:00																308			110		
08:00																269			168		
09:00																263			196		
10:00																231			214		
11:00																286			243		
12:00													250			270			289		
13:00													262			260			250		
14:00													258			300			260		
15:00													332			393			260		
16:00													359			377			253		
17:00													512			399			262		
18:00													345			295			242		
19:00													234			235			174		
20:00													209			185			145		
21:00													153			170			165		
22:00													99			134			108		
23:00													71			102			103		
Volume													3,084			4,780			3,719		
AM Peak Vol																311			243		
AM Peak Fct																0.93			0.86		
AM Peak Hr																7:15			11:00		
PM Peak Vol													550			399			290		
PM Peak Fct													0.91			0.93			0.90		
PM Peak Hr													17:15			17:00			12:30		
Seasonal Fct													0.983			0.954			0.954		
Daily Fct													0.914			0.887			1.089		
Axle Fct													0.500			0.500			0.500		
Pulse Fct													2.000			2.000			2.000		

Collected by: NDOT
Created 07/12/2012 9:28:00AM

ROAD AADT 3,993 **S AADT 0** **N AADT 0**

Nevada Department of Transportation

Daily Volume from 05/31/2012 through 06/07/2012

Site Names: 0310541, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 300ft N of Coleman Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 06/03/2012			Mon 06/04/2012			Tue 06/05/2012			Wed 06/06/2012			Thu 06/07/2012			Fri 06/08/2012			Sat 06/09/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	66			29			21			30			36								
01:00	48			22			17			19			18								
02:00	26			9			11			11			8								
03:00	20			7			9			8			7								
04:00	23			16			14			13			19								
05:00	24			42			48			39			40								
06:00	34			139			124			125			145								
07:00	78			301			286			343			261								
08:00	134			255			268			256			220								
09:00	200			244			240			285			211								
10:00	234			222			202			210			237								
11:00	241			263			241			289											
12:00	211			301			266			234											
13:00	251			246			224			304											
14:00	207			246			370			273											
15:00	233			286			399			261											
16:00	259			307			349			343											
17:00	259			315			352			382											
18:00	186			227			259			315											
19:00	160			197			191			225											
20:00	165			139			182			218											
21:00	121			102			136			160											
22:00	77			74			90			107											
23:00	37			46			58			65											
Volume	3,294			4,035			4,357			4,515			1,202								
AM Peak Vol	251			301			289			346											
AM Peak Fct	0.92			0.87			0.79			0.79											
AM Peak Hr	10:45			7:00			7:15			7:15											
PM Peak Vol	265			343			423			382											
PM Peak Fct	0.88			0.78			0.94			0.90											
PM Peak Hr	16:15			16:30			14:30			17:00											
Seasonal Fct	0.954			0.954			0.954			0.954			0.954								
Daily Fct	1.295			0.987			0.961			0.948			0.936								
Axle Fct	0.500			0.500			0.500			0.500			0.500								
Pulse Fct	2.000			2.000			2.000			2.000			2.000								

Collected by: NDOT
Created 07/12/2012 9:28:00AM

ROAD AADT 3,993 **S AADT 0** **N AADT 0**

Keystone Avenue, Washoe County Safety Audit Team Members - Tuesday February 4, 2014						
Team Leader - Jon Erb	Parsons	jon.erb@parsons.com	775-885-2249			
NAME	**AGENCY**	**E-Mail Address**	**Telephone No.**	**Initial**	D	N
Anita Lyday	NDOT	alyday@dot.state.nv.us	834-8320	AL		
Patrice Echola	RTC	pechola@rtcwashoe.com	335 1904			
Jon Lightfoot	NDOT-SAFTEY	Hlightfoot@dot.state.nv.us	888-7180	JL		
Julie Masterpool	RTC	jmasterpool@rtcwashoe.com	335-1897	JM		
Bryan Gant	Jacobs	Bryan.Gant@Jacobs.com	850 5107	BG		
Albert Jacquez	NDOT	ajacquez@dot.state.nv.us	888-7943	AJ		
Bill Story	NDOT	wstory@dot.state.nv.us	888-7433	WS		
Craig Schoenky	C of R	schoenkyc@reno.gov	334-2426	CS		

Appendix C

NDOT Bridge Inspection Report for Keystone Avenue/Truckee River and Keystone Avenue/Foster Drive

Bridge Number B1530

Bridge Location TRUCKEE RIVER Over KEYSTONE AV

Inspection Date 04/04/2012

	Yes	No
This report identifies deficiencies requiring urgent corrective action	☐	☑
This bridge is scour critical	☑	☐
This bridge contains fracture critical components	☐	☑

Report Contents

- ☑ Inspection Report Cover Sheet
- ☐ Signs and Utilities Inspection Report
- ☑ Load Rating Summary
- ☑ Element Level Inspection Report
- ☑ Maintenance Recommendation Report
- ☑ Structure Inventory & Appraisal Report
- ☑ Waterway Measurement Report
- ☐ Underwater Inspection Procedures
- ☐ Other:
- ☑ Bridge Photographs
- ☐ Complex Bridge Inspection Procedures
- ☐ Supplemental Drawings
- ☐ Fracture Critical Member Inspection Procedures

Type of Inspection: ☐ Initial ☑ Routine ☐ In-Depth ☐ Underwater ☐ Fracture Critical ☐ Complex ☐ Other Special

Inspectors		Initials
Team Leader Name:	Ashby, Kevin	KA
Assistant Name:	Vasiljevic , Milos	MV
Assistant Name:		
Assistant Name:		
Reviewing P.E. Name	Premo, Michael	MFP
Date of Review:	5/15/2012	

Reviewing P.E. Seal and Sign

PROFESSIONAL ENGINEER STATE OF NEVADA
MICHAEL F. PREMO
Exp: 12-31-13
CIVIL
No. 11863

5/18/2012

I hereby certify that these documents were prepared or approved by me.

Element Condition Values

Bridge Number: B1530

Bridge Location: TRUCKEE RIVER KEYSTONE AV

Inspection Date: 04/04/2012

Elem/Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4
012-38 / 2	Reinforced Concrete Deck/Slab	24409	sq ft	24407	2		

- There is a 1.5'l x 6"w x 1"d spall in southbound lane 2 near midspan of span 3.
- Near abutment 2 the southbound lane 2 exhibits two spalls up to 2' L x 6" W x 1"D.

107 / 2	Steel Open Girder/Beam	3543	ft	3447	96		

- Girders have active corrosion with minor section loss and pitting at the joint/hinge locations.
- Steel girders, diaphragms, bearings and related fasteners are only partially visible through openings at underbridge joints (mostly in span 2), at a high-load hit in span 3, and above abutment 2.
- Visible areas of steel girders, diaphragms, bearings and fasteners exhibit heavy surface corrosion and corrosive pitting to 1/16" deep, due to rainwater leaking from the expansion joints.
- Visible areas of the superstructure away from expansion joints exhibit an intact paint coating system with areas of freckle rust.

116 / 2	Reinforced Concrete Stringer	394	ft	194	175	25	

Stringers rated for concrete underdeck facade and fascia members of the superstructure. The underdeck facade exhibits cracks to 1/32" wide. The fascia exhibit minor 1/2" deep spalls with exposed rebar and cracking to 1/32".

Span 2:
- along the joints, the edges of the underdeck facade are spalled up to 1" deep.
- underdeck facade in this span exhibits moderate to heavy staining with cracks to 1/16".
- underdeck facade beneath expansion joint 3 is spalled, exposing the bearing assembly anchor bolts of girders 1, 5 and 6.
- a closure block has fallen out above the river.
- underdeck facade is delaminated over the width of the bridge for 15' south of joint 2, and for 5' north of joint 3.
- at joint 3 the underdeck facade edge is spalled to 1' w x 6" d with 4 exposed and heavily corroded studs.
- left fascia exhibits multiple spalls at the joints.

Joint 2, 1/2 bridge height x 4" W x 4" D with exposed and moderately corroded rebar
Joint 3, 1.5' L x 2.5' H x 6" D with exposed and moderately corroded rebar
Joint 3 2' L x 2.5' H x 6" D with exposed and moderately corroded rebar

Span 3:
- there are 4 areas of impact damage to the left fascia, the largest measuring 3' L x 13" H x 6" D with exposed and lightly corroded steel.
- some of the impact spalls exhibit loose concrete which could fall onto live traffic below.
- large spall measuring 7.5' L x 2' H x 3" D in left fascia.

Span 4:
The left fascia exhibits multiple spalls with exposed and corroded rebar, the largest measures 2' L x 1/2 fascia height x 2" D. The closure blocks are loose with a possibility of falling on the parking lot below.

205 / 2	Reinforced Concrete Column/Pile Extension	6	each	4		2	

- Upper west face of column 1, pier 3 exhibits a 3.2' H x 1.2' W incipient spall at the cap.
- Upper east face of column 2, pier 3 exhibits a 5' H x 2' W incipient spall at the cap.

215 / 2	Reinforced Concrete Abutment	121	ft	47	60	12	2

Element Condition Values

Bridge Number B1530

Bridge Location TRUCKEE RIVER KEYSTONE AV

Inspection Date 04/04/2012

Elem/Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4
	- Upper west face of the abutment 2 backwall exhibits a 4.5' H x 1.4' W x 4" D spall, with exposed and corroded rebar, at the northwest wingwall juncture. - Upper east face of the abutment 2 backwall exhibits a 3' H x 2' W incipient spall with an associated delamination 4' L x 3' W at the northeast wingwall juncture. - Abutment backwalls exhibit rainwater leakage staining, vertical cracks to 1/2" wide and scale damage to 4" deep. - 40% of the top of abutment 2 wall is spalling up to 2" deep over lengths of up to 6' - Wingwalls exhibit vertical cracks to 1/32" wide isolated cracks to 1/8". - Northeast wingwall exhibits spalls up to 14" H x 6" W x 3" D with exposed and lightly corroded steel reinforcement.						
220 / 2	Reinforced Concrete Pile Cap/Footing	8	each	8			
234 / 2	Reinforced Concrete Pier Cap	184	ft	0	168	9	7
	- Pier caps exhibit widespread concrete deterioration resulting in large, to full cap height open/incipient spalls, some with exposed and heavily corroded rebar. - Pier caps exhibit vertical cracks to 1/32" wide and scale damage to 3/4" deep. - Pier cap 1 exhibits spalls along the lower north edge up to 7' L x 6" H with exposed and heavily corroded rebar. - Pier cap 2 exhibits a minor 3" L x 3" W x 1" D spall near the west end of the north face. - Pier cap 2 over column 1 exhibits a 4' L x 6" W spall with exposed rebar. - Pier cap 2 near midspan exhibits a 4' L x 6" W spall. - North face of pier cap 2 exhibits a spall above each column measuirng up to 2' l x 5" h .						
300 / 2	Strip Seal Expansion Joint	292	ft	0			292
	- Strip seal expansion joints exhibit active joint leakage resulting in wet, heavy surface corrosion of the underlying girders, diaphragms and bearing assemblies. - Expansion joints are packed with sand and debris. - Joint 4 exhibits multiple separations from the header up to 3' in length, see photo 6. - Elastomeric joint headers typically exhibit cracks to 1/16" wide and some areas of displacement from the deck asphalt.						
310 / 2	Elastomeric Bearing	56	each	56			
	- Some of the visible neoprene bearings show noticeable deflection and minor deterioration, but appear to be performing adequately. - Some exposed bearing areas were not visible due to large amounts of pigeon nests and debris. - Grout pads visible above the pier 2 cap exhibit deteriorated edges, exposing up to 1" of the girder steel sole plates. - Span 2 metal straps/covers on the underside and sides of the bridge are either dislocated or missing, exposing the bearings and providing access for pigeons.						
331 / 2	Reinforced Concrete Bridge Railing	1181	ft	0	1176	5	
	- Several panels exhibit inboard rotation to 3" which has resulted in cracking/incipient spalling along the superstructure fascia block junctures. - Top face of the span 1 right parapet exhibits a 1' H x 5" W x 2" D spall, with exposed corroded reinforcing steel, 10' north of abutment 1. - Lower west face of the span 2 left parapet exhibits a 1' square x 4" D spall, with exposed corroded reinforcing steel, at expansion joint 3.						

Element Condition Values

Bridge Number B1530

Bridge Location TRUCKEE RIVER KEYSTONE AV

Inspection Date 04/04/2012

Elem/Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4
	- Top of the span 3 right parapet exhibits a 3' l x 1' w open/incipient spall, with exposed corroded reinforcing steel, see photo 5. - There is a minor incipient spall at the base of the span 2 light pole. - Median parapet exhibits vertical cracks to 1/32" wide.						
510 / 2	Flexible/Semi-Rigid/Rigid Wearing Surfaces	21315	sq ft	20515		800	
	- The deck asphalt wearing surface exhibits longitudinal cracks to 1/4" wide, with isolated cracks to 3/8" wide.						
515 / 2	Steel Protective Coating	200	ft	0	100	100	
	- Approach guardrails exhibit areas with limited effective protective coating. - Approach guardrail exhibits spots of light surface corrosion.						
516 / 2	Concrete Coating	699	ft	0	524	175	
	- Paint/finish of the concrete parapets/fascia panels exhibit moderate pealing, staining and limited effectiveness. - Paint system of abutment wall 1 has failed and it exhibits light grafitti coverage.						
605 / 2	Concrete Curbs	786	ft	786			
620 / 2	Concrete Sidewalks	786	ft	0		786	
	- Sidewalks exhibit localized areas of scale to 1/8" deep, and areas of spalling to 1/2" deep, some with exposed and corroded reinforcing steel. - Northeast approach sidewalk exhibits up to 2-1/2" of settlement in one panel. - Sidewalks exhibit dirt and debris accumulations to 3" deep along the curblines and transverse cracks to 1/32".						
646 / 2	Under Deck Lighting System	8	each	7	1		
	- Minor impact damage to a light under span 3.						
694 / 2	Debris on Seats	1	each	1			
	- Visible areas of the abutment and pier seats are covered with dirt, debris and bird excrement to 5" deep.						
700 / 2	Channel Scour	1	each	1			
701 / 2	Channel Embankment Erosion	1	each	0		1	
	- Upstream and downstream south channel embankment exhibits cut-bank erosion to vertical.						
702 / 2	Channel Aggradation	1	each	1			
703 / 2	Channel Drift	1	each	1			
704 / 2	Channel Vegetation	1	each	1			

Element Condition Values

Bridge Number B1530

Bridge Location TRUCKEE RIVER KEYSTONE AV

Inspection Date 04/04/2012

Elem/Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4
721 / 2	Channel Riprap	1	ft	1			
760 / 2	Metal Approach Guardrail	400	ft	380	20		
	- Approach guardrails exhibit minor impact damage						
761 / 2	Reinforced Concrete Approach Guardrail	100	ft	95		5	
	- Top of the median approach parapet exhibits a 1.3' H x 2.4' L x 4" D spall, with exposed corroded reinforcing steel, approximately 100' north of the structure and a 2' L x 1' W x 4" D spall with exposed corroded reinforcing steel approximately 20' north of the structure.						
771 / 2	Asphalt Concrete Approach Pavement	1	each	0	1		
	- Approach pavement exhibits longitudinal and transverse cracking to 3/16" wide.						
775 / 2	Approach Roadway Embankment	1	each	1			

Waterway Measurement Report

Bridge Number: B1530

Bridge Location: TRUCKEE RIVER KEYSTONE AV

Inspection Date: 04/04/2012

Waterway Measurements Referenced from:
Referenced to the top of the Parapet

DATE: 4/4/2012

LOCATION	WATERLINE	MUDLINE	MUDLINE	MUDLINE
Abut 1	Dry	7.9		
Midspan 1	Dry	15.5		
Pier1	26.6	27.9		
Midspan 2	27.9	29.4		
Pier 2	Dry	22.8		

NOTE:

Maintenance Inspection Work Items and Costs Report

Bridge Number B1530

Bridge Location TRUCKEE RIVER KEYSTONE AV

Inspection Date 04/04/2012

2 - Perform action with next 1 year

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
2	4 - Minor	D9	Clean Expansion Joints	EACH	250	292	250	73000

Notes:

3 - Perform action within next 2 years

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
3	3 - Major	Sub1	Repair Spalled Concrete at Abutment	SQFT	75	14	75	1050

Notes: Repair spalls in abutment 2 backwall.

3	4 - Minor	R36	Patch Spalls in Concrete Approach Railing	SQFT	75	5	75	375

Notes: Repair spall in top of median approach railing.

3	4 - Minor	Chan7	Repair Channel Embankment Erosion	CUYD	40	100	40	4000

Notes: Repair erosion in upstream and downstream south channel embankments.

3	3 - Major	Sub3	Repair Spalled Concrete at Pier	SQFT	75	34	75	2550

Notes: Repair pier 3 column delaminations.
Repair pier cap spalls with corroded reinforcement at pier caps 1 and 2.

3	3 - Major	Sub2	Repair Spalled Concrete at Wingwall	SQFT	75	2	75	150

Notes: Repair spalls in northeast wingwall.

3	4 - Minor	D31	Repair/Replace Concrete Bridge Railing	LINFT	213	5	213	1065

Notes: Repair spalls with exposed corroded reinforcing steel.

3	4 - Minor	D1	Remove and Replace Expansion Joint (Strip Seal)	LINFT	575	292	575	167900

Notes:

4 - Perform action when time and money

Maintenance Inspection Work Items and Costs Report

Bridge Number B1530

Bridge Location TRUCKEE RIVER KEYSTONE AV

Inspection Date 04/04/2012

permit

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
4	4 - Minor	Sub14	Apply Protective Coating to Substructure	SQFT	2	175	2	350

Notes: Paint failed areas of paint on abutment 1.

4	4 - Minor	D14	Repair Deck/Slab Soffit Spalling/Delamination	SQFT	50	50	50	2500

Notes: Repair cracks, open/incipient spalls and high-load hit deficiencies throughout superstructure concrete soffit and fascia panels.

4	4 - Minor	Super8	Repaint Portion of Steel Superstructure	SQFT	23	100	23	2300

Notes: Blast and paint exposed areas of girders, diaphragms, bearings and fasteners.

4	4 - Minor	R2	Remove and Replace Concrete Sidewalk	SQFT	9	786	9	7074

Notes:

5 - Monitor

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
5						0	0	0

Notes:
- Monitor cracks in deck asphalt wearing surface and repair spalls in southbound lane 3.
- Monitor cracks in bridge & median railing, elastomeric joint headers, wingwalls, backwalls and pier caps and approach railing.
- Monitor cracks in approach roadway.

State of Nevada

Department of Transportation

Load Rating Report

[REV. 7/01]

CONTRACT NUMBER(S)	COUNTY
Dist II -City	Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
KEYSTONE AVE over TRUCKEE RIVER	B-1530	KEYSTONE AVE

TYPE	YEAR CONSTRUCTED	DISTRICT
4 Span Composite Steel Bridge with P/T Slabs	1966	2

LENGTH ft-in	WIDTH ft-in	DEPTH ft-in	MILEPOST
400' - 0"	65' - 7 1/2"	5' - 0"	NA

BRIDGE LOAD RATING

ANALYSIS BY: S. Smith DATE: 4/15/2011

CHECKED BY: B. Allender DATE: 12/10/2011

Method of Analysis: Brass Girder Version 6.0.2 for Demands / Hand Calculations for Capacities & Load Ratings

A.) Existing Condition With existing 5.95 inch overlay

Rating By Load Factor Method

INVENTORY RATING = HS	**12.2**	=	**19.9**	**Metric Tons**
OPERATING RATING = HS	**20.4**	=	**33.3**	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=	GORRR		

B.) Modified Condition With future ___ inch AC Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	---	=	----	**Metric Tons**
OPERATING RATING = HS	---	=	----	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=			

CONDITION RATING

[Summarized from the Structure Inspection Report]

Date of Inspection: 4/10/2008

Type: Bridgemaster

MIN. VERTICAL CLEARANCE: 13 Feet 10 Inches

DECK RATING:	7		
SUPERSTRUCTURE RATING:	6	CHANNEL RATING:	7
SUBSTRUCTURE RATING:	4	EST. REMAINING LIFE [Years]:	9
CULVERT RATING:	N	STRUCTURE POSTED? [Yes/No]:	No

Note: Ratings above are NBI Ratings from inspection report weighted for structural items only

COMMENTS:

Inspection report indicates low condition ratings: Caps (4)
A special cap rating was performed. No deterioration was incorporated.
See Special Investigation Memo for further details.

Cap rating controls. If the overlay thickness could be reduced to 1.5"
as indicated in the design drawings. The cap ratings would be:
Inventory HS20 = 0.72
Operating HS20 = 1.21
Permit = PPGOO

Seal and Signature

This report was prepared in accordance with AASHTO "The Manual for Bridge Evaluation, First Ed, 2008" with revisions by Nevada Department of Transportation.

Report by: S. Smith DATE: 4/15/2011

State of Nevada
Department of Transportation

Load Rating Summary Sheet

[REV. 8/05]

DATE: 4/15/2011
COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
KEYSTONE AVE over TRUCKEE RIVER	B-1530	KEYSTONE AVE

MATERIAL PROPERTIES:

	Deck/----	Girders/ ----
Concrete F'c (psi)=	3,750	NA
Reinforcing Steel Fy (psi)=	40,000	NA
Structural Steel Fy (psi)=	NA	36000/42000/46000
Prestressing Steel F's (psi)	240,000	NA

BRIDGE DATA

Original Bridge:
4 Span Composite Steel Bridge with P/T Slabs

Widenings:
None

ANALYSIS CRITERIA:

- Rating performed using LFD approach with skew effects neglected
- Steel girders are composite with the lightweight concrete top and bottom deck slabs
- Analyzed as a concrete box girder for demands by transforming steel girders into equivalent concrete web sections
- Distribution Factor based on equivalent concrete box girder structure
- Assumed curb, rail and median barrier are distributed over entire deck area
- Misc. Steel DL=10%(girder DL) to include connections, stiffeners, x-frames; Lost Forms DL=12psf x int. deck width
- LIVE LOAD consists of AASHTO HS20-44 Truck & Lane Loads and California permit vehicles, P5, P9 and P13
- Concrete placement drawings not provided. F'c assumed for all top and bottom slabs & Fy per plans and MBE.
- Fy for structural steel (ASTM A36, A441) per plans
- F's for post-tensioning assumed. Post-tensioning working stress per plans

ANALYSIS METHOD & RESULTS:

Analysis by: S. Smith — Date: 4/15/2011
Checked by: B. Allender — Date: 12/10/2011

Rating Method
Deck
Girders — Brass Girder Version 6.0.2 for Demands / Hand Calculations for Capacities & Load Ratings
Special Items - Hand Calculations and SAP 2000

Loads
HS20 = AASHTO HS20-44 Truck Load or Lane Load whichever is greatest
P5/P9/P13 = Caltrans permit trucks P5, P9, and P13 applied separately with same wheel lines per girder as for HS20

LOAD RATING- Existing Condition

Overlays- 5.95 inch overlay

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
	Deck	Girders	Analysis Point	Critical Action	Rating	Item/ Action
INVENTORY RATING:						
RATING FACTOR for HS20 =	NA	1.01	300	Shear	0.61	Cap P2/Flexure
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	1.69	300	Shear	1.02	Cap P2/Flexure
RATING FACTOR for P5 =		1.07	300	Shear	0.95	Cap P2/Flexure
RATING FACTOR for P9 =		0.68	300	Shear	0.62	Cap P2/Flexure
RATING FACTOR for P13 =		0.58	300	Shear	0.49	Cap P2/Flexure

INVENTORY RATING = HS	**12.2**	=	**19.9**	**Metric Tons**
OPERATING RATING = HS	**20.4**	=	**33.3**	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	**0.95/0.79/0.62/0.56/0.49**			

Rating for P7 and P11 interpolated

LOAD RATING- w/ Modified Condition

Overlays-

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
	Deck	Girders	Analysis Point	Critical Action	Rating	Item/ Action
INVENTORY RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
RATING FACTOR for P5 =		NA	NA	NA	NA	NA
RATING FACTOR for P9 =		NA	NA	NA	NA	NA
RATING FACTOR for P13 =		NA	NA	NA	NA	NA

INVENTORY RATING = HS	---	=	---	**Metric Tons**
OPERATING RATING = HS	---	=	---	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	-.-- / -.-- /-.-- /-.-- /-.--			

Last Modified: 05/18/2012

Structure Inventory and Appraisal

Bridge No.: B1530

1. State Code	329 (Nevada)
2. District	02 (District 02)
3. County	031 (Washoe)
4. Place Code	60600 (Reno)
5. Inventory Route	151006570
6. Feature Intersected	TRUCKEE RIVER
7. Facility Carried	KEYSTONE AV
8. Structure No.	B1530
9. Location	RENO
10. Min Vertical Clearance	328 ft.
11. Milepoint	0.000
12. Base Hwy Network	0 (Inventory Route is not on the Base Network)
13A. LRS Inv Route	
13B. Subroute No.	
16. Latitude	° 30 ' 59.14 "
17. Longitude	119 ° 49 ' 32.24 "
19. Detour Length	3.7
20. Toll	3 (On Free Road)
21. Maintenance Resp	04 (City or Municipal Highway Agency)
22. Owner	04 (City or Municipal Highway Agency)
26. Functional Class	16 (Urban)
27. Year Built	1966
28A. Lanes On	4
28B. Lanes Under	2
29. Avg Daily Traffic	13400
30. Year of ADT	2008
31. Design Load	6 (MS 18+Mod / HS 20+Mod)
32. Appr. Roadway Width	54.1 ft.
33. Median	0 (No median)
34. Skew	99 degrees
35. Structure Flared	0
36A. Bridge Railings	0 (Does not meet acceptable standards/safety feature is required)
36B. Transitions	0 (Does not meet acceptable standards/safety feature is required)
36C. Approach Guardrail	0 (Does not meet acceptable standards/safety feature is required)
36D. Approach GuardRail Term	0 (Does not meet acceptable standards/safety feature is required)
37. Historical Significance	5 (Not eligible)
38. Navigation Control	0 (No navigation control on waterway (bridge permit not required))
39. Vertical Clearance	0.0 ft.
40. Horiz. Clearance	0.0 ft.
41. Posting Status	A (Open)
42A. Type of Service On	1 (Highway)
42B. Type of Service Under	6 (Highway)
43A. Main Span Material	2 (Concrete continuous)
43B. Main Span Design	05 (Box Beam or Girders)
44A. Appr. Span Material	
44B. Appr. Span Design	
45. No. of Spans Main Unit	4
46. No. of Appr. Spans	0
47. Horiz. Clearance	54.1 ft.
48. Length Max Span	146.0 ft.
49. Structure Length	393.7 ft.
50. Curb/Sdwk Width LT	0.00 ft.
RT	0.00 ft.
51. Width Curb to Curb	54.1 ft.
52. Deck Width Out to Out	62.0 ft.
53. Min. Vert. Clearance Over	328 ft.
54A. Min. Vert. Underclear	H (Highway beneath structure)
54B. Min. Vert. Underclear	13.8 ft.
55A. Min. Lat. Underclear Right	H (Highway beneath structure)
55B. Min. Lat. Underclear Right	12.1 ft.
56. Min. Lat. Underclear Left	0 ft.
58. Deck	7 (Good Condition (some minor problems))
59. Superstructure	6 (Satisfactory Condition (minor deterioration))
60. Substructure	4 (Poor Condition (advanced deterioration))
61. Channel/Channel Prot	7 (Bank protection needs minor repairs)
62. Culvert	N (Not Applicable)

63. Rating Method	1 (Load Factor (LF))
64. Operating Rating	36.7
65. Rating Method	1 (Load Factor (LF))
66. Inventory Rating	21.93
67. Struc Eval	4 (Meets minimum tolerable limits)
68. Deck Geometry	4 (Meets minimum tolerable limits)
69. Underclearance, Vert & Horiz	2 (Intolerable)
70. Posting	5 (Equal to or above legal loads)
71. Waterway Adequacy	9 (Bridge Above Flood Water Elevations)
72. Approach Alignment	7 (Better than present minimum criteria)
75A. Type Of Work	31 (Replacement)
75B. Work Done By	1 (Work to be done by contract)
76. Len of Struc Impr	385.49400
90. Inspection Date	04/04/2012
91. Frequency	24
92A. FC Frequency	
92B. UW Frequebcy	
92C. SI Frequency	
92A-1. FC Required	N
92B-1. UW Required	N
92C-1. SI Required	N
93A. FC Inspection Date	
93B. UW Inspection Date	
93C. SI Date	
94. Bridge Impr Cost	$ 1820000
95. Rdwy Impr Cost	$ 182000
96. Total Proj Cost	$ 2731000
97. Year of Impr Cost	2004
98A. Border Bridge Code	(Not Applicable)
98B. % Responsibility	
99. Border Bridge No.	
100. STRAHNET	0 (Not a STRAHNET route)
101. Parallel Structure	N (No parallel structure)
102. Direction of Traffic	2 (2-way traffic)
103. Temp Structure	
104. Hwy Sys Inv Route	0 (Structure/Route is NOT on NHS)
105. Fed Lands Hwys	0 (Not Applicable)
106. Year Reconstructed	0000
107. Deck Type	1 (Concrete Cast-in-Place)
108A. Wearing Surface	6 (Bituminous)
108B. Deck Membrane	0 (None)
108C. Deck Protection	0 (None)
109. Truck ADT	4 %
110. Desig National Net	0 (Inventory route not on network)
111. Pier Protection	
112. Bridge Length	Y
113. Scour Critical Bridges	3 (Foundations unstable for scour conditions)
114. Future ADT	25000
115. Year Future ADT	2029
116. Min Nav Vert Clear	0 ft.
201. Contract Number	
202. Seismic Risk	
203. Structure Name	
204. Culvert Barrel Height	
205. Culvert Barrel Width	
206. Culvert Barrel Length	
207. Total Deck Area	
208. Last Access Required Inspection Date	04/04/2012
209. Access Required Inspection Frequency	24
210. Date of Next Access Required	04/04/2014
211. Bridge Inventory Direction	South to North

Sufficiency Rating: 28.20 FO: N SD: Y

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

8: Structure Number	5: Inventory Route	Inspector	District
B1530	151006570	KELLY/VASILJEVIC	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

58: Deck Rating	7	59: Superstructure Rating	6	59: Superstructure	
Wearing Surface	6	Bearing Devices	6	Collision Damage	4
Deck Struc Condition	7	Stringers	5	Deflection under Load	
Curbs	7	Girders or Beams	6	Alignment of Members	7
Median		Diaphrams or Floor Beams	6	Vibrations under Load	
Sidewalks	5	Trusses: General			
Parapet	4	Portals			
Railing		Bracing			
Paint or Finish	5	Paint or Finish	4		
Drains		Rivets or Bolts	6		
Lighting Standard	7	Welds-Cracks	7		
Utility		Rust	5		
Joint Leakage	3	Timber Decay		Record Last Updated	
Expansion Joint/Devices	5	Concrete Cracking	4	4/19/2010 @ 14:02:31	

60: Substructure Rating	4	60: Substructure		61: Channel and Protection	
Abutments					
Wings	6	Pile Bents		Fender System	
Backwall	5	Cracking/Spalling	3	Spur Dikes and Jetties	
Footing		Steel Corrosion	3	Riprap or Slope Paving	7
Piles		Timber Decay, etc		Adequacy of Opening	8
Erosion	8	Debris on Seats	5		
Settlement	8	Paint or Finish	6	62: Culvert Rating	N
Piers or Bents		Collision Damages	7	Barrel	
Caps	4	61: Channel Rating	7	Concrete (enter just one value)	
Column	6	Channel Scour	7	Steel	
Footing		Embankment Erosion	6	Timber	
Piles		Drift	7	Headwall	
Scour	7	Vegetation	8	Cutoff Wall	
Settlement	8	Channel Change	7	Adequacy	
				Debris	

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

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KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

Approach Alignment

Alignment	
Approach Slab	
Relief Joint	
Approach:	
Guardrail	6
Pavement	7
Embankment	7
Reserved	
Load Rating	
Posted Load	
Legibility	
Visibility	

Type of Inspection

Bridgemaster	☑
Special	☐
Routine	☐

Estimated Remaining Life	09 years

NBI Information:

29: ADT	13400
30: Year of ADT	2006
36: Safety Features	0 0 0 0
54: Min Vert Underclearance	H 4.22 m
228: Next Insp Due Date (Mth Year)	Apr 2012
Owner	City/Municipal Hwy Agenc
Maintenance Responsibility	City/Municipal Hwy Agenc

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

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KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

Comments and Notes *Use <Control-Enter> to enter paragraph breaks*

B 1530

04/02/2010 ROUTINE (WITH ACCESS EQUIPMENT) IN-DEPTH INSPECTION COMMENTS:

INSPECTION REPORT:
STRUCTURE INVENTORIED SOUTH TO NORTH.

NOTE: THE ACCESS COVERPLATES AT ABUTMENT 1 HAVE BEEN BOLTED AND TACK WELDED; THEREFORE, NO ACCESS WAS MADE TO THE SUPERSTRUCTURE. AREAS OF THE SUPERSTRUCTURE STEEL GIRDERS, DIAPHRAGMS AND BEARINGS COULD BE OBSERVED AT OPEN JOINTS, AT DROP-IN SECTIONS, AND ABOVE ABUTMENT 2. NDOT CHOSE TO USE THE 62' SNOOPER, SO THE EAST FASCIA AND EASTMOST 10' OF THE SOFFIT WAS INSPECTED FROM THE GROUND. CLOSURE BLOCKS IN THE UNDERSIDE OF SPANS 2 AND 4 ARE LOOSE, WITH THE POSSIBILITY OF FALLING OFF, ESPECIALLY IN SPAN 4 ABOVE A PARKING LOT.

DECK WEARING SURFACE (RATED 6): THE DECK ASPHALT WEARING SURFACE EXHIBITS LONGITUDINAL CRACKS TO 1/4" WIDE, WITH ISOLATED CRACKS TO 3/8" WIDE. THERE IS A 1.5'L x 6"W x 1"D SPALL IN SOUTHBOUND LANE 2 NEAR MIDSPAN OF SPAN 3. NEAR ABUTMENT 2 THE SOUTHBOUND LANE 2 EXHIBITS TWO SPALLS UP TO 2'L x 6"W x 1"D.

SIDEWALKS (RATED 5): THE SIDEWALKS EXHIBIT LOCALIZED AREAS OF SCALE TO 1/8" DEEP, AND AREAS OF SPALLING TO 1/2" DEEP, SOME WITH EXPOSED AND CORRODED REINFORCING STEEL. THE NORTHEAST APPROACH SIDEWALK EXHIBITS UP TO 2-1/2" OF SETTLEMENT IN ONE PANEL. THE SIDEWALKS EXHIBIT DIRT AND DEBRIS ACCUMULATIONS TO 3" DEEP ALONG THE CURBLINES AND TRANSVERSE CRACKS TO 1/32".

PARAPET (RATED 4)/ DECK PAINT-FINISH (RATED 5): THE PAINT/FINISH OF THE CONCRETE PARAPETS/FASCIA PANELS EXHIBIT MODERATE FAILURE AND STAINING. THE TOPS OF SEVERAL PANELS EXHIBIT OPEN/INCIPIENT SPALLING TO 1.5' DIAMETER x 3" DEEP, WITH EXPOSED REINFORCING STEEL. SEVERAL PANELS EXHIBIT INBOARD ROTATION TO 3" WHICH HAS RESULTED IN CRACKING/INCIPIENT SPALLING ALONG THE SUPERSTRUCTURE FASCIA BLOCK JUNCTURES. THE TOP FACE OF THE SPAN 1 RIGHT PARAPET EXHIBITS A 1' H x 5" W x 2" D SPALL, WITH EXPOSED REINFORCING STEEL, 10' NORTH OF ABUTMENT 1. THE LOWER WEST FACE OF THE SPAN 2 LEFT PARAPET EXHIBITS A 1' SQUARE x 4" D SPALL, WITH EXPOSED REINFORCING STEEL, AT EXPANSION JOINT 3. THE TOP OF THE SPAN 3 LEFT PARAPET EXHIBITS A 2.5' L x 1' W OPEN/INCIPIENT SPALL, WITH EXPOSED REINFORCING STEEL. THERE IS A MINOR INCIPIENT SPALL AT THE BASE OF THE SPAN 2 LIGHT POLE. THE MEDIAN PARAPET EXHIBITS VERTICAL CRACKS TO 1/32" WIDE.

LIGHTING STANDARD (RATED 7): THERE IS MINOR IMPACT DAMAGE TO A LIGHT UNDER SPAN 3.

JOINT LEAKAGE (RATED 3)/ EXPANSION JOINT (RATED 5): ALL STRIP SEAL EXPANSION JOINTS EXHIBIT ACTIVE JOINT LEAKAGE RESULTING IN WET, HEAVY SURFACE CORROSION OF THE UNDERLYING GIRDERS, DIAPHRAGMS AND BEARING ASSEMBLIES. THE EXPANSION JOINTS ARE PACKED WITH SAND AND DEBRIS. JOINT 4 EXHIBITS MULTIPLE SEPARATIONS FROM THE HEADER UP TO 3' IN LENGTH. THE SPAN 2 METAL STRAPS/COVERS ON THE UNDERSIDE AND SIDES OF THE BRIDGE ARE EITHER DISLOCATED OR MISSING, EXPOSING THE BEARINGS AND PROVIDING ACCESS FOR PIGEONS. THE ELASTOMERIC JOINT HEADERS TYPICALLY EXHIBIT CRACKS TO 1/16" WIDE AND SOME AREAS OF DISPLACEMENT FROM THE DECK ASPHALT.

BEARING DEVICES (RATED 6): SOME OF THE VISIBLE NEOPRENE BEARINGS SHOW NOTICEABLE DEFLECTION AND MINOR DETERIORATION, BUT APPEAR TO BE PERFORMING ADEQUATELY. STRIP SEAL JOINT FAILURE IS PRESENT AT ABUTMENT 2 IN THE SOUTHBOUND LANE AND PIER 3 IN THE NORTHBOUND LANE. SOME EXPOSED BEARING AREAS WERE NOT VISIBLE DUE TO LARGE AMOUNTS OF PIGEON NESTS AND DEBRIS. GROUT PADS VISIBLE ABOVE THE PIER 2 CAP EXHIBIT DETERIORATED EDGES, EXPOSING UP TO 1" OF THE GIRDER STEEL SOLE PLATES.

8: Structure Number	5: Inventory Route	Inspector	District
B1530	151006570	KELLY/VASILJEVIC	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

STRINGERS (RATED 5)/ CONCRETE CRACKING (RATED 4)/ SUPERSTRUCTURE COLLISION DAMAGE (RATED 4): STRINGERS RATED FOR CONCRETE SOFFIT AND FASCIA MEMBERS OF THE SUPERSTRUCTURE. THE SOFFIT EXHIBITS CRACKS TO 1/32" WIDE. THE FASCIA EXHIBIT MINOR 1/2" DEEP SPALLS WITH EXPOSED REBAR AND CRACKING TO 1/32".
SPAN 2:
ALONG THE JOINTS, THE EDGES OF THE SOFFIT ARE SPALLED UP TO 1" DEEP. THE SOFFIT IN THIS SPAN EXHIBITS MODERATE TO HEAVY STAINING WITH CRACKS TO 1/16". THE SOFFIT BENEATH EXPANSION JOINT 3 IS SPALLED, EXPOSING THE BEARING ASSEMBLY ANCHOR BOLTS OF GIRDERS 1, 5 AND 6. A CLOSURE BLOCK HAS FALLEN OUT ABOVE THE RIVER. THE SOFFIT IS DELAMINATED OVER THE WIDTH OF THE BRIDGE FOR 15' SOUTH OF JOINT 2, AND FOR 5' NORTH OF JOINT 3. AT JOINT 3 THE SOFFIT EDGE IS SPALLED TO 1' W x 6" D WITH 4 EXPOSED AND HEAVILY CORRODED STUDS. THE LEFT FASCIA EXHIBTS MULTIPLE SPALLS AT THE JOINTS.
JOINT 2, 1/2 BRIDGE HEIGHT x 4" W x 4" D WITH EXPOSED AND MODERATELY CORRODED REBAR
JOINT 3, 1.5' L x 2.5' H x 6" D WITH EXPOSED AND MODERATELY CORRODED REBAR (SEE PHOTO 5)
JOINT 3 2' L x 2.5' H x 6" D WITH EXPOSED AND MODERATELY CORRODED REBAR

SPAN 3:
THERE ARE 4 AREAS OF IMPACT DAMAGE TO THE LEFT FASCIA, THE LARGEST MEASURING 3' L x 13" H x 6" D WITH EXPOSED AND LIGHTLY CORRODED STEEL (SEE PHOTO6). SOME OF THE IMPACT SPALLS EXHIBIT LOOSE CONCRETE WHICH COULD FALL ONTO LIVE TRAFFICE BELOW. THERE IS ALSO A LARGE SPALL MEASURING 7.7' L x 2' H x 3" D (SEE PHOTO 7) IN LEFT FASCIA.

SPAN 4:
THE LEFT FASCIA EXHIBITS MULTIPLE SPALLS WITH EXPOSED AND CORRODED REBAR, THE LARGEST MEASURES 2'L x 1/2 FASCIA HEIGHT x 2" D. THE CLOSURE BLOCKS ARE LOOSE WITH A POSSIBILITY OF FALLING ON THE PARKING LOT BELOW (SEE PHOTO 8).

GIRDERS/ DIAPHRAGMS (BOTH RATED 6)/ SUPERSTRUCTURE PAINT-FINISH (RATED 4)/ RIVETS-BOLTS (RATED 6)/ RUST (RATED 5): THE STEEL GIRDERS, DIAPHRAGMS, BEARINGS AND RELATED FASTENERS ARE ONLY PARTIALLY VISIBLE THROUGH OPENINGS AT UNDERBRIDGE JOINTS (MOSTLY IN SPAN 2), AT A HIGH-LOAD HIT IN SPAN 3, AND ABOVE ABUTMENT 2. THE VISIBLE AREAS OF STEEL GIRDERS, DIAPHRAGMS, BEARINGS AND FASTENERS EXHIBIT FAILURE OF THE PAINT SYSTEM, DUE TO RAINWATER LEAKING FROM THE EXPANSION JOINTS, RESULTING IN HEAVY SURFACE CORROSION AND CORROSIVE PITTING TO 1/16" DEEP. THE VISIBLE AREAS OF THE SUPERSTRUCTURE AWAY FROM EXPANSION EXHIBIT AN INTACT PAINT COATING SYSTEM WITH AREAS OF FRECKLE RUST.

ABUTMENT WINGS (RATED 6): THE WINGWALLS EXHIBIT VERTICAL CRACKS TO 1/32" WIDE ISOLATED CRACKS TO 1/8". THE NORTHEAST WINGWALL EXHIBITS SPALLS UP TO 14" H x 6" W x 3" D WITH EXPOSED AND LIGHTLY CORRODED STEEL REINFORCEMENT.

ABUTMENT BACKWALL (RATED 5)/ CRACKING-SPALLING/ STEEL CORROSION (BOTH RATED 3): THE UPPER WEST FACE OF THE ABUTMENT 2 BACKWALL EXHIBITS A 4.5' H x 1.4' W x 4" D SPALL, WITH EXPOSED AND CORRODED REBAR, AT THE NORTHWEST WINGWALL JUNCTURE. THE UPPER EAST FACE OF THE ABUTMENT 2 BACKWALL EXHIBITS A 3' H x 2' W INCIPIENT SPALL WITH AN ASSOCIATED DELAMINATION 4'L X 3'W AT THE NORTHEAST WINGWALL JUNCTURE. THE ABUTMENT BACKWALLS EXHIBIT RAINWATER LEAKAGE STAINING, VERTICAL CRACKS TO 1/2" WIDE AND SCALE DAMAGE TO 4" DEEP. 40% OF THE TOP OF ABUTMENT 2 WALL IS SPALLING UP TO 2" DEEP OVER LENGTHS OF UP TO 6'

PIER CAPS (RATED 4)/ CRACKING-SPALLING/ STEEL CORROSION (BOTH RATED 3): THE PIER CAPS EXHIBIT WIDESPREAD CONCRETE DETERIORATION RESULTING IN LARGE, TO FULL CAP HEIGHT OPEN/INCIPIENT SPALLS, SOME WITH EXPOSED AND HEAVILY CORRODED REBAR. THE PIER CAPS EXHIBIT VERTICAL CRACKS TO 1/32" WIDE AND SCALE DAMAGE TO 3/4" DEEP. PIER CAP 1 EXHIBITS SPALLS ALONG THE LOWER NORTH EDGE UP TO 4' L x 6" H WITH EXPOSED AND MODERATELY CORRODED REBAR. PIER CAP 2 EXHIBITS A MINOR 3" L x 3" W x 1" D SPALL NEAR THE WEST END OF THE NORTH FACE. THE WEST END OF PIER CAP 3 EXHIBITS HEAVY DETERIORATION IN THE FORM OF SPALLS/INCIPIENT SPALLS WITH EXPOSED AND MODERATELY CORRODED REBAR (SEE PHOTO 9). THERE ARE SPALLS/INCIPIENT SPALLS ALONG THE TOP EDGE EDGE OF THE NORTH FACE OF PIER CAP 3 FOR THE ENTIRE LENGTH. THE NORTH FACE OF PIER CAP 3 EXHIBITS A SPALL ABOVE EACH COLUMN MEASUIRNG UP TO 2' L x 5" H .

PIER COLUMN (RATED 6)/ CRACKING-SPALLING (RATED 3): THE UPPER WEST FACE OF COLUMN 1, PIER 3 EXHIBITS A 3.2' H x 1.2' W INCIPIENT SPALL AT THE CAP. THE UPPER EAST FACE OF COLUMN 2, PIER 3 EXHIBITS A 5' H x 2' W INCIPIENT SPALL AT THE CAP.

DEBRIS ON SEATS (RATED 5): THE VISIBLE AREAS OF THE ABUTMENT AND PIER SEATS ARE COVERED WITH DIRT, DEBRIS AND BIRD EXCREMENT TO 5" DEEP.

SUBSTRUCTURE PAINT-FINISH (RATED 6): THE PAINT SYSTEM OF ABUTMENT WALL 1 HAS FAILED AND IT EXHIBITS LIGHT GRAFITTI COVERAGE.

EMBANKMENT EROSION (RATED 6)/ CHANNEL CHANGE (RATED 7): THE UPSTREAM AND DOWNSTREAM SOUTH CHANNEL EMBANKMENT EXHIBITS CUT-BANK EROSION TO VERTICAL.

WATERWAY MEASUREMENTS:
WATERWAY MEASUREMENTS WERE TAKEN ALONG THE UPSTREAM (WEST) SIDE OF THE BRIDGE AND ARE REFERENCED TO THE TOP OF THE CONCRETE PARAPET:

DATE	04/02/10	04/14/06	04/10/08	04/02/10
LOCATION	WATERLINE	MUDLINE	MUDLINE	MUDLINE
ABUT 1	DRY	8.2'	7.8'	7.9'
MIDSPAN 1	DRY	15.8'	15.6'	15.4'
PIER 1	27.5'	27.2'	28.5'	29.1'
MIDSPAN 2	27.5'	29.8'	29.3'	29.5'
PIER 2	DRY	22.8'	22.7'	22.8'
MIDSPAN 3	RDWY	RDWY	RDWY	
PIER 3	RDWY	RDWY	RDWY	
MIDSPAN 4	LOT	LOT	LOT	
ABUT 2	LOT	LOT	LOT	

APPROACH GUARDRAIL (RATED 6): THE APPROACH PARAPET EXHIBITS VERTICAL CRACKS TO 1/16". THE TOP OF THE MEDIAN APPROACH PARAPET EXHIBITS A 1.3' H x 2.4' W x 4" D SPALL, WITH EXPOSED STEEL, APPROXIMATELY 50' NORTH OF THE STRUCTURE AND A 2'L X 1'W X 4"D SPALL WITH EXPOSED STEEL APPROXIMATELY 10' NORTH OF THE STRUCTURE. THE APPROACH GUARDRAILS EXHIBIT MINOR IMPACT DAMAGE AND MODERATE PAINT SYSTEM FAILURE. THE GAURDRAIL EXHIBITS SPOTS OF LIGHT SURFACE CORROSION.

APPROACH PAVEMENT (RATED 7): THE APPROACH PAVEMENT EXHIBITS LONGITUDINAL AND TRANSVERSE CRACKING TO 3/16" WIDE.

Nevada DOT Bridge Inspection Report

B1530 **4/2/2010**

8: Structure Number	5: Inventory Route	Inspector	District
B1530	151006570	KELLY/VASILJEVIC	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV./TRUCKEE RI	4/2/2010	PREMO	Washoe

MAINTENANCE REPORT:
>MONITOR CRACKS IN DECK ASPHALT WEARING SURFACE AND REPAIR SPALLS IN SOUTHBOUND LANE 3.
>REPAIR SPALLING IN SIDEWALKS, SETTLEMENT IN NORTHEAST APPROACH SIDEWALK AND BROOM SIDEWALKS.
>MONITOR CRACKS IN BRIDGE & MEDIAN PARAPETS, ELASTOMERIC JOINT HEADERS, WINGWALLS, BACKWALLS AND PIER CAPS AND APPROACH PARAPET.
>REPAIR OPEN/INCIPIENT SPALLING AND INBOARD ROTATION IN CONCRETE PARAPETS/FASCIA PANELS.
>MONITOR SPAN 3 LIGHT IMPACT DAMAGE.
>REPLACE DAMAGED SECTIONS OF STRIP SEAL EXPANSION JOINTS AND REMOVE/REPLACE METAL STRAPS/COVERS ON UNDERSIDE OF BRIDGE. CLEAN THE EXPANSION JOINTS.
>REPAIR LOOSE/MISSING CLOSURE BLOCKS IN SPANS 2 AND 4 SOFFIT.
>CONSIDERATION SHOULD BE GIVEN TOWARD REPLACEMENT OR REHABILITATION OF SUPERSTRUCTURE CONCRETE SOFFIT AND FASCIA PANELS.
>REPAIR CRACKS, OPEN/INCIPIENT SPALLS AND HIGH-LOAD HIT DEFICIENCIES THROUGHOUT SUPERSTRUCTURE CONCRETE SOFFIT AND FASCIA PANELS.
>BLAST AND PAINT EXPOSED AREAS OF GIRDERS, DIAPHRAGMS, BEARINGS AND FASTENERS.
>REPAIR SPALLS IN NORTHWEST WINGWALL.
>REPAIR SPALLS IN ABUTMENT 2 BACKWALL AND REPAIR PIER 3 COLUMN DELAMINATIONS.
>REHABILITATE PIER CAPS.
>REPAINT ABUTMENT 1.
>REPAIR EROSION IN UPSTREAM AND DOWNSTREAM SOUTH CHANNEL EMBANKMENTS.
>REPAIR SPALL IN TOP OF MEDIAN APPROACH PARAPET, AND BLAST & PAINT APPROACH GUARDRAIL PANELS.
>MONITOR CRACKS IN APPROACH ROADWAY.

NOTE: RECOMMEND THAT REMAINING METAL COVERS/STRAPS AT BEARING LOCATIONS BE TEMPORARILY REMOVED FROM BOTTOM OF BRIDGE AND PARAPET EXTERIORS. ALL PIGEON DEBRIS SHOULD THEN BE REMOVED FROM BEARING AREAS AND THOROUGH INSPECTION AND REPAINTING OF ACCESSIBLE AREAS SHOULD BE COMPLETED. THESE OPEN AREAS SHOULD THEN BE "PIGEON-PROOFED".

Element Condition Values
Bridge: B1530 / Inspection Date: 4/2/2010 (JMAH)

Key: 0 Structure Unit ID: 0 Type: M Main

Elem / Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4	Qty5
13 / 2	Unp Conc Deck/AC Ovl (ea	1.00	ea.	0	1	0	0	0
300 / 2	Strip Seal Exp Joint	89.00	m.	0	44	45	0	0
107 / 2	Paint Stl Opn Girder	1,080.00	m.	1,018	22	22	18	0
331 / 2	Conc Bridge Railing	360.00	m.	214	144	2	0	0
310 / 2	Elastomeric Bearing	56.00	ea.	47	9	0	0	0
205 / 2	R/Conc Column	6.00	ea.	5	0	1	0	0
215 / 2	R/Conc Abutment	37.00	m.	27	9	1	0	0
220 / 2	R/C Sub Pile Cap/Ftg	8.00	ea.	8	0	0	0	0
234 / 2	R/Conc Cap	56.00	m.	11	3	34	8	0
362 / 2	Traf Impact SmFlag (ea)	1.00	ea.	0	1	0	0	0
363 / 2	Section Loss SmFlag (ea)	1.00	ea.	0	1	0	0	0

User Maintenance Report

Structure No: B1530
Inventory Route: 151006570
District: 02
Bridge Name: KEYSTONE AV./TRUCKEE I
Inspection Date: 04/02/2010
County: Washoe

Deck Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Structural Deck Repairs:							0
Wearing Surface Repairs:	4	2	X X	1	2	SQFT	1
Expansion Joint Repairs:	3	2	X X X X X	2	2	LFT	292
Drain Cleaning/Repairs:							0
Parapet/Rail Repairs:	2	3	XXXXXXXXXX	0	2	LFT	400
Curbs, Median, Sidewalk:	3	2	X X XX X X	1	2	LS	1

Superstructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Girder, Floorbeam, Stringer:	3	2	XX X	1	3	LS	1
Truss Repairs:							0
Bearing Repairs:							0
Diaphragm Repairs:							0
Paint/Finish Maintenance:	2	2	X X X X X	2	2	LS	1

Substructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Wingwall/Backwall Repairs:	4	2	X	1	3	CUFT	4
Cap Repairs:	2	4	X X	3	3	LFT	184
Column/Pier Wall Repairs:	4	1	X	1	3	CUFT	1
Foundation Repairs:							0
Erosion/Scour Repairs:							0
Settlement Repairs:							0
Paint/Finish Maintenance:	4	1	X	0	2	SQFT	400
Clean Abutment/Pier Seats:	3	1	X X X	1	2	CUYD	3

Channel Protection

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Erosion/Scour Repairs:	4	2	XX	1	2	CUYD	30
Drift Removal:							0
Vegetation Removal:							0
Spur Dike/Jetty Repairs:							0
Riprap/Slope Paving Repairs:							0

Culvert Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Barrel Repairs:							0
Headwall Repairs:							0
Barrel Debris Removal:							0

Approach Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Approach Slab Repairs:							0
Pavement Repairs:	5						0
Embankment Repairs:							0
Guardrail Repairs:	4	1	X X	0	2	LS	1
Relief Joint Repairs:							0

NDOT STRUCTURAL DIVISION - VERTICAL UNDERCLEARANCE

BRIDGE ID: B1530

FACILITY CARRIED: Keystone Ave

FACILITY UNDER: Riverside Dr.

DATE: 4/2/2010

MVU: 13'-10"

Vertical Underclearance Ft-In

		Add Monopod Height?	Amount?	
1		(No)		
2				
3				
4				
5	15'-4"	Yes		15'-4"
6	15'-3"			15'-3"
7	15'-7"			15'-7"
8	14'-3"			14'-3"
9	14'-0"			14'-0"
10	14'-3"			14'-3"
11				
12				
13				
14				
15				
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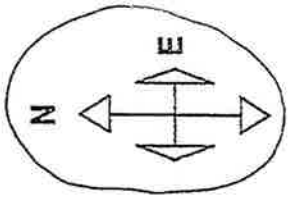
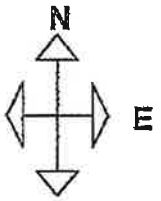
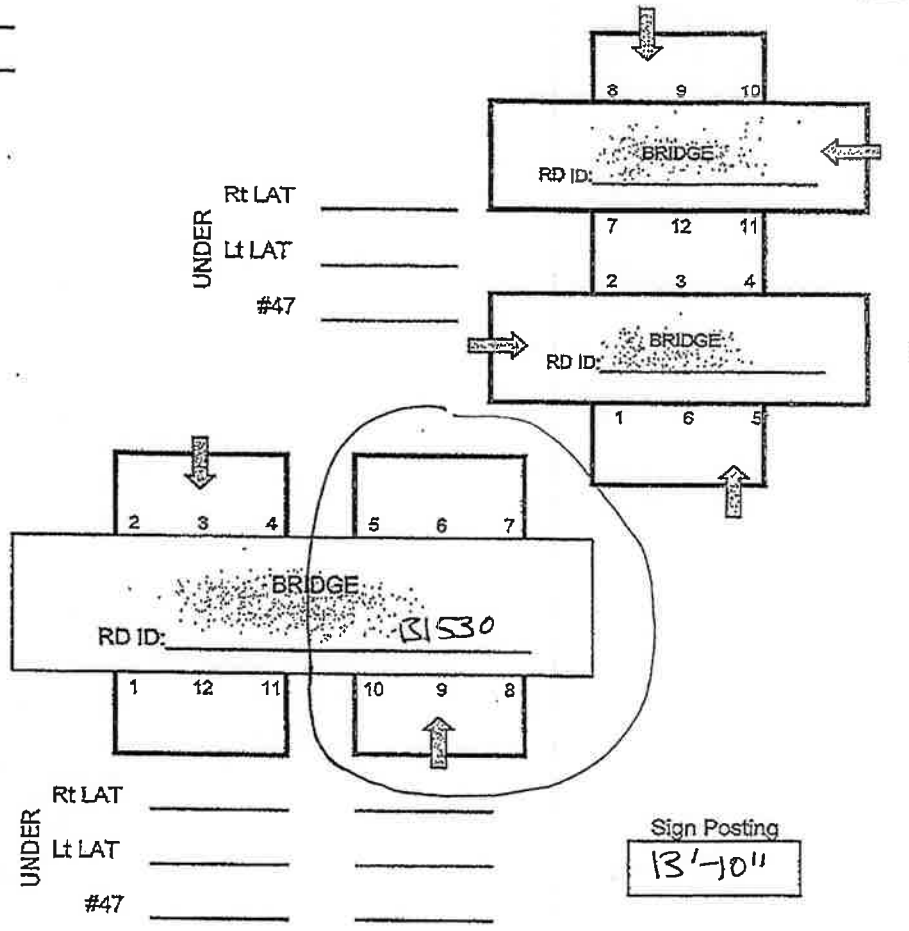
18				
19				
20				
21				
22				
23				
24				

CIRCLE APPROPRIATE DIRECTION ARROWS BELOW.







UNDER
Rt LAT
Lt LAT
#47

UNDER
Rt LAT
Lt LAT
#47

Sign Posting
13'-10"

DRAW OR CROSS OUT ARROWS AS NECESSARY TO SHOW TRAFFIC DIRECTIONS.
CROSS OUT PARTS OF DRAWING THAT ARE NOT NEEDED.

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 04/04/2012

Photo 1: West Elevation

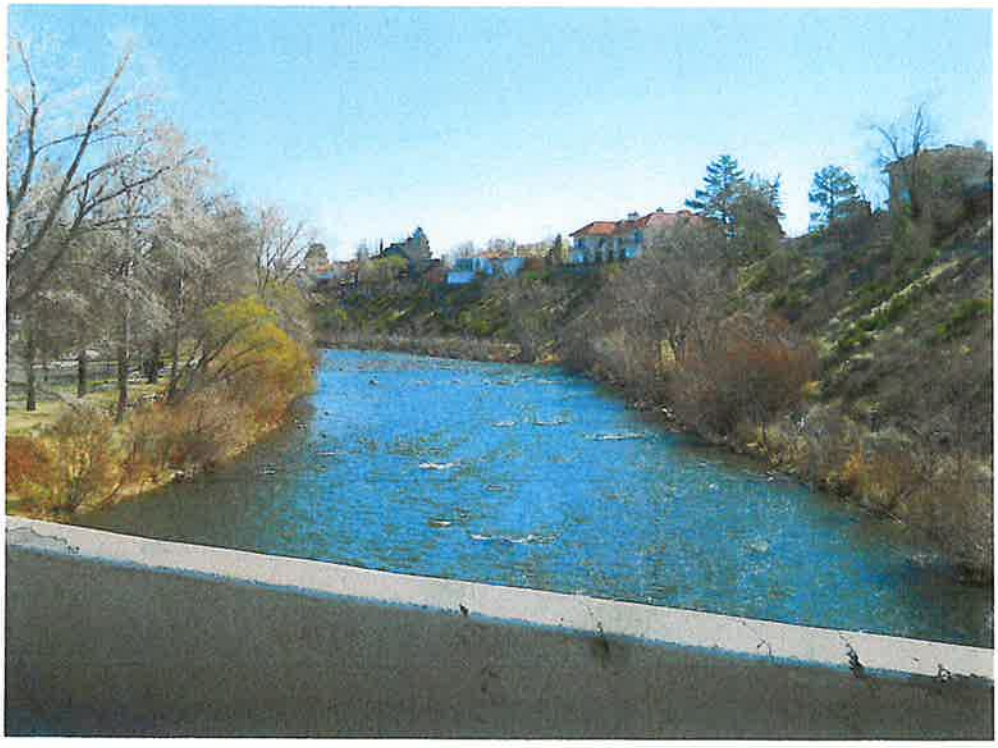
Bridge No.: B1530
Date: 04/04/2012

Photo 2: South Approach

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 04/04/2012

Photo 3: Upstream Channel



Bridge No.: B1530
Date: 04/04/2012

Photo 4: Downstream Channel

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 04/04/2012

Photo 5: Bridge Concrete Railing

Bridge No.: B1530
Date: 04/04/2012

Photo 6: Expansion Joint

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 4/02/2010

West Elevation

Bridge No.: B1530
Date: 4/02/2010

South Approach

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 4/02/2010

Upstream Channel

Bridge No.: B1530
Date: 4/02/2010

Downstream Channel

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 4/02/2010

Photo 5 - Spall at Joint 3 in Span 2

Bridge No.: B1530
Date: 4/02/2010

Photo 6 - Span 3 Spall

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 4/02/2010

Photo 7 - Span 3 Impact Damage

Bridge No.: B1530
Date: 4/02/2010

Photo 8 -Typical Closure Block

State of Nevada
Department of Transportation

Bridge No.: B1530
Date: 4/02/2010

Photo 9 – Deteriorated/Spalling Concrete at West End of Pier 3 Cap

State of Nevada

Department of Transportation

Load Rating Report

[REV. 7/01]

			CONTRACT NUMBER(S): Dist II -City
			COUNTY: Washoe
LOCAL NAME: KEYSTONE AVE over TRUCKEE RIVER		STRUCTURE NUMBER: B-1530	ROUTE: KEYSTONE AVE
TYPE: 4 Span Composite Steel Bridge with P/T Slabs		YEAR CONSTRUCTED: 1966	DISTRICT: 2
LENGTH ft-in: 400' - 0"	WIDTH ft-in: 65' - 7 1/2"	DEPTH ft-in: 5' - 0"	MILEPOST: NA

BRIDGE LOAD RATING

ANALYSIS BY: S. Smith DATE: 4/15/2011

CHECKED BY: B. Allender DATE: 12/10/2011

Method of Analysis: Brass Girder Version 6.0.2 for Demands / Hand Calculations for Capacities & Load Ratings

A.) Existing Condition With existing 5.95 inch overlay

Rating By Load Factor Method

INVENTORY RATING = HS	12.2	=	19.9	Metric Tons
OPERATING RATING = HS	20.4	=	33.3	Metric Tons
PERMIT TRUCK COLOR CAPACITY	=	GORRR		

B.) Modified Condition With future ___ inch AC Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	---	=	----	Metric Tons
OPERATING RATING = HS	---	=	----	Metric Tons
PERMIT TRUCK COLOR CAPACITY	=			

CONDITION RATING

[Summarized from the Structure Inspection Report]

Date of Inspection: 4/10/2008

Type: Bridgemaster

MIN. VERTICAL CLEARANCE: 13 Feet 10 Inches

DECK RATING:	7		
SUPERSTRUCTURE RATING:	6	CHANNEL RATING:	7
SUBSTRUCTURE RATING:	4	EST. REMAINING LIFE [Years]:	9
CULVERT RATING:	N	STRUCTURE POSTED? [Yes/No]:	No

Note: Ratings above are NBI Ratings from inspection report weighted for structural items only

COMMENTS:

Inspection report indicates low condition ratings: Caps (4)
A special cap rating was performed. No deterioration was incorporated.
See Special Investigation Memo for further details.

Cap rating controls. If the overlay thickness could be reduced to 1.5" as indicated in the design drawings. The cap ratings would be:
Inventory HS20 = 0.72
Operating HS20 = 1.21
Permit = PPGOO

Seal and Signature

This report was prepared in accordance with AASHTO "The Manual for Bridge Evaluation, First Ed, 2008" with revisions by Nevada Department of Transportation.

Report by: S. Smith DATE: 4/15/2011

State of Nevada
Department of Transportation

Load Rating Summary Sheet

[REV. 8/05]

DATE: 4/15/2011

COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
KEYSTONE AVE over TRUCKEE RIVER	B-1530	KEYSTONE AVE

MATERIAL PROPERTIES:

	Deck/----	Girders/ ----
Concrete F'c (psi)=	3,750	NA
Reinforcing Steel Fy (psi)=	40,000	NA
Structural Steel Fy (psi)=	NA	36000/42000/46000
Prestressing Steel F's (psi)	240,000	NA

BRIDGE DATA

Original Bridge:
4 Span Composite Steel Bridge with P/T Slabs

Widenings:
None

ANALYSIS CRITERIA:

- Rating performed using LFD approach with skew effects neglected
- Steel girders are composite with the lightweight concrete top and bottom deck slabs
- Analyzed as a concrete box girder for demands by transforming steel girders into equivalent concrete web sections
- Distribution Factor based on equivalent concrete box girder structure
- Assumed curb, rail and median barrier are distributed over entire deck area
- Misc. Steel DL=10%(girder DL) to include connections, stiffeners, x-frames; Lost Forms DL=12psf x int. deck width
- LIVE LOAD consists of AASHTO HS20-44 Truck & Lane Loads and California permit vehicles, P5, P9 and P13
- Concrete placement drawings not provided. F'c assumed for all top and bottom slabs & Fy per plans and MBE.
- Fy for structural steel (ASTM A36, A441) per plans
- F's for post-tensioning assumed. Post-tensioning working stress per plans

ANALYSIS METHOD & RESULTS:

Analysis by: S. Smith — Date: 4/15/2011

Checked by: B. Allender — Date: 12/10/2011

Rating Method
Deck
Girders — Brass Girder Version 6.0.2 for Demands / Hand Calculations for Capacities & Load Ratings
Special Items - Hand Calculations and SAP 2000

Loads
HS20 = AASHTO HS20-44 Truck Load or Lane Load whichever is greatest
P5/P9/P13 = Caltrans permit trucks P5, P9, and P13 applied separately with same wheel lines per girder as for HS20

LOAD RATING- Existing Condition

Overlays- 5.95 inch overlay

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
	Deck	Girders	Analysis Point	Critical Action	Rating	Item/ Action
INVENTORY RATING:						
RATING FACTOR for HS20 =	NA	1.01	300	Shear	0.61	Cap P2/Flexure
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	1.69	300	Shear	1.02	Cap P2/Flexure
RATING FACTOR for P5 =		1.07	300	Shear	0.95	Cap P2/Flexure
RATING FACTOR for P9 =		0.68	300	Shear	0.62	Cap P2/Flexure
RATING FACTOR for P13 =		0.58	300	Shear	0.49	Cap P2/Flexure

INVENTORY RATING = HS	**12.2**	=	**19.9**	**Metric Tons**
OPERATING RATING = HS	**20.4**	=	**33.3**	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	**0.95/0.79/0.62/0.56/0.49**			

Rating for P7 and P11 interpolated

LOAD RATING- w/ Modified Condition

Overlays-

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
	Deck	Girders	Analysis Point	Critical Action	Rating	Item/ Action
INVENTORY RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
RATING FACTOR for P5 =		NA	NA	NA	NA	NA
RATING FACTOR for P9 =		NA	NA	NA	NA	NA
RATING FACTOR for P13 =		NA	NA	NA	NA	NA

INVENTORY RATING = HS	---	=	---	**Metric Tons**
OPERATING RATING = HS	---	=	---	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	-.-- / -.-- /-.-- /-.-- /-.--			

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

JIM GIBBONS
Governor

SUSAN MARTINOVICH, P.E., *Director*

June 16, 2010

In Reply Refer to:

Ms. Teri Martinetti, E. I.
Assistant Civil Engineer
Public Works, Capital Projects
9th Floor City Hall
P. O. Box 1900
Reno, NV 89505

Bridge Numbers:

B-1487	G-1504	H-1529	B-1530
B-1533	H-1553	B-1621	B-1686
B-1687	B-1688	B-1863	G-1864
B-2046	B-2248	B-2249	B-2450
B-2455	B-2456	B-2457	B-2464
B-2465	B-2466	B-2467	B-2468
B-2527	B-2528	B-2636	B-2652

Dear Ms. Martinetti:

I am forwarding you copies of Inspection and Maintenance Reports for the structures listed above. The locations of these structures are shown on the attached maps. The inspection ratings given in the reports are based on a scale of 9 to 0, with 9 defined as the best condition possible and 0 defined as the worst condition possible. Maintenance requirements give several pieces of data of concern to NDOT and three (3) data items of concern to you. These items are the Timing Code (T), which suggests the urgency of the maintenance, the Units and Quantities, which suggest the amount of materials for cost estimating, and the Comments, which describe a proposed maintenance strategy.

Where maintenance is suggested, the proposed strategy or any alternative may be used to correct the problem. I would appreciate being updated when maintenance is performed, as this will be extremely helpful in keeping our bridge files current.

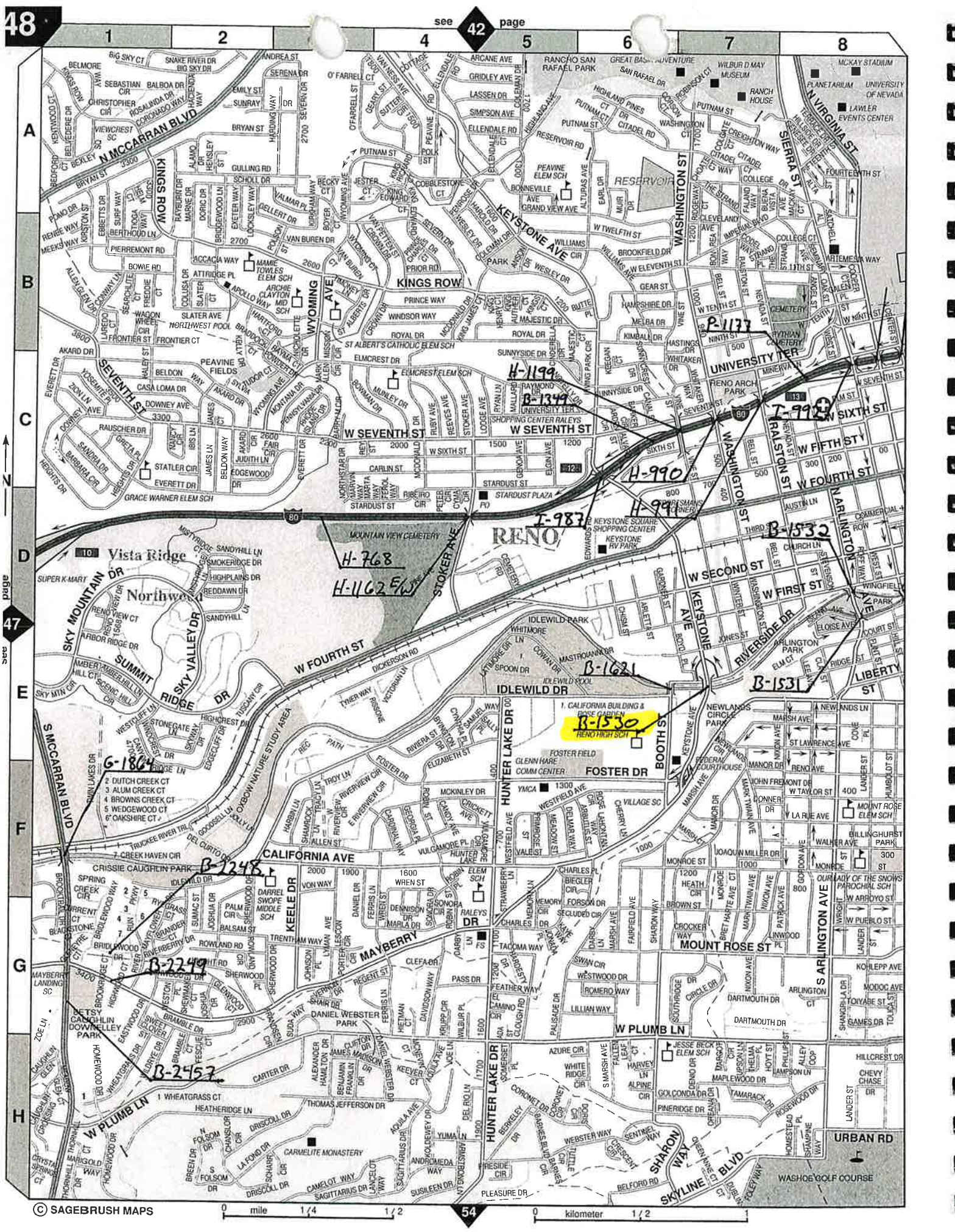
If any report pertains to a structure that is not owned or maintained in whole or in part by your forces, please return the report indicating such is the case. Also, if you have any questions pertaining to these reports or the bridge maintenance/inspection program, please call me at 888-7546.

Sincerely,

H. Hat

Hossein Hatefi
Senior Bridge Engineer
Inspection/Maintenance

HH/lsg
Cc: File
Structures File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C
D
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G
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page 47
N
N MCCARRAN BLVD
KINGS ROW
WYOMING AVE
KINGS ROW
KEYSTONE AVE
WASHINGTON ST
SIERRA ST
N VIRGINIA ST
SEVENTH ST
W SEVENTH ST
PEAVINE FIELDS
NORTHWEST POOL
MAMIE TOWLES ELEM SCH
ARCHIE CLAYTON MID SCH
ST ALBERT'S CATHOLIC ELEM SCH
ELMCREST ELEM SCH
SHOPPING CENTER RALEYS
UNIVERSITY TER
RENO ARCH PARK
MINERVA LN
W SIXTH ST
W FIFTH ST
W FOURTH ST
RALSTON ST
ARLINGTON
W SECOND ST
W FIRST ST
RIVERSIDE DR
LIBERTY ST
RENO
MOUNTAIN VIEW CEMETERY
STOKER AVE
KEYSTONE SQUARE SHOPPING CENTER
KEYSTONE RV PARK
STARDUST PLAZA
GRACE WARNER ELEM SCH
Vista Ridge
Northwest
SKY MOUNTAIN DR
SKY VALLEY DR
SUMMIT RIDGE DR
W FOURTH ST
IDLEWILD PARK
IDLEWILD DR
IDLEWILD SCHOOL
1. CALIFORNIA BUILDING & ROSE GARDEN
RENO HIGH SCH
FOSTER FIELD
GLENN HARE COMM CENTER
FOSTER DR
BOOTH ST
NEWLANDS CIRCLE PARK
FEDERAL COURTHOUSE
S MCCARRAN BLVD
OXBOW NATURE STUDY AREA
HUNTER LAKE DR
CALIFORNIA AVE
CRISSIE CAUGHLIN PARK
KEELE DR
MAYBERRY
MAYBERRY DR
DANIEL WEBSTER PARK
W PLUMB LN
S ARLINGTON AVE
MOUNT ROSE ST
MOUNT ROSE ELEM SCH
BILLINGHURST PARK
OUR LADY OF THE SNOWS PAROCHIAL SCH
JESSE BECK ELEM SCH
BETSY CAUGHLIN DOWNELLEY PARK
CARMELITE MONASTERY
WASHOE GOLF COURSE
URBAN RD
SKYLINE BLVD
SHARON WAY
PLEASURE DR
H-1199
B-1349
H-990
H-991
I-987
I-993
H-768
H-1162 E/W
B-1532
B-1621
B-1531
B-1530
G-1864
B-2248
B-2249
B-2457
B-1177
© SAGEBRUSH MAPS
0 mile 1/4 1/2
0 kilometer 1/2
54

NEVADA DEPARTMENT OF TRANSPORTATION

BRIDGE NO.
B 1530
4/10/08

Left (West) Elevation

BRIDGE NO.
B 1530
4/10/08

North Approach Looking South

NEVADA DEPARTMENT OF TRANSPORTATION

BRIDGE NO.
B 1530
4/10/08

Upstream (Left) Waterway Looking West

BRIDGE NO.
B 1530
4/10/08

Downstream (Right) Waterway Looking East

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

JIM GIBBONS
Governor

SUSAN MARTINOVICH, P.E., *Director*

June 20, 2008

In Reply Refer to:

Mr. John Flansberg, Deputy Director
City of Reno Public Works, Maintenance
PO Box 1900
Reno, NV 89015

Bridge Numbers:

B-177	B-178	B-303	B-304
B-1326E	B1327W	B-1425	B-1487
G-1504	H-1529	B-1530	B-1531
B-1532	B-1533	H-1553	

Dear Mr. Flansberg:

I am forwarding you copies of Inspection and Maintenance Reports for the structures listed above. The locations of these structures are shown on the attached maps. The inspection ratings given in the reports are based on a scale of 9 to 0, with 9 defined as the best condition possible and 0 defined as the worst condition possible. Maintenance requirements give several pieces of data of concern to NDOT and three (3) data items of concern to you. These items are the Timing Code (T), which suggests the urgency of the maintenance, the Units and Quantities, which suggest the amount of materials for cost estimating, and the Comments, which describe a proposed maintenance strategy.

Where maintenance is suggested, the proposed strategy or any alternative may be used to correct the problem. I would appreciate being updated when maintenance is performed, as this will be extremely helpful in keeping our bridge files current.

If any report pertains to a structure that is not owned or maintained in whole or in part by your forces, please return the report indicating such is the case. Also, if you have any questions pertaining to these reports or the bridge maintenance/inspection program, please call me at 888-7546.

Sincerely,

H. Hatefi

Hossein Hatefi
Senior Bridge Engineer
Inspection/Maintenance

HH/jfe
Enclosure
Cc: File

NEVADA DEPARTMENT OF TRANSPORTATION

Bridge No.: B1530
Date: 06/06/05

Photo 01: West elevation looking south from northwest corner – spans 4, 3, and 2 (near to far, respectively).

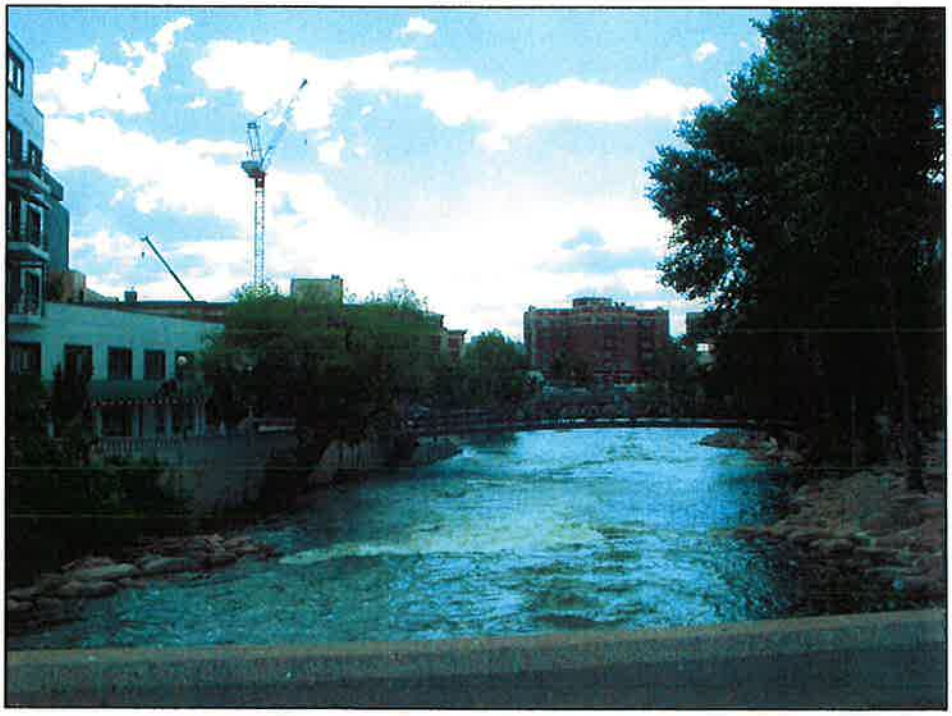
Bridge No.: B1530
Date: 06/06/05

Photo 02: North approach looking south.

NEVADA DEPARTMENT OF TRANSPORTATION

Bridge No.: B1530
Date: 06/06/05

Photo 03: West upstream looking west.



Bridge No.: B1530
Date: 06/06/05

Photo 04: East downstream looking east.

LOCHNER

2001 FRONT STREET NE; SUITE 120, SALEM, OREGON 97303

(503) 586-0100
FAX (503) 589-9538

MEMORANDUM

DATE: 4/14/06

TO: NDOT

FROM: H. W. Lochner, Inc.

cc:

SUBJECT: B 1530

The following SIA Items changes are recommended:

Item 47 – from 16.5 to 8.2
Item 48 – from 35.1 to 44.5
Item 49 – from 108.5 to 120.0
Item 51 – from 16.5 to 8.2
Item 55 – from 4.9 to 3.7
Item 56 – from 4.9 to 0.0

BRIDGE FLOOD DAMAGE INSPECTION REPORT

STRUCTURE No.: B-1530

DISTRICT: II

COUNTY: Washoe

OWNER: (04) Reno

ROUTE CARRIED: Keystone Ave.

WATERWAY INTERSECTED: Truckee River

INSPECTION DATE: 1-3-06
Revisited 1-4-06

INSPECTOR: JE/CC
DM/JE

BRIDGE STRUCTURAL DAMAGE: None

DEGRADATION/AGGRADATION ASSESSMENT: Apparent Scour hole @ Pier 2, col. 1 - 3" to 4" of soft unconsolidated material has infilled hole that is approx. 2.1' Deep 12' wide and 15' downstream. See Photo

Note: Col. 1 is still experiencing significant flow. up to 1' of material degradation has occurred @ Col 2-2.

APPROACH ROADWAY DAMAGE: None

OTHER COMMENTS: None

NEVADA DEPARTMENT OF TRANSPORTATION

B-1530
SCOUR HOLE @ COL. 2-2
1-3-06

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

MEMORANDUM

July 8th, 2002

To: David Severns, P.E., Principal Bridge Engineer Fax # 775-888-7506 # Pages ____

From: H. W. Lochner, Inc. Phone # (727) 572-7111

Subject: Bridge No. B1530 Critical Maintenance Needs

This memo is to inform you of deterioration or damage found at the subject structure during an inspection dated 04/02/2002, which requires maintenance of a critical nature. Specific information regarding this deterioration/damage is as follows:

The façade blocks in Spans 2 and 4 appear to be loose, with the possibility of falling out.

The blocks in Span 4 may fall onto a parking area below.

This is a follow-up memo confirming a verbal notification to Dave Severns on 4/2/02.

Field sketch, as applicable:

cc: W. Crawford; M. Grunert; Bridge file

Contract No. .....

Description B-1530

West end of bent cap3 with exposed severely corroded rebar.

Date 4/98

Contract No. .....

Description B-1530

Bent cap 3 delminated area exposing severely corroded rebar

Date 4/98

Contract No. .....

Description B-1530

Keystone st. o/Truckee River

end cap deteriorated with exposed Rebar

Date 5/96

Contract No. .....

Description B-1530

Same

Steel girder section under joint severely rusted.

Date 5/96

NDOT
040-029
6-94

(O)-581

Bridge Number H1529

Bridge Location FOSTER DR Over KEYSTONE AV

Inspection Date 03/26/2012

	Yes	No
This report identifies deficiencies requiring urgent corrective action	☐	☑
This bridge is scour critical	☐	☑
This bridge contains fracture critical components	☐	☑

Report Contents

☑ Inspection Report Cover Sheet	☐ Signs and Utilities Inspection Report	☑ Load Rating Summary
☑ Element Level Inspection Report	☑ Maintenance Recommendation Report	☑ Structure Inventory & Appraisal Report
☐ Waterway Measurement Report	☐ Underwater Inspection Procedures	☐ Other:
☑ Bridge Photographs	☐ Complex Bridge Inspection Procedures	
☐ Supplemental Drawings	☐ Fracture Critical Member Inspection Procedures	

Type of Inspection: ☐ Initial ☑ Routine ☐ In-Depth ☐ Underwater ☐ Fracture Critical ☐ Complex ☐ Other Special

Inspectors		Initials
Team Leader Name:	Premo, Michael	MTP
Assistant Name:	Burst, Greg	GB
Assistant Name:		
Assistant Name:		
Reviewing P.E. Name	Edgington, Ruedy	RPE
Date of Review:	5/7/12	

Reviewing P.E. Seal and Sign

PROFESSIONAL ENGINEER-STATE OF NEVADA
RUEDY P. EDGINGTON
Exp. 12-31-12
CIVIL
No. 7016

5/8/12

I hereby certify that these documents were prepared or approved by me.

Element Condition Values

Bridge Number H1529

Bridge Location FOSTER DR KEYSTONE AV

Inspection Date 03/26/2012

Elem/Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4
12-38 / 2	Reinforced Concrete Deck/Slab	1446	sq ft	1346	100		
	-CS2 FOR CRACKING						
215 / 2	Reinforced Concrete Abutment	158	ft	42	113	3	
	-CS 3 FOR CRACKING -CS 2 FOR CRACKING AND DELAMINATIONS						
330 / 2	Metal Bridge Railing	137	ft	137			
510 / 2	Flexible/Semi-Rigid/Rigid Wearing Surfaces	1446	sq ft	1348	98		
	-CS 2 FOR CRACKING						
515 / 2	Steel Protective Coating	327	ft	305		8	14
	-CS 3 FOR PAINT FAILURE AND RUSTING ON BRIDGE RAILING See Photo(s): 3						
516 / 2	Concrete Coating	400	ft	62	130	14	194
	-CS 4 FOR ABUTMENT BACKWALLS AND WINGWALLS WHICH EXHIBIT FAILED PAINT -CS 2 AND 3 FOR CRACKING AND PEELING PAINT ON ABUTMENTS, BRIDGE SOFFIT AND WINGWALLS						
605 / 2	Concrete Curbs	56	ft	50	6		
610 / 2	Concrete Median	1	each	0	1		
	-CS 2 FOR CRACKING AND SHALLOW SPALLING AROUND GUARDRAIL POST BASES See Photo(s): 3						
620 / 2	Concrete Sidewalks	88	ft	88			
646 / 2	Under Deck Lighting System	1	each	1			
680 / 2	Reinforced Concrete Retaining Walls	303	ft	0	303		
	-CS 2 FOR CRACKING						
760 / 2	Metal Approach Guardrail	300	ft	291	9		
	-CS 2 FOR CHECKS AND SPLITS IN TIMBER SUPPORT POSTS						
771 / 2	Asphalt Concrete Approach Pavement	2	each	0	2		
	-CS 2 FOR CRACKING						
775 / 2	Approach Roadway Embankment	2	each	2			

Maintenance Inspection Work Items and Costs Report

Bridge Number H1529

Bridge Location FOSTER DR KEYSTONE AV

Inspection Date 03/26/2012

3 - Perform action within next 2 years

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
3	4 - Minor	Sub14	Apply Protective Coating to Substructure	SQFT	2	1800	2	3600

Notes: -ABUTMENTS AND RETAINING WALLS

3	4 - Minor	Super4	Repaint/Refinish Portion of Concrete Superstructure	SQFT	6	200	6	1200

Notes: -SOFFIT

3	4 - Minor	D32	Repaint Metal Bridge Railing	LINFT	9	32	9	288

Notes:

4 - Perform action when time and money permit

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
4	4 - Minor	Sub1	Repair Spalled Concrete at Abutment	SQFT	75	9	75	675

Notes:

4	4 - Minor	Sub6	Seal Cracks in Abutment (Pressure Inject Epoxy)	LINFT	159	113	159	17967

Notes:

5 - Monitor

Timing	Criticality	Item Code	Description	Units	Std.Unit Cost	Quantity	Unit Cost	Total Cost
5						0	0	0

Notes: -MONITOR CRACKING IN CONCRETE SLAB
-MONITOR CRACKING IN ASPHALT WEARING SURFACE
-MONITOR CRACKING IN CONCRETE CURBS
-MONITOR CRACKING IN CONCRETE MEDIAN AND SPALL NEAR METAL RAIL POST.
-MONITOR CRACKING IN CONCRETE RETAINING WALLS
-MONITOR CHECKS AND SPLITS IN TIMBER SUPPORT POSTS FOR APPROACH GUARDRAIL
-MONITOR CRACKING IN ASPHALT APPROACH PAVEMENT

State of Nevada

Department of Transportation

Load Rating Report

[REV. 7/01]

CONTRACT NUMBER(S): Dist II -City

COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
Keystone Avenue over Foster Drive	H-1529	Keystone Ave
TYPE	**YEAR CONSTRUCTED**	**DISTRICT**
Single-Span Reinforced Concrete Voided Slab	1966	2

LENGTH ft-in	WIDTH ft-in	DEPTH ft-in	MILEPOST
27' - 10 3/4"	51' - 10"	1' - 6"	NA

BRIDGE LOAD RATING

ANALYSIS BY: J. Elwood DATE: 5/11/2011

CHECKED BY: T. Vesco DATE: 5/16/2011

Method of Analysis: Brass Girder Version 6.0.2 (original); AASHTO Manual fo Bridge Evaluation 6B.5.5 (widen)

A.) Existing Condition With existing 2.25 inch Asphalt Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	**18.6**	=	**30.4**	**Metric Tons**
OPERATING RATING = HS	**20.0**	=	**32.7**	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=	PPPPP		

B.) Modified Condition With future ___ inch AC Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	---	=	----	**Metric Tons**
OPERATING RATING = HS	---	=	----	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=			

CONDITION RATING

[Summarized from the Structure Inspection Report]

Date of Inspection: 3/29/2008

Type: Routine

MIN. VERTICAL CLEARANCE: 14 Feet 10 Inches

DECK RATING:	7		
SUPERSTRUCTURE RATING:	7	CHANNEL RATING:	N
SUBSTRUCTURE RATING:	6	EST. REMAINING LIFE [Years]:	10
CULVERT RATING:	N	STRUCTURE POSTED? [Yes/No]:	No

Note: Ratings above are NBI Ratings from inspection report weighted for structural items only

COMMENTS:

Bridge has been widened & barrier rails replaced. No as-builts are available for this construction.

Seal and Signature

This report was prepared in accordance with AASHTO "The Manual for Bridge Evaluation, First Ed, 2008" with revisions by Nevada Department of Transportation.

Report by: J. Elwood DATE: 5/11/2011

State of Nevada
Department of Transportation

Load Rating Summary Sheet

[REV. 8/05]

DATE: 5/11/2011
COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
Keystone Avenue over Foster Drive	H-1529	Keystone Ave

MATERIAL PROPERTIES:

	Deck/----	Girders/ ----
Concrete F'c (psi)=	NA	3,000
Reinforcing Steel Fy (psi)=	NA	40,000
Structural Steel Fy (psi)=	NA	NA
Prestressing Steel F's (psi)	NA	NA

BRIDGE DATA

Original Bridge:
Single-Span Reinforced Concrete Voided Slab

Widenings:
Widening w/ unavailable as-builts (1974)

ANALYSIS CRITERIA:

- Rating performed using LFD
- Analyzed structure under "existing" conditions
- Live Load consists of AASHTO HS20-44 Truck & Lane Loads and California permit vehicles P5, P9 and P13
- Barrier Rail applied to full width of bridge
- Used f'c = 3 ksi per Contract Plans, fy = 40 ksi per AASHTO MBE (Intermediate grade)
- Slab voids were incorporated using equivalent I-section; non-voids incorporated using added weight
-
-
-
-

ANALYSIS METHOD & RESULTS:

Analysis by: J. Elwood — Date: 5/11/2011
Checked by: T. Vesco — Date: 5/16/2011

Rating Method
Deck
Girders — Brass Girder Version 6.0.2 (original); AASHTO Manual fo Bridge Evaluation 6B.5.5 (widen)
Special Items -

Loads
HS20 = AASHTO HS20-44 Truck Load or Lane Load whichever is greatest
P5/P9/P13 = Caltrans permit trucks P5, P9, and P13 applied separately with same wheel lines per girder as for HS20

LOAD RATING- Existing Condition — Overlays- 2.25 inch Asphalt Overlay

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
INVENTORY RATING:	**Deck**	**Girders**	Analysis Point	Critical Action	Rating	Item/ Action
RATING FACTOR for HS20 =	NA	0.93	105	Flexure	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	1.00	NA	NA	NA	NA
RATING FACTOR for P5 =		1.00	NA	NA	NA	NA
RATING FACTOR for P9 =		1.00	NA	NA	NA	NA
RATING FACTOR for P13 =		1.00	NA	NA	NA	NA

INVENTORY RATING = HS	**18.6**	=	**30.4**	**Metric Tons**
OPERATING RATING = HS	**20.0**	=	**32.7**	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	**1.00/1.00/1.00/1.00/1.00**			

Rating for P7 and P11 interpolated

LOAD RATING- w/ Modified Condition — Overlays-

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
INVENTORY RATING:	**Deck**	**Girders**	Analysis Point	Critical Action	Rating	Item/ Action
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
RATING FACTOR for P5 =		NA	NA	NA	NA	NA
RATING FACTOR for P9 =		NA	NA	NA	NA	NA
RATING FACTOR for P13 =		NA	NA	NA	NA	NA

INVENTORY RATING = HS	---	=	---	**Metric Tons**
OPERATING RATING = HS	---	=	---	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	-.-- / -.-- /-.-- /-.-- /-.--			

Structure Inventory and Appraisal

Last Modified: 04/18/2012

Bridge No.: H1529 Sufficiency Rating: 79.20 FO: N SD: N

1. State Code	329
2. District	02
3. County	031
4. Place Code	60600
5. Inventory Route	151000000
6. Feature Intersected	FOSTER DR
7. Facility Carried	KEYSTONE AV
8. Structure No.	H1529
9. Location	RENO
10. Min Vertical Clearance	99.99 ft.
11. Milepoint	0.000
12. Base Hwy Network	0
13A. LRS Inv Route	-1
13B. Subroute No.	-1
16. Latitude	39 ° 30 ' 59.04 "
17. Longitude	119 ° 49 ' 32.14 "
19. Detour Length	3
20. Toll	3 (On Free Road)
21. Maintenance Resp	04 (City or Municipal Highway Agency)
22. Owner	04 (City or Municipal Highway Agency)
26. Functional Class	16 (Urban)
27. Year Built	1966
28A. Lanes On	3
28B. Lanes Under	1
29. Avg Daily Traffic	14740
30. Year of ADT	2009
31. Design Load	6 (MS 18+Mod / HS 20+Mod)
32. Appr. Roadway Width	40.4 ft.
33. Median	3
34. Skew	45
35. Structure Flared	0
36A. Bridge Railings	0
36B. Transitions	0
36C. Approach Guardrail	0
36D. Approach GuardRail Term	0
37. Historical Significance	5 (Not eligible)
38. Navigation Control	N
39. Vertical Clearance	0.0 ft.
40. Horiz. Clearance	0.0 ft.
41. Posting Status	A (Open)
42A. Type of Service On	1 (Highway)
42B. Type of Service	1 (Highway, with or w/out pedestrian)
43A. Main Span Material	1
43B. Main Span Design	01
44A. Appr. Span Material	_
44B. Appr. Span Design	-1
45. No. of Spans Main Unit	1
46. No. of Appr. Spans	0
47. Horiz. Clearance	24.9 ft.
48. Length Max Span	25.9 ft.
49. Structure Length	27.9 ft.
50. Curb/Sdwk Width LT	1.97 ft.
RT	2.95 ft.
51. Width Curb to Curb	40.4 ft.
52. Deck Width	51.8 ft.
53. Min. Vert. Clearance Over	328 ft.
54A. Min. Vert. Underclear	H (Highway beneath structure)
54B. Min. Vert. Underclear	14.7 ft.
55A. Min. Lat. Underclear Right	H (Highway beneath structure)
55B. Min. Lat. Underclear Right	32.4 ft.
56. Min. Lat. Underclear Left	0.3 ft.
58. Deck	7 (Good Condition (some minor problems))
59. Superstructure	7 (Good Condition (some minor problems))
60. Substructure	7 (Good Condition (some minor problems))
61. Channel/Channel Prot	N (Not Applicable)
62. Culvert	N (Not Applicable)

63. Rating Method	1 (Load Factor (LF))
64. Operating Rating	36.04
65. Rating Method	1 (Load Factor (LF))
66. Inventory Rating	21.6
67. Struc Eval	6 (Equal to present minimum criteria)
68. Deck Geometry	4 (Meets minimum tolerable limits)
69. Underclearance, Vert & Horiz	6 (Equal to present minimum criteria)
70. Posting	5 (Equal to or above legal loads)
71. Waterway Adequacy	N (Not Applicable)
72. Approach Alignment	8 (Equal to present desirable criteria)
75A. Type Of Work	-1
75B. Work Done By	_
76. Len of Struc Impr	0.0000 ft.
90. Inspection Date	03/26/2012
91. Frequency	24
92A. FC Frequency	-1
92B. UW Frequebcy	-1
92C. SI Frequency	-1
92A-1. FC Required	N
92B-1. UW Required	N
92C-1. SI Required	N
93A. FC Inspection Date	01/01/1901
93B. UW Inspection Date	01/01/1901
93C. SI Date	01/01/1901
94. Bridge Impr Cost	-2
95. Rdwy Impr Cost	-1
96. Total Proj Cost	-1
96. Year of Impr Cost	-1
98A. Border Bridge Code	-2
98B. % Responsibility	0
99. Border Bridge No.	-2
100. STRAHNET	0 (Not a STRAHNET route)
101. Parallel Structure	N (No parallel structure)
102. Direction of Traffic	2 (2-way traffic)
103. Temp Structure	
104. Hwy Sys Inv Route	0 (Structure/Route is NOT on NHS)
105. Fed Lands Hwys	0 (Not Applicable)
106. Year Reconstructed	1974
107. Deck Type	1
108A. Wearing Surface	6
108B. Deck Membrane	0
108C. Deck Protection	0
109. Truck ADT	3
110. Desig National Net	0 (Inventory route not on network)
111. Pier Protection	_
112. Bridge Length	Y
113. Scour Critical Bridges	N
Sufficiency Rating	
Status	
Struct Def	
114. Future ADT	25000
115. Year Future ADT	2030
116. Min Nav Vert Clear	0 ft.
201. Contract Number	
202. Seismic Risk	
203. Structure Name	
204. Culvert Barrel Height	
205. Culvert Barrel Width	
206. Culvert Barrel Length	
207. Total Deck Area	
208. Last Access Required Inspection Date	
209. Access Required Inspection Frequency	
210. Date of Next Access Required	
211. Bridge Inventory Direction	South to North

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

58: Deck Rating	7	59: Superstructure Rating	7	59: Superstructure	
Wearing Surface	7	Bearing Devices		Collision Damage	7
Deck Struc Condition	7	Stringers		Deflection under Load	
Curbs	7	Girders or Beams	7	Alignment of Members	8
Median	6	Diaphrams or Floor Beams		Vibrations under Load	
Sidewalks	7	Trusses: General			
Parapet		Portals			
Railing	7	Bracing			
Paint or Finish	7	Paint or Finish	7		
Drains		Rivets or Bolts			
Lighting Standard	8	Welds-Cracks			
Utility		Rust			
Joint Leakage		Timber Decay		Record Last Updated	
Expansion Joint/Devices		Concrete Cracking	7	4/12/2010 @ 15:53:33	

60: Substructure Rating	6	60: Substructure		61: Channel and Protection	
Abutments					
Wings	7	Pile Bents		Fender System	
Backwall	6	Cracking/Spalling	5	Spur Dikes and Jetties	
Footing		Steel Corrosion		Riprap or Slope Paving	
Piles		Timber Decay, etc		Adequacy of Opening	
Erosion	7	Debris on Seats			
Settlement	7	Paint or Finish	7	62: Culvert Rating	N
Piers or Bents		Collision Damages	8	Barrel	
Caps		61: Channel Rating	N	Concrete (enter just one value)	
Column		Channel Scour		Steel	
Footing		Embankment Erosion		Timber	
Piles		Drift		Headwall	
Scour		Vegetation		Cutoff Wall	
Settlement		Channel Change		Adequacy	
				Debris	

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

Approach Alignment

Alignment	
Approach Slab	
Relief Joint	
Approach:	
Guardrail	7
Pavement	7
Embankment	6
Reserved	

Load Rating

Posted Load	
Legibility	
Visibility	

Type of Inspection

Bridgemaster	☐
Special	☐
Routine	☑

Estimated Remaining Life 08 years

NBI Information:

29: ADT	14740
30: Year of ADT	2006
36: Safety Features	0 0 0 0
54: Min Vert Underclearance	H 4.51 m
228: Next Insp Due Date (Mth Year)	Mar 2012
Owner	City/Municipal Hwy Agenc
Maintenance Responsibility	City/Municipal Hwy Agenc

Nevada DOT Bridge Inspection Report

H1529 **3/22/2010**

8: Structure Number	5: Inventory Route	Inspector	District
H1529	151000000	AKINOLA/PARSHLEY	District 2
209: Structure Name	**210: Inspection Date**	**Reviewer**	**County**
KEYSTONE AV /FOSTER DR	3/22/2010	GHAFEEL	Washoe

Comments and Notes *Use <Control-Enter> to enter paragraph breaks*

H1529

03/22/2010 ROUTINE INSPECTION COMMENTS:

INSPECTION REPORT:
STRUCTURE INVENTORIED SOUTH TO NORTH.

DECK STRUCTURAL CONDITION / GIRDERS / SUPERSTRUCTURE CONCRETE CRACKING (ALL RATED 7): THE DECK UNDERSIDE EXHIBITS LONGITUDINAL AND DIAGONAL CRACKS UP TO 1/64" WIDE, SOME WITH EFFLORESCENCE AND RUST STAINING. THE EXTERIOR FASCIAS OF THE FLAT SLAB EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE AND MINOR MAP CRACKING.

CURBS / SIDEWALKS (BOTH RATED 7): THE CURBS AND SIDEWALKS CONTAIN CRACKING TO 1/16" WIDE AND SPALLING/SCALING TO 1/2" DEEP. THE APPROACH CURBS EXHIBIT MODERATE SPALLS AND CRACKS UP TO 1/8" WIDE.

MEDIAN (RATED 6): THE MEDIAN EXHIBITS MODERATE TO HEAVY CRACKING, DELAMINATION AND SPALLING AROUND RAIL POSTS.

RAILING (RATED 7): MINOR IMPACT SCRAPES ARE EXHIBITED ALONG THE RIGHT RAILING AND ON THE LEFT RAILING AT THE SOUTHEAST CORNER OF THE STRUCTURE. THE PEDESTRIAN RAILING UNDER THE STRUCTURE EXHIBITS MODERATE IMPACT DAMAGE TO ONE POST AND TWO PANELS.

ABUTMENT WINGS (RATED 7): THE WINGWALLS TYPICALLY EXHIBIT DIAGONAL AND VERTICAL CRACKS UP TO 1/32" WIDE. THE NORTHWEST, SOUTHWEST AND NORTHEAST WINGWALLS EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE WITH MINOR SPALLING AT THE FIRST CONSTRUCTION JOINT.

ABUTMENT BACKWALL (RATED 6) / SUBSTRUCTURE CRACKING-SPALLING (RATED 5): THE BACKWALLS EXHIBIT VERTICAL CRACKS UP TO 1/32" WIDE. THE NORTH BACKWALL EXHIBITS DELAMINATED/SPALLED AREAS ALONG THE LOWER 2' IN A 25' WIDE SECTION.

APPROACH EMBANKMENT (RATED 6): A 24' LONG SECTION OF THE NORTHWEST APPROACH CURB IS UNDERMINED TO 1.5' WITH ASSOCIATED SETTLEMENT BEGINNING AT BRIDGE.

APPROACH PAVEMENT (RATED 7): THE APPROACH PAVEMENT EXHIBITS LONGITUDINAL CRACKING UP TO 1/32" W AND TRANSVERSE CRACKING MEASURING UP TO 1/8" W.

MAINTENANCE REPORT:
>MONITOR CRACKING IN CURBS, SIDEWALKS, DECK UNDERSIDE AND FASCIAS, WINGWALLS, AND BACKWALLS.
>MONITOR SPALLING/SCALING IN SIDEWALKS AND CURBS.
>PATCH SPALLS IN MEDIAN CONCRETE AT RAIL POSTS.
>MONITOR IMPACT DAMAGE TO RAILING AT SOUTHEAST CORNER.
>REPAIR SPALLED/DELAMINATED AREAS IN NORTH BACKWALL.
>REPAIR UNDERMINING OF NORTHWEST APPROACH CURB.
>MONITOR APPROACH PAVEMENT CRACKING.

Element Condition Values
Bridge: H1529 / Inspection Date: 3/22/2010 (LXNN)

Key: 0 Structure Unit ID: 0 Type: M Main

Elem / Env	Element Description	Quantity	UOM	Qty1	Qty2	Qty3	Qty4	Qty5
39 / 2	Unp Conc Slab/AC Ovl (ea	1.00	ea.	1	0	0	0	0
334 / 2	Metal Rail Coated	24.00	m.	21	3	0	0	0
215 / 2	R/Conc Abutment	38.00	m.	25	5	8	0	0
359 / 2	Soffit Smart Flag (ea)	1.00	ea.	0	1	0	0	0

User Maintenance Report

Structure No: H1529
Inventory Route: 151000000
District: 02
Bridge Name: KEYSTONE AV /FOSTER D
Inspection Date: 03/22/2010
County: Washoe

Deck Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Structural Deck Repairs:	5						0
Wearing Surface Repairs:							0
Expansion Joint Repairs:							0
Drain Cleaning/Repairs:							0
Parapet/Rail Repairs:	5						0
Curbs, Median, Sidewalk:	4	1	X	0	2	LS	1

Superstructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Girder, Floorbeam, Stringer:	5						0
Truss Repairs:							0
Bearing Repairs:							0
Diaphragm Repairs:							0
Paint/Finish Maintenance:							0

Substructure Maintenance

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Wingwall/Backwall Repairs:	3	2	X	1	3	LS	1
Cap Repairs:							0
Column/Pier Wall Repairs:							0
Foundation Repairs:							0
Erosion/Scour Repairs:							0
Settlement Repairs:	5						0
Paint/Finish Maintenance:							0
Clean Abutment/Pier Seats:							0

Channel Protection

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Erosion/Scour Repairs:							0
Drift Removal:							0
Vegetation Removal:							0
Spur Dike/Jetty Repairs:							0
Riprap/Slope Paving Repairs:							0

Culvert Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Barrel Repairs:							0
Headwall Repairs:							0
Barrel Debris Removal:							0

Approach Repairs

	Timing	Status	Tenths	ERL	Critical	Unit	Quantity
Approach Slab Repairs:							0
Pavement Repairs:	5						0
Embankment Repairs:	4	1	X	0	2	CUYD	1
Guardrail Repairs:							0
Relief Joint Repairs:							0

State of Nevada
Department of Transportation

Bridge No.: H1529
Date: 03/26/2012

Photo 1: WEST ELEVATION

Bridge No.: H1529
Date: 03/26/2012

Photo 2: SOUTH APPROACH

State of Nevada
Department of Transportation

Bridge No.: H1529
Date: 03/22/10

Photo 1: South Approach

Bridge No.: H1529
Date: 03/22/10

Photo 2: West Elevation

State of Nevada

Department of Transportation

Load Rating Report

[REV. 7/01]

CONTRACT NUMBER(S): Dist II -City

COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
Keystone Avenue over Foster Drive	H-1529	Keystone Ave

TYPE	YEAR CONSTRUCTED	DISTRICT
Single-Span Reinforced Concrete Voided Slab	1966	2

LENGTH ft-in	WIDTH ft-in	DEPTH ft-in	MILEPOST
27' - 10 3/4"	51' - 10"	1' - 6"	NA

BRIDGE LOAD RATING

ANALYSIS BY: J. Elwood DATE: 5/11/2011

CHECKED BY: T. Vesco DATE: 5/16/2011

Method of Analysis: Brass Girder Version 6.0.2 (original); AASHTO Manual fo Bridge Evaluation 6B.5.5 (widen)

A.) Existing Condition With existing 2.25 inch Asphalt Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	**18.6**	=	**30.4**	**Metric Tons**
OPERATING RATING = HS	**20.0**	=	**32.7**	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=	PPPPP		

B.) Modified Condition With future ___ inch AC Overlay

Rating By Load Factor Method

INVENTORY RATING = HS	---	=	----	**Metric Tons**
OPERATING RATING = HS	---	=	----	**Metric Tons**
PERMIT TRUCK COLOR CAPACITY	=			

CONDITION RATING

[Summarized from the Structure Inspection Report]

Date of Inspection: 3/29/2008

Type: Routine

MIN. VERTICAL CLEARANCE: 14 Feet 10 Inches

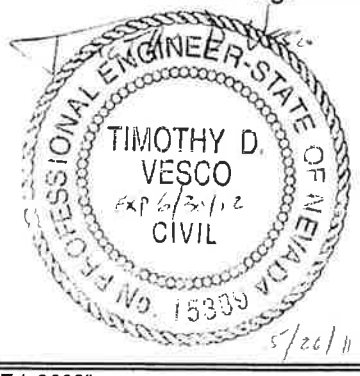
DECK RATING:	7		
SUPERSTRUCTURE RATING:	7	CHANNEL RATING:	N
SUBSTRUCTURE RATING:	6	EST. REMAINING LIFE [Years]:	10
CULVERT RATING:	N	STRUCTURE POSTED? [Yes/No]:	No

Note: Ratings above are NBI Ratings from inspection report weighted for structural items only

COMMENTS:

Bridge has been widened & barrier rails replaced. No as-builts are available for this construction.

Seal and Signature



This report was prepared in accordance with AASHTO "The Manual for Bridge Evaluation, First Ed, 2008" with revisions by Nevada Department of Transportation.

Report by: J. Elwood DATE: 5/11/2011

State of Nevada
Department of Transportation

Load Rating Summary Sheet

[REV. 8/05]

DATE: 5/11/2011
COUNTY: Washoe

LOCAL NAME	STRUCTURE NUMBER	ROUTE
Keystone Avenue over Foster Drive	H-1529	Keystone Ave

MATERIAL PROPERTIES:

	Deck/----	Girders/ ----
Concrete F'c (psi)=	NA	3,000
Reinforcing Steel Fy (psi)=	NA	40,000
Structural Steel Fy (psi)=	NA	NA
Prestressing Steel F's (psi)	NA	NA

BRIDGE DATA

Original Bridge:
Single-Span Reinforced Concrete Voided Slab

Widenings:
Widening w/ unavailable as-builts (1974)

ANALYSIS CRITERIA:

- Rating performed using LFD
- Analyzed structure under "existing" conditions
- Live Load consists of AASHTO HS20-44 Truck & Lane Loads and California permit vehicles P5, P9 and P13
- Barrier Rail applied to full width of bridge
- Used f'c = 3 ksi per Contract Plans, fy = 40 ksi per AASHTO MBE (Intermediate grade)
- Slab voids were incorporated using equivalent I-section; non-voids incorporated using added weight
-
-
-
-

ANALYSIS METHOD & RESULTS:

Analysis by: J. Elwood — Date: 5/11/2011
Checked by: T. Vesco — Date: 5/16/2011

Rating Method
Deck
Girders — Brass Girder Version 6.0.2 (original); AASHTO Manual fo Bridge Evaluation 6B.5.5 (widen)
Special Items -

Loads
HS20 = AASHTO HS20-44 Truck Load or Lane Load whichever is greatest
P5/P9/P13 = Caltrans permit trucks P5, P9, and P13 applied separately with same wheel lines per girder as for HS20

LOAD RATING- Existing Condition — Overlays- 2.25 inch Asphalt Overlay

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
INVENTORY RATING:	**Deck**	**Girders**	Analysis Point	Critical Action	Rating	Item/ Action
RATING FACTOR for HS20 =	NA	0.93	105	Flexure	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	1.00	NA	NA	NA	NA
RATING FACTOR for P5 =		1.00	NA	NA	NA	NA
RATING FACTOR for P9 =		1.00	NA	NA	NA	NA
RATING FACTOR for P13 =		1.00	NA	NA	NA	NA

INVENTORY RATING = HS	**18.6**	=	**30.4**	**Metric Tons**
OPERATING RATING = HS	**20.0**	=	**32.7**	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	**1.00/1.00/1.00/1.00/1.00**			

Rating for P7 and P11 interpolated

LOAD RATING- w/ Modified Condition — Overlays-

	Standard Rating Items		Controlling Girder Action		Special Rating Items	
INVENTORY RATING:	**Deck**	**Girders**	Analysis Point	Critical Action	Rating	Item/ Action
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
OPERATING RATING:						
RATING FACTOR for HS20 =	NA	NA	NA	NA	NA	NA
RATING FACTOR for P5 =		NA	NA	NA	NA	NA
RATING FACTOR for P9 =		NA	NA	NA	NA	NA
RATING FACTOR for P13 =		NA	NA	NA	NA	NA

INVENTORY RATING = HS	---	=	---	**Metric Tons**
OPERATING RATING = HS	---	=	---	**Metric Tons**
Rating Factors for P5 / P7/ P9/ P11/ P13 =	-.-- / -.-- /-.-- /-.-- /-.--			

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

JIM GIBBONS
Governor

SUSAN MARTINOVICH, P.E., *Director*

June 16, 2010

In Reply Refer to:

Ms. Teri Martinetti, E. I.
Assistant Civil Engineer
Public Works, Capital Projects
9th Floor City Hall
P. O. Box 1900
Reno, NV 89505

Bridge Numbers:

B-1487	G-1504	H-1529	B-1530
B-1533	H-1553	B-1621	B-1686
B-1687	B-1688	B-1863	G-1864
B-2046	B-2248	B-2249	B-2450
B-2455	B-2456	B-2457	B-2464
B-2465	B-2466	B-2467	B-2468
B-2527	B-2528	B-2636	B-2652

Dear Ms. Martinetti:

I am forwarding you copies of Inspection and Maintenance Reports for the structures listed above. The locations of these structures are shown on the attached maps. The inspection ratings given in the reports are based on a scale of 9 to 0, with 9 defined as the best condition possible and 0 defined as the worst condition possible. Maintenance requirements give several pieces of data of concern to NDOT and three (3) data items of concern to you. These items are the Timing Code (T), which suggests the urgency of the maintenance, the Units and Quantities, which suggest the amount of materials for cost estimating, and the Comments, which describe a proposed maintenance strategy.

Where maintenance is suggested, the proposed strategy or any alternative may be used to correct the problem. I would appreciate being updated when maintenance is performed, as this will be extremely helpful in keeping our bridge files current.

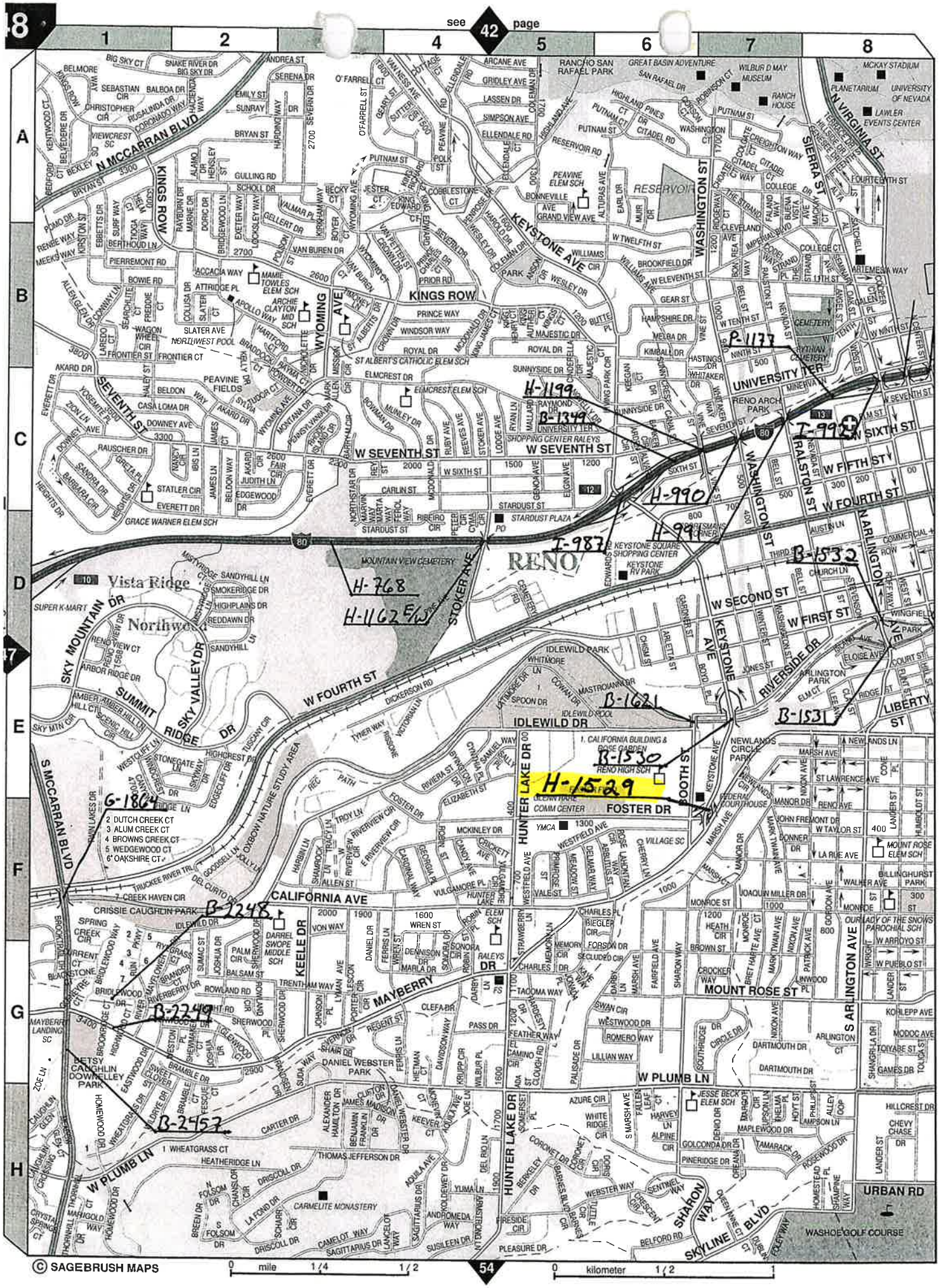
If any report pertains to a structure that is not owned or maintained in whole or in part by your forces, please return the report indicating such is the case. Also, if you have any questions pertaining to these reports or the bridge maintenance/inspection program, please call me at 888-7546.

Sincerely,

H. Hat

Hossein Hatefi
Senior Bridge Engineer
Inspection/Maintenance

HH/lsg
Cc: File
Structures File


see 42 page
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RENO
N MCCARRAN BLVD
KINGS ROW
WYOMING AVE
SEVENTH ST
W SEVENTH ST
KEYSTONE AVE
WASHINGTON ST
SIERRA ST
N VIRGINIA ST
W FOURTH ST
W SECOND ST
W FIRST ST
RALSTON ST
ARLINGTON ST
RIVERSIDE DR
SKY MOUNTAIN DR
SKY VALLEY DR
SUMMIT RIDGE DR
STOKER AVE
W SIXTH ST
W FIFTH ST
I-80
I-987
I-990
I-993
H-1199
B-1349
H-990
H-768
H-1162 E/W
B-1532
B-1621
B-1531
B-1530
H-1529
G-1864
B-1248
B-2249
B-2452
P-1177
IDLEWILD DR
HUNTER LAKE DR
BOOTH ST
FOSTER DR
CALIFORNIA AVE
KEELE DR
MAYBERRY
W PLUMB LN
S MCCARRAN BLVD
S ARLINGTON AVE
MOUNT ROSE ST
SHARON WAY
SKYLINE BLVD
URBAN RD
RALEYS DR
HUNTER LAKE DR
MOUNTAIN VIEW CEMETERY
CARMELITE MONASTERY
WASHOE GOLF COURSE
Vista Ridge
Northwest
RENO ARCH PARK
UNIVERSITY TER
KEYSTONE SQUARE SHOPPING CENTER
KEYSTONE RV PARK
STARDUST PLAZA
IDLEWILD PARK
NEWLANDS CIRCLE PARK
RANCHO SAN RAFAEL PARK
GREAT BASIN ADVENTURE
WILBUR D MAY MUSEUM
RANCH HOUSE
MCKAY STADIUM
PLANETARIUM
UNIVERSITY OF NEVADA
LAWLER EVENTS CENTER
PEAVINE FIELDS
NORTHWEST POOL
CRISSIE CAUGHLIN PARK
DANIEL WEBSTER PARK
BETSY CAUGHLIN DOWNELLEY PARK
MOUNT ROSE ELEM SCH
JESSE BECK ELEM SCH
ST ALBERT'S CATHOLIC ELEM SCH
ELMCREST ELEM SCH
GRACE WARNER ELEM SCH
DARREL SWOPE MIDDLE SCH
ARCHIE CLAYTON MID SCH
MAMIE TOWLES ELEM SCH
RENO HIGH SCH
GLENN ROBERTS COMM CENTER
FEDERAL COURTHOUSE
YMCA
OUR LADY OF THE SNOWS PAROCHIAL SCH
1. CALIFORNIA BUILDING & ROSE GARDEN
2 DUTCH CREEK CT
3 ALUM CREEK CT
4 BROWNS CREEK CT
5 WEDGEWOOD CT
6 OAKSHIRE CT
7 CREEK HAVEN CIR
1 WHEATGRASS CT
OXBOW NATURE STUDY AREA
TRUCKEE RIVER TRL
DEL CURTO DR
MAYBERRY LANDING SC
MEADOWOOD MALL SC
VILLAGE SC
© SAGEBRUSH MAPS
0 mile 1/4 1/2
0 kilometer 1/2
54

NEVADA DEPARTMENT OF TRANSPORTATION

BRIDGE NO.
H1529
03/29/08

West Elevation

BRIDGE NO.
H1529
03/29/08

North Approach Looking South

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

JIM GIBBONS
Governor

SUSAN MARTINOVICH, P.E., *Director*

June 20, 2008

In Reply Refer to:

Mr. John Flansberg, Deputy Director
City of Reno Public Works, Maintenance
PO Box 1900
Reno, NV 89015

Bridge Numbers:

B-177	B-178	B-303	B-304
B-1326E	B1327W	B-1425	B-1487
G-1504	H-1529	B-1530	B-1531
B-1532	B-1533	H-1553	

Dear Mr. Flansberg:

I am forwarding you copies of Inspection and Maintenance Reports for the structures listed above. The locations of these structures are shown on the attached maps. The inspection ratings given in the reports are based on a scale of 9 to 0, with 9 defined as the best condition possible and 0 defined as the worst condition possible. Maintenance requirements give several pieces of data of concern to NDOT and three (3) data items of concern to you. These items are the Timing Code (T), which suggests the urgency of the maintenance, the Units and Quantities, which suggest the amount of materials for cost estimating, and the Comments, which describe a proposed maintenance strategy.

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Sincerely,

H. Hatefi

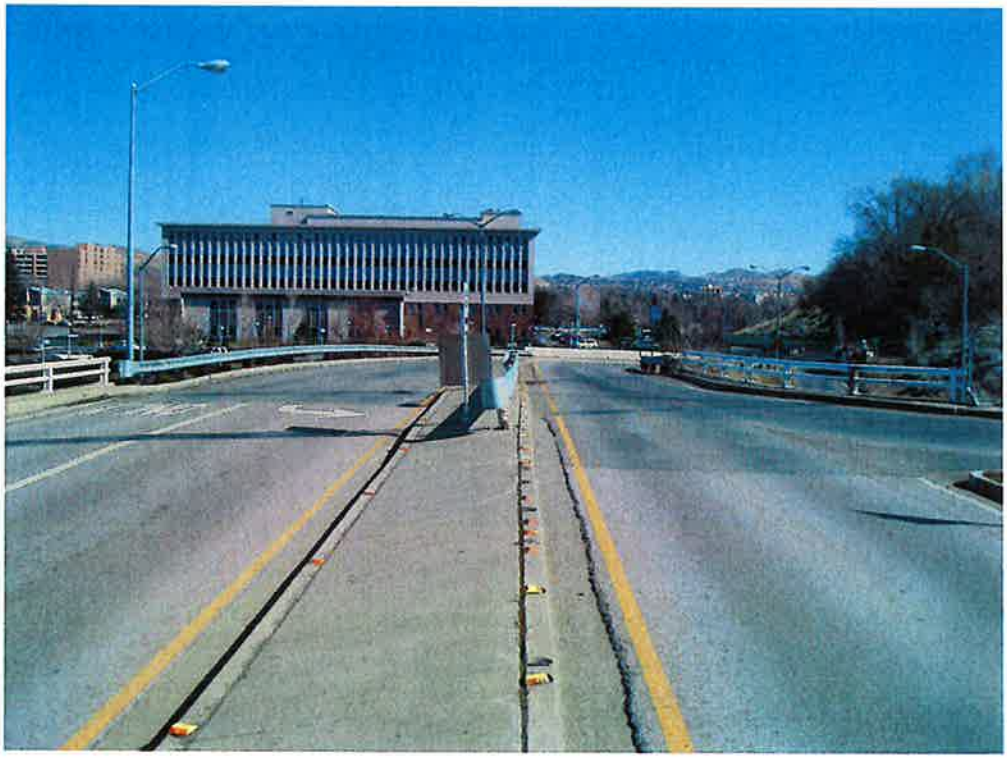
Hossein Hatefi
Senior Bridge Engineer
Inspection/Maintenance

HH/jfe
Enclosure
Cc: File

NEVADA DEPARTMENT OF TRANSPORTATION

BRIDGE NO.
H1529
04/18/06

West elevation



BRIDGE NO.
H1529
04/18/06

South approach looking north

LOCHNER

13577 FEATHER SOUND DRIVE, SUITE 600, CLEARWATER, FLORIDA 33762

(727) 572-7111
FAX (727) 571-3371

MEMORANDUM

DATE: 04/18/2006

TO: NDOT

FROM: H. W. Lochner, Inc.

cc:

SUBJECT: H1529

The following SIA Item should be changed:

Item 50 LT– from 00.2M to 00.6M

NEVADA DEPARTMENT OF TRANSPORTATION

Bridge No.: H1529
Date: 06/30/04

Photo 01: West elevation looking east.

Bridge No.: H1529
Date: 06/30/04

Photo 02: South approach

Appendix D

Traffic Count Data

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310508, , , California Av
County: Washoe
Funct. Class: Urban Collector
Location: 300ft W of Arlington Av

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/08/2012			Mon 07/09/2012			Tue 07/10/2012			Wed 07/11/2012			Thu 07/12/2012			Fri 07/13/2012			Sat 07/14/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00													92	59	33	101	66	35	146	97	49
01:00													53	31	22	63	35	28	97	62	35
02:00													42	27	15	54	36	18	71	38	33
03:00													27	10	17	32	17	15	48	30	18
04:00													33	18	15	53	28	25	38	19	19
05:00													98	33	65	97	26	71	68	30	38
06:00													287	84	203	290	79	211	147	55	92
07:00										697	166	531	750	180	570	700	173	527	291	143	148
08:00										814	243	571	827	227	600	826	242	584	545	243	302
09:00										775	302	473	831	322	509	755	287	468	731	320	411
10:00										816	364	452	775	338	437	789	354	435	830	374	456
11:00										977	412	565	941	435	506	894	435	459	934	434	500
12:00										961	481	480	985	490	495	1,083	567	516	940	451	489
13:00										934	432	502	967	471	496	1,027	513	514	807	353	454
14:00										880	480	400	837	455	382	904	460	444	768	388	380
15:00										904	486	418	976	531	445	948	518	430	764	399	365
16:00										1,076	643	433	1,096	638	458	1,045	624	421	757	405	352
17:00										1,316	817	499	1,230	779	451	1,216	720	496	704	351	353
18:00										863	463	400	913	525	388	887	467	420	658	308	350
19:00										637	363	274	648	340	308	624	330	294	468	217	251
20:00										516	321	195	504	281	223	508	284	224	472	256	216
21:00										428	266	162	487	292	195	429	235	194	377	205	172
22:00										265	157	108	294	184	110	348	222	126	486	345	141
23:00										157	102	55	163	108	55	240	152	88	221	137	84
Volume										13,016	6,498	6,518	13,856	6,858	6,998	13,913	6,870	7,043	11,368	5,660	5,708
AM Peak Vol													941	435	679	908	436	635	934	434	500
AM Peak Fct													0.94	0.82	0.85	0.86	0.91	0.81	0.95	0.99	0.93
AM Peak Hr													11:00	11:00	7:30	10:45	10:45	7:45	11:00	11:00	11:00
PM Peak Vol										1,316	817	528	1,272	823	509	1,216	749	533	940	451	499
PM Peak Fct										0.87	0.87	0.89	0.90	0.90	0.92	0.89	0.87	0.97	0.93	0.95	0.92
PM Peak Hr										17:00	17:00	12:45	16:45	16:45	12:30	16:45	16:30	12:45	12:00	12:00	12:15
Seasonal Fct										0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Collected by: NDOT
Created 07/26/2012 8:51:15AM

ROAD AADT 12,292 **W AADT 6,091** **E AADT 6,201**

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310508, , , California Av
County: Washoe
Funct. Class: Urban Collector
Location: 300ft W of Arlington Av

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/15/2012			Mon 07/16/2012			Tue 07/17/2012			Wed 07/18/2012			Thu 07/19/2012			Fri 07/20/2012			Sat 07/21/2012		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00	147	79	68	71	48	23	68	47	21	79	52	27									
01:00	116	62	54	42	26	16	35	21	14	42	27	15									
02:00	93	62	31	41	22	19	29	20	9	36	26	10									
03:00	63	42	21	19	7	12	29	14	15	22	13	9									
04:00	35	23	12	36	17	19	39	17	22	33	15	18									
05:00	41	19	22	84	25	59	87	28	59	92	26	66									
06:00	116	42	74	307	96	211	296	73	223	325	81	244									
07:00	198	89	109	737	184	553	737	183	554												
08:00	333	152	181	767	225	542	827	225	602												
09:00	475	204	271	794	295	499	737	280	457												
10:00	623	284	339	745	329	416	760	303	457												
11:00	706	322	384	833	398	435	940	458	482												
12:00	741	385	356	945	490	455	1,062	513	549												
13:00	664	329	335	1,012	494	518	912	454	458												
14:00	615	324	291	888	453	435	800	397	403												
15:00	583	289	294	856	465	391	967	518	449												
16:00	663	338	325	988	572	416	1,054	645	409												
17:00	547	285	262	1,232	788	444	1,281	824	457												
18:00	531	272	259	772	451	321	820	496	324												
19:00	438	214	224	540	333	207	585	327	258												
20:00	371	210	161	408	240	168	455	257	198												
21:00	300	171	129	281	174	107	365	215	150												
22:00	187	98	89	202	108	94	222	142	80												
23:00	106	66	40	111	59	52	150	88	62												
Volume	8,692	4,361	4,331	12,711	6,299	6,412	13,257	6,545	6,712	304	159	145									
AM Peak Vol	706	322	384	835	398	623	940	458	651												
AM Peak Fct	0.89	0.89	0.89	0.77	0.84	0.75	0.92	0.85	0.81												
AM Peak Hr	11:00	11:00	11:00	7:45	11:00	7:30	11:00	11:00	7:30												
PM Peak Vol	741	397	356	1,238	799	543	1,300	844	549												
PM Peak Fct	0.92	0.90	0.92	0.88	0.87	0.92	0.86	0.88	0.82												
PM Peak Hr	12:00	12:15	12:00	16:45	16:45	12:45	16:45	16:45	12:00												
Seasonal Fct	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Collected by: NDOT
Created 07/26/2012 8:51:15AM

ROAD AADT 12,292 **W AADT 6,091** **E AADT 6,201**

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310535, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 100ft S of Jones St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/08/2012			Mon 07/09/2012			Tue 07/10/2012			Wed 07/11/2012			Thu 07/12/2012			Fri 07/13/2012			Sat 07/14/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													84	37	47	103	58	45	157	82	75
01:00													70	40	30	87	48	39	115	54	61
02:00													53	28	25	46	19	27	82	46	36
03:00													41	23	18	38	16	22	69	33	36
04:00													52	18	34	49	18	31	47	23	24
05:00													132	55	77	144	59	85	98	51	47
06:00													321	152	169	334	158	176	189	89	100
07:00													745	373	372	643	318	325	346	168	178
08:00										734	347	387	762	375	387	675	338	337	631	342	289
09:00										711	348	363	759	367	392	716	327	389	820	432	388
10:00										790	428	362	696	348	348	741	375	366	891	474	417
11:00										874	486	388	761	393	368	788	393	395	924	449	475
12:00										852	412	440	853	392	461	967	465	502	895	403	492
13:00										843	405	438	819	402	417	880	420	460	863	402	461
14:00										774	376	398	744	319	425	770	386	384	824	405	419
15:00										878	400	478	850	382	468	835	365	470	764	351	413
16:00										996	477	519	972	469	503	926	445	481	774	344	430
17:00										1,153	528	625	1,079	526	553	1,084	501	583	724	334	390
18:00										836	399	437	863	398	465	824	381	443	615	282	333
19:00										605	288	317	641	297	344	586	258	328	513	246	267
20:00										498	244	254	576	273	303	490	230	260	473	242	231
21:00										447	229	218	495	242	253	470	245	225	388	206	182
22:00										283	134	149	332	163	169	343	180	163	408	185	223
23:00										180	84	96	177	86	91	240	113	127	245	114	131
Volume										11,454	5,585	5,869	12,877	6,158	6,719	12,779	6,116	6,663	11,855	5,757	6,098
AM Peak Vol													828	422	410	788	393	406	947	506	475
AM Peak Fct													0.93	0.82	0.88	0.91	0.85	0.90	0.94	0.96	0.92
AM Peak Hr													8:30	8:30	7:45	11:00	11:00	10:45	10:30	10:30	11:00
PM Peak Vol										1,153	549	625	1,089	526	564	1,084	506	583	910	417	493
PM Peak Fct										0.92	0.91	0.89	0.90	0.86	0.95	0.88	0.86	0.91	0.92	0.91	0.91
PM Peak Hr										17:00	16:45	17:00	16:45	17:00	16:45	17:00	16:45	17:00	12:15	12:15	12:15
Seasonal Fct										0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

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ROAD AADT 11,929 **S AADT 5,754** **N AADT 6,176**

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310535, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 100ft S of Jones St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/15/2012			Mon 07/16/2012			Tue 07/17/2012			Wed 07/18/2012			Thu 07/19/2012			Fri 07/20/2012			Sat 07/21/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	171	88	83	76	28	48	81	36	45	75	29	46									
01:00	134	80	54	40	17	23	36	21	15	47	28	19									
02:00	98	47	51	49	26	23	42	17	25	31	13	18									
03:00	57	28	29	26	15	11	23	13	10	25	11	14									
04:00	46	22	24	48	19	29	47	21	26	57	25	32									
05:00	57	26	31	147	70	77	121	52	69	153	70	83									
06:00	117	50	67	346	158	188	347	167	180	321	168	153									
07:00	259	147	112	682	324	358	716	352	364	717	357	360									
08:00	400	194	206	722	355	367	776	382	394												
09:00	603	293	310	695	354	341	707	345	362												
10:00	732	361	371	685	332	353	709	370	339												
11:00	748	325	423	729	345	384	807	406	401												
12:00	788	348	440	846	393	453	878	441	437												
13:00	722	338	384	819	385	434	849	407	442												
14:00	658	313	345	720	356	364	755	362	393												
15:00	666	342	324	800	360	440	830	379	451												
16:00	703	355	348	897	451	446	1,037	512	525												
17:00	649	316	333	1,083	510	573	1,118	498	620												
18:00	606	279	327	751	352	399	855	358	497												
19:00	525	263	262	532	248	284	619	298	321												
20:00	434	206	228	481	229	252	503	254	249												
21:00	346	172	174	305	155	150	417	220	197												
22:00	236	119	117	250	132	118	263	137	126												
23:00	137	74	63	153	84	69	162	81	81												
Volume	9,892	4,786	5,106	11,882	5,698	6,184	12,698	6,129	6,569	709	344	365									
AM Peak Vol	764	371	423	734	374	385	807	406	418												
AM Peak Fct	0.89	0.90	0.78	0.90	0.87	0.91	0.96	0.93	0.88												
AM Peak Hr	9:45	9:45	11:00	8:30	8:30	7:30	11:00	11:00	7:30												
PM Peak Vol	788	359	440	1,084	514	573	1,131	529	620												
PM Peak Fct	0.96	0.90	0.92	0.86	0.87	0.86	0.96	0.88	0.95												
PM Peak Hr	12:00	16:30	12:00	16:45	16:45	17:00	16:45	16:15	17:00												
Seasonal Fct	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984	0.984									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Collected by: NDOT
Created 07/26/2012 8:51:15AM

ROAD AADT 11,929 **S AADT 5,754** **N AADT 6,176**

Nevada Department of Transportation

Daily Volume from 05/11/2011 through 05/18/2011

Site Names: 310537, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 100ft S of SR-647 (W 4th St)

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/08/2011			Mon 05/09/2011			Tue 05/10/2011			Wed 05/11/2011			Thu 05/12/2011			Fri 05/13/2011			Sat 05/14/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													198	93	105	180	79	101	341	151	190
01:00													127	60	67	131	56	75	250	97	153
02:00													97	44	53	94	50	44	207	90	117
03:00													88	40	48	83	43	40	125	50	75
04:00													95	29	66	104	39	65	95	36	59
05:00													211	87	124	236	93	143	149	74	75
06:00													544	256	288	590	255	335	330	140	190
07:00													1,607	895	712	1,639	909	730	652	331	321
08:00													1,373	778	595	1,459	815	644	925	491	434
09:00													1,237	666	571	1,262	649	613	958	468	490
10:00													1,154	536	618	1,278	617	661	1,267	657	610
11:00													1,480	724	756	1,663	841	822	1,458	759	699
12:00													1,613	857	756	1,648	841	807	1,526	762	764
13:00													1,593	834	759	1,720	837	883	1,442	762	680
14:00										1,758	867	891	1,808	967	841	1,973	955	1,018	1,456	720	736
15:00										1,752	895	857	1,855	920	935	1,827	899	928	1,477	716	761
16:00										1,878	877	1,001	1,868	901	967	1,879	874	1,005	1,316	640	676
17:00										2,036	911	1,125	2,089	949	1,140	1,962	902	1,060	1,359	650	709
18:00										1,593	782	811	1,614	793	821	1,490	739	751	1,146	595	551
19:00										1,135	574	561	1,222	551	671	1,170	605	565	941	485	456
20:00										1,041	505	536	1,025	493	532	995	489	506	831	407	424
21:00										716	383	333	776	384	392	880	481	399	734	392	342
22:00										497	241	256	507	230	277	691	351	340	677	366	311
23:00										311	138	173	334	166	168	522	244	278	435	210	225
Volume										12,717	6,173	6,544	24,515	12,253	12,262	25,476	12,663	12,813	20,097	10,049	10,048
AM Peak Vol													1,607	895	756	1,663	909	822	1,458	759	699
AM Peak Fct													1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AM Peak Hr													7:00	7:00	11:00	11:00	7:00	11:00	11:00	11:00	11:00
PM Peak Vol													2,089	967	1,140	1,973	955	1,060	1,526	762	764
PM Peak Fct													1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PM Peak Hr													17:00	14:00	17:00	14:00	14:00	17:00	12:00	12:00	12:00
Seasonal Fct										0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Nevada Department of Transportation

Daily Volume from 05/11/2011 through 05/18/2011

Site Names: 310537, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 100ft S of SR-647 (W 4th St)

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/15/2011			Mon 05/16/2011			Tue 05/17/2011			Wed 05/18/2011			Thu 05/19/2011			Fri 05/20/2011			Sat 05/21/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	330	139	191	163	93	70	159	84	75	175	86	89									
01:00	215	91	124	115	62	53	85	46	39	93	43	50									
02:00	186	76	110	72	33	39	61	34	27	97	49	48									
03:00	142	58	84	63	31	32	57	25	32	59	25	34									
04:00	106	46	60	87	31	56	85	32	53	104	47	57									
05:00	117	47	70	199	67	132	215	77	138	225	89	136									
06:00	198	81	117	599	305	294	561	264	297	560	272	288									
07:00	356	219	137	1,577	857	720	1,599	903	696	1,646	907	739									
08:00	587	301	286	1,413	759	654	1,285	685	600	1,366	733	633									
09:00	857	440	417	1,246	641	605	1,163	623	540	1,246	674	572									
10:00	996	491	505	1,236	623	613	1,088	546	542	1,176	606	570									
11:00	1,213	628	585	1,473	740	733	1,399	677	722	1,462	702	760									
12:00	1,294	620	674	1,570	773	797	1,461	751	710	1,566	766	800									
13:00	1,208	617	591	1,517	785	732	1,429	723	706	1,694	873	821									
14:00	1,103	545	558	1,831	884	947	1,713	847	866												
15:00	1,090	534	556	1,719	814	905	1,750	846	904												
16:00	1,189	609	580	1,771	847	924	1,827	913	914												
17:00	1,072	520	552	1,805	835	970	2,002	869	1,133												
18:00	895	460	435	1,267	612	655	1,324	619	705												
19:00	829	427	402	920	476	444	1,011	536	475												
20:00	659	340	319	717	366	351	795	408	387												
21:00	480	248	232	536	307	229	627	316	311												
22:00	413	211	202	391	201	190	448	220	228												
23:00	197	89	108	235	124	111	287	135	152												
Volume	15,732	7,837	7,895	22,522	11,266	11,256	22,431	11,179	11,252	11,469	5,872	5,597									
AM Peak Vol	1,213	628	585	1,577	857	733	1,599	903	722	1,646	907	760									
AM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00									
AM Peak Hr	11:00	11:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00									
PM Peak Vol	1,294	620	674	1,831	884	970	2,002	913	1,133												
PM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PM Peak Hr	12:00	12:00	12:00	14:00	14:00	17:00	17:00	16:00	17:00												
Seasonal Fct	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Nevada Department of Transportation

Daily Volume from 05/08/2013 through 05/15/2013

Site Names: 0310538, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 120ft S of 7th St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/05/2013			Mon 05/06/2013			Tue 05/07/2013			Wed 05/08/2013			Thu 05/09/2013			Fri 05/10/2013			Sat 05/11/2013		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													220	91	129	254	95	159	441	211	230
01:00													113	46	67	190	77	113	343	155	188
02:00													78	24	54	134	63	71	262	114	148
03:00													87	49	38	130	71	59	188	89	99
04:00													182	139	43	168	123	45	173	96	77
05:00													370	279	91	417	319	98	295	192	103
06:00													888	709	179	893	687	206	400	272	128
07:00													1,814	1,270	544	1,799	1,251	548	768	512	256
08:00													1,727	1,063	664	1,740	1,072	668	1,120	685	435
09:00													1,524	944	580	1,531	902	629	1,568	962	606
10:00													1,354	797	557	1,500	883	617	1,671	1,014	657
11:00													1,423	752	671	1,680	901	779	1,709	949	760
12:00										1,639	901	738	1,599	847	752	1,814	989	825	1,752	945	807
13:00										1,638	862	776	1,605	835	770	1,717	870	847	1,636	819	817
14:00										1,862	921	941	1,793	870	923	1,782	841	941	1,720	912	808
15:00										1,963	920	1,043	2,196	1,059	1,137	2,256	1,067	1,189	1,699	825	874
16:00										2,213	974	1,239	2,218	977	1,241	2,260	995	1,265	1,716	875	841
17:00										2,257	974	1,283	2,219	914	1,305	2,287	1,020	1,267	1,582	801	781
18:00										1,690	745	945	1,769	818	951	1,795	856	939	1,395	677	718
19:00										1,294	588	706	1,268	568	700	1,454	705	749	1,190	591	599
20:00										1,142	529	613	1,195	530	665	1,280	570	710	1,132	517	615
21:00										896	409	487	931	404	527	1,165	486	679	898	388	510
22:00										557	234	323	585	268	317	975	400	575	863	395	468
23:00										386	184	202	397	185	212	664	296	368	705	310	395
Volume										17,537	8,241	9,296	27,555	14,438	13,117	29,885	15,539	14,346	25,226	13,306	11,920
AM Peak Vol													1,847	1,270	671	1,827	1,251	779	1,767	1,038	760
AM Peak Fct													0.93	0.91	0.93	0.91	0.89	0.88	0.95	0.89	0.90
AM Peak Hr													7:15	7:00	11:00	7:15	7:00	11:00	10:30	10:30	11:00
PM Peak Vol										2,368	1,018	1,355	2,314	1,059	1,344	2,353	1,067	1,357	1,763	947	880
PM Peak Fct										0.94	0.92	0.90	0.98	0.97	0.96	0.96	0.97	0.93	0.94	0.91	0.96
PM Peak Hr										16:30	16:15	16:30	16:30	15:00	16:45	16:30	15:00	16:30	16:30	16:30	15:30
Seasonal Fct										0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
Daily Fct										1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct										0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Collected by: NDOT
Created 06/05/2013 1:12:56PM

ROAD AADT 22,790 **S AADT 11,906** **N AADT 10,884**

Nevada Department of Transportation

Daily Volume from 05/08/2013 through 05/15/2013

Site Names: 0310538, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 120ft S of 7th St

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/12/2013			Mon 05/13/2013			Tue 05/14/2013			Wed 05/15/2013			Thu 05/16/2013			Fri 05/17/2013			Sat 05/18/2013		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	414	189	225	215	89	126	188	75	113	233	103	130									
01:00	284	112	172	110	51	59	134	60	74	139	58	81									
02:00	191	83	108	79	30	49	89	40	49	107	47	60									
03:00	149	61	88	94	59	35	83	54	29	93	52	41									
04:00	110	56	54	171	125	46	185	140	45	153	111	42									
05:00	166	114	52	404	302	102	418	324	94	428	327	101									
06:00	285	187	98	869	666	203	897	674	223	933	711	222									
07:00	595	375	220	1,766	1,177	589	1,849	1,279	570	1,852	1,263	589									
08:00	975	600	375	1,668	1,003	665	1,677	1,027	650	1,736	1,096	640									
09:00	1,370	826	544	1,409	852	557	1,563	938	625	1,500	933	567									
10:00	1,535	848	687	1,292	703	589	1,392	813	579	1,367	764	603									
11:00	1,666	959	707	1,548	830	718	1,416	784	632												
12:00	1,659	882	777	1,586	866	720	1,503	807	696												
13:00	1,531	826	705	1,571	811	760	1,464	752	712												
14:00	1,464	750	714	1,780	881	899	1,721	801	920												
15:00	1,480	757	723	2,104	1,068	1,036	2,062	975	1,087												
16:00	1,554	782	772	2,133	913	1,220	2,084	895	1,189												
17:00	1,345	698	647	2,186	900	1,286	2,164	864	1,300												
18:00	1,268	566	702	1,576	667	909	1,693	786	907												
19:00	1,096	488	608	1,207	562	645	1,251	547	704												
20:00	1,098	478	620	1,095	505	590	1,094	510	584												
21:00	809	360	449	824	360	464	918	403	515												
22:00	574	231	343	539	225	314	608	247	361												
23:00	352	153	199	365	177	188	451	206	245												
Volume	21,970	11,381	10,589	26,591	13,822	12,769	26,904	14,001	12,903	8,541	5,465	3,076									
AM Peak Vol	1,684	959	744	1,818	1,184	718	1,849	1,279	666												
AM Peak Fct	0.98	0.96	0.94	0.91	0.90	0.84	0.88	0.84	0.84												
AM Peak Hr	10:30	11:00	10:30	7:15	7:15	11:00	7:00	7:00	8:15												
PM Peak Vol	1,659	882	820	2,239	1,068	1,346	2,164	975	1,300												
PM Peak Fct	0.89	0.83	0.90	0.92	0.94	0.89	0.96	0.92	0.96												
PM Peak Hr	12:00	12:00	15:45	16:30	15:00	16:30	17:00	15:00	17:00												
Seasonal Fct	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952									
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000									
Axle Fct	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451	0.451									
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000									

Collected by: NDOT
Created 06/05/2013 1:12:56PM

ROAD AADT 22,790 **S AADT 11,906** **N AADT 10,884**

Nevada Department of Transportation

Daily Volume from 05/17/2011 through 05/24/2011

Site Names: 310539, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 200ft N of W 7th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/15/2011			Mon 05/16/2011			Tue 05/17/2011			Wed 05/18/2011			Thu 05/19/2011			Fri 05/20/2011			Sat 05/21/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00										103	28	75	103	29	74	121	41	80	224	77	147
01:00										58	23	35	64	18	46	78	27	51	151	61	90
02:00										56	15	41	55	19	36	82	30	52	122	41	81
03:00										44	23	21	46	24	22	67	36	31	80	37	43
04:00										92	65	27	86	66	20	89	60	29	79	42	37
05:00										184	132	52	193	147	46	188	145	43	102	72	30
06:00										445	355	90	467	365	102	440	346	94	213	150	63
07:00										996	714	282	1,030	755	275	996	703	293	423	266	157
08:00										930	648	282	910	603	307	900	631	269	532	354	178
09:00										755	479	276	758	496	262	754	476	278	740	460	280
10:00										678	378	300	596	331	265	686	379	307	933	529	404
11:00										682	344	338	703	365	338	749	396	353	923	522	401
12:00										792	412	380	815	411	404	903	473	430	893	449	444
13:00							740	379	361	825	430	395	795	383	412	877	423	454	891	460	431
14:00							893	424	469	983	471	512	976	460	516	1,022	467	555	868	432	436
15:00							1,165	533	632	1,091	512	579	1,183	559	624	1,271	604	667	935	467	468
16:00							1,091	451	640	1,159	469	690	1,213	484	729	1,212	517	695	880	410	470
17:00							1,364	509	855	1,300	499	801	1,265	480	785	1,323	538	785	991	466	525
18:00							1,024	390	634	1,014	417	597	1,038	430	608	1,014	426	588	802	372	430
19:00							781	364	417	743	299	444	764	303	461	806	372	434	672	323	349
20:00							677	293	384	664	272	392	724	289	435	705	287	418	577	262	315
21:00							449	155	294	517	201	316	520	212	308	623	249	374	523	201	322
22:00							342	120	222	336	117	219	320	146	174	472	183	289	444	184	260
23:00							197	73	124	172	62	110	209	88	121	337	130	207	324	124	200
Volume							8,723	3,691	5,032	14,619	7,365	7,254	14,833	7,463	7,370	15,715	7,939	7,776	13,322	6,761	6,561
AM Peak Vol										996	714	338	1,030	755	338	996	703	353	933	529	404
AM Peak Fct										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AM Peak Hr										7:00	7:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00	10:00	10:00	10:00
PM Peak Vol										1,300	512	801	1,265	559	785	1,323	604	785	991	467	525
PM Peak Fct										1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PM Peak Hr										17:00	15:00	17:00	17:00	15:00	17:00	17:00	15:00	17:00	17:00	15:00	17:00
Seasonal Fct							0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963
Daily Fct							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Axle Fct							0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Pulse Fct							2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Nevada Department of Transportation

Daily Volume from 05/17/2011 through 05/24/2011

Site Names: 310539, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 200ft N of W 7th St

Seasonal Factor Type: 01
Daily Factor Type: 01
Axle Factor Type:
Growth Factor Type: 07

	Sun 05/22/2011			Mon 05/23/2011			Tue 05/24/2011			Wed 05/25/2011			Thu 05/26/2011			Fri 05/27/2011			Sat 05/28/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	209	75	134	94	30	64	110	35	75												
01:00	124	50	74	58	21	37	55	22	33												
02:00	119	45	74	50	18	32	42	19	23												
03:00	104	34	70	37	22	15	35	16	19												
04:00	83	37	46	81	57	24	77	56	21												
05:00	82	53	29	180	136	44	174	135	39												
06:00	167	112	55	466	372	94	474	380	94												
07:00	271	156	115	1,048	750	298	1,047	768	279												
08:00	387	243	144	925	627	298	890	590	300												
09:00	662	386	276	754	456	298	779	471	308												
10:00	790	467	323	682	384	298	625	357	268												
11:00	836	459	377	668	344	324	710	384	326												
12:00	953	542	411	806	428	378	743	386	357												
13:00	915	478	437	756	364	392															
14:00	839	428	411	969	450	519															
15:00	807	387	420	1,175	562	613															
16:00	890	439	451	1,173	489	684															
17:00	880	401	479	1,299	468	831															
18:00	735	332	403	987	384	603															
19:00	572	261	311	723	312	411															
20:00	528	220	308	586	226	360															
21:00	406	145	261	430	165	265															
22:00	272	99	173	285	120	165															
23:00	176	66	110	177	62	115															
Volume	11,807	5,915	5,892	14,409	7,247	7,162	5,761	3,619	2,142												
AM Peak Vol	836	467	377	1,048	750	324	1,047	768	326												
AM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
AM Peak Hr	11:00	10:00	11:00	7:00	7:00	11:00	7:00	7:00	11:00												
PM Peak Vol	953	542	479	1,299	562	831															
PM Peak Fct	1.00	1.00	1.00	1.00	1.00	1.00															
PM Peak Hr	12:00	12:00	17:00	17:00	15:00	17:00															
Seasonal Fct	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963	0.963												
Daily Fct	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000												
Axle Fct	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500												
Pulse Fct	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000												

Nevada Department of Transportation

Daily Volume from 05/31/2012 through 06/07/2012

Site Names: 0310541, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 300ft N of Coleman Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 05/27/2012			Mon 05/28/2012			Tue 05/29/2012			Wed 05/30/2012			Thu 05/31/2012			Fri 06/01/2012			Sat 06/02/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00																56			61		
01:00																27			49		
02:00																18			34		
03:00																9			22		
04:00																23			24		
05:00																41			28		
06:00																129			59		
07:00																308			110		
08:00																269			168		
09:00																263			196		
10:00																231			214		
11:00																286			243		
12:00													250			270			289		
13:00													262			260			250		
14:00													258			300			260		
15:00													332			393			260		
16:00													359			377			253		
17:00													512			399			262		
18:00													345			295			242		
19:00													234			235			174		
20:00													209			185			145		
21:00													153			170			165		
22:00													99			134			108		
23:00													71			102			103		
Volume													3,084			4,780			3,719		
AM Peak Vol																311			243		
AM Peak Fct																0.93			0.86		
AM Peak Hr																7:15			11:00		
PM Peak Vol													550			399			290		
PM Peak Fct													0.91			0.93			0.90		
PM Peak Hr													17:15			17:00			12:30		
Seasonal Fct													0.983			0.954			0.954		
Daily Fct													0.914			0.887			1.089		
Axle Fct													0.500			0.500			0.500		
Pulse Fct													2.000			2.000			2.000		

Collected by: NDOT
Created 07/12/2012 9:28:00AM

ROAD AADT 3,993 **S AADT 0** **N AADT 0**

Nevada Department of Transportation

Daily Volume from 05/31/2012 through 06/07/2012

Site Names: 0310541, , , Keystone Av
County: Washoe
Funct. Class: Urban Minor Arterial
Location: 300ft N of Coleman Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 06/03/2012			Mon 06/04/2012			Tue 06/05/2012			Wed 06/06/2012			Thu 06/07/2012			Fri 06/08/2012			Sat 06/09/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	66			29			21			30			36								
01:00	48			22			17			19			18								
02:00	26			9			11			11			8								
03:00	20			7			9			8			7								
04:00	23			16			14			13			19								
05:00	24			42			48			39			40								
06:00	34			139			124			125			145								
07:00	78			301			286			343			261								
08:00	134			255			268			256			220								
09:00	200			244			240			285			211								
10:00	234			222			202			210			237								
11:00	241			263			241			289											
12:00	211			301			266			234											
13:00	251			246			224			304											
14:00	207			246			370			273											
15:00	233			286			399			261											
16:00	259			307			349			343											
17:00	259			315			352			382											
18:00	186			227			259			315											
19:00	160			197			191			225											
20:00	165			139			182			218											
21:00	121			102			136			160											
22:00	77			74			90			107											
23:00	37			46			58			65											
Volume	3,294			4,035			4,357			4,515			1,202								
AM Peak Vol	251			301			289			346											
AM Peak Fct	0.92			0.87			0.79			0.79											
AM Peak Hr	10:45			7:00			7:15			7:15											
PM Peak Vol	265			343			423			382											
PM Peak Fct	0.88			0.78			0.94			0.90											
PM Peak Hr	16:15			16:30			14:30			17:00											
Seasonal Fct	0.954			0.954			0.954			0.954			0.954								
Daily Fct	1.295			0.987			0.961			0.948			0.936								
Axle Fct	0.500			0.500			0.500			0.500			0.500								
Pulse Fct	2.000			2.000			2.000			2.000			2.000								

Collected by: NDOT
Created 07/12/2012 9:28:00AM

ROAD AADT 3,993 **S AADT 0** **N AADT 0**

Nevada Department of Transportation

Daily Volume from 04/18/2013 through 04/25/2013

Site Names: 0310840, , , California Av
County: Washoe
Funct. Class: Urban Collector
Location: 200ft W of Mayberry Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 04/14/2013			Mon 04/15/2013			Tue 04/16/2013			Wed 04/17/2013			Thu 04/18/2013			Fri 04/19/2013			Sat 04/20/2013		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00																9			8		
01:00																4			13		
02:00																6			5		
03:00																2			4		
04:00																0			7		
05:00																12			4		
06:00																64			15		
07:00																175			38		
08:00																167			74		
09:00													85			96			90		
10:00													76			101			125		
11:00													94			113			121		
12:00													111			109			118		
13:00													121			114			126		
14:00													146			153			104		
15:00													153			154			106		
16:00													139			130			86		
17:00													165			141			73		
18:00													100			102			78		
19:00													90			69			51		
20:00													57			62			57		
21:00													40			50			41		
22:00													14			35			33		
23:00													15			19			24		
Volume													1,406			1,887			1,401		
AM Peak Vol																180			128		
AM Peak Fct																0.69			0.94		
AM Peak Hr																8:15			10:30		
PM Peak Vol													165			165			137		
PM Peak Fct													0.83			0.90			0.86		
PM Peak Hr													17:00			14:30			12:45		
Seasonal Fct													0.997			0.997			0.997		
Daily Fct													1.000			1.000			1.000		
Axle Fct													0.452			0.452			0.452		
Pulse Fct													2.000			2.000			2.000		

Collected by: NDOT
Created 05/21/2013 8:58:07AM

ROAD AADT 1,558 **W AADT 0** **E AADT 0**

Nevada Department of Transportation

Daily Volume from 04/18/2013 through 04/25/2013

Site Names: 0310840, , , California Av
County: Washoe
Funct. Class: Urban Collector
Location: 200ft W of Mayberry Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 04/21/2013			Mon 04/22/2013			Tue 04/23/2013			Wed 04/24/2013			Thu 04/25/2013			Fri 04/26/2013			Sat 04/27/2013		
	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E	ROAD	W	E
00:00	14			4			4			6			6								
01:00	10			1			6			7			7								
02:00	4			1			3			3			9								
03:00	4			1			1			1			4								
04:00	6			4			4			1			0								
05:00	2			15			11			11			10								
06:00	16			56			47			58			60								
07:00	20			180			197			188			142								
08:00	42			184			180			161											
09:00	62			107			101			86											
10:00	111			88			90			74											
11:00	131			112			112			106											
12:00	148			108			114			108											
13:00	158			107			100			165											
14:00	161			155			165			127											
15:00	121			154			149			110											
16:00	153			119			121			121											
17:00	118			143			173			139											
18:00	90			97			100			116											
19:00	75			77			80			89											
20:00	53			62			33			71											
21:00	20			30			40			43											
22:00	6			16			12			26											
23:00	11			5			10			5											
Volume	1,536			1,826			1,853			1,822			238								
AM Peak Vol	131			190			202			188											
AM Peak Fct	0.89			0.78			0.63			0.66											
AM Peak Hr	11:00			8:15			7:15			7:00											
PM Peak Vol	173			171			173			172											
PM Peak Fct	0.85			0.93			0.76			0.78											
PM Peak Hr	14:15			14:30			17:00			13:15											
Seasonal Fct	0.997			0.997			0.997			0.997			0.997								
Daily Fct	1.000			1.000			1.000			1.000			1.000								
Axle Fct	0.452			0.452			0.452			0.452			0.452								
Pulse Fct	2.000			2.000			2.000			2.000			2.000								

Collected by: NDOT
Created 05/21/2013 8:58:07AM

ROAD AADT 1,558 **W AADT 0** **E AADT 0**

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310912, , , Booth St
County: Washoe
Funct. Class: Urban Collector
Location: 50ft S of Idlewild Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/08/2012			Mon 07/09/2012			Tue 07/10/2012			Wed 07/11/2012			Thu 07/12/2012			Fri 07/13/2012			Sat 07/14/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00													27			36			48		
01:00													19			18			21		
02:00													12			16			18		
03:00													6			20			14		
04:00													9			10			8		
05:00													21			28			10		
06:00													91			77			33		
07:00													112			79			87		
08:00													122			103			137		
09:00										145			133			142			182		
10:00										147			164			140			217		
11:00										186			203			175			270		
12:00										206			172			215			208		
13:00										179			220			180			211		
14:00										188			221			211			192		
15:00										209			219			225			203		
16:00										216			226			215			193		
17:00										250			240			264			188		
18:00										204			215			242			183		
19:00										171			194			211			134		
20:00										139			171			155			118		
21:00										133			115			128			76		
22:00										60			58			63			86		
23:00										44			30			55			48		
Volume										2,477			3,000			3,008			2,885		
AM Peak Vol													203			175			273		
AM Peak Fct													0.88			0.84			0.90		
AM Peak Hr													11:00			11:00			10:45		
PM Peak Vol										265			249			264			223		
PM Peak Fct										0.86			0.89			0.87			0.96		
PM Peak Hr										17:15			17:15			17:00			12:30		
Seasonal Fct										0.984			0.984			0.984			0.984		
Daily Fct										0.938			0.922			0.875			1.107		
Axle Fct										0.500			0.500			0.500			0.500		
Pulse Fct										2.000			2.000			2.000			2.000		

Collected by: NDOT
Created 07/26/2012 8:51:22AM

ROAD AADT 2,890 **S AADT 0** **N AADT 0**

Nevada Department of Transportation

Daily Volume from 07/11/2012 through 07/18/2012

Site Names: 0310912, , , Booth St
County: Washoe
Funct. Class: Urban Collector
Location: 50ft S of Idlewild Dr

Seasonal Factor Group: 01
Daily Factor Group: 01
Axle Factor Group: 07
Growth Factor Group: 07

	Sun 07/15/2012			Mon 07/16/2012			Tue 07/17/2012			Wed 07/18/2012			Thu 07/19/2012			Fri 07/20/2012			Sat 07/21/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00	37			14			20			12											
01:00	34			21			18			7											
02:00	12			10			15			16											
03:00	19			4			8			12											
04:00	10			4			12			8											
05:00	20			27			37			31											
06:00	34			84			82			95											
07:00	59			120			120			117											
08:00	90			129			119														
09:00	166			142			133														
10:00	170			169			155														
11:00	233			177			186														
12:00	217			191			224														
13:00	243			174			187														
14:00	228			158			200														
15:00	189			179			241														
16:00	275			186			256														
17:00	191			242			254														
18:00	189			216			194														
19:00	138			135			184														
20:00	132			126			138														
21:00	80			68			98														
22:00	49			48			54														
23:00	38			29			45														
Volume	2,853			2,653			2,980			298											
AM Peak Vol	233			177			186														
AM Peak Fct	0.72			0.84			0.88														
AM Peak Hr	11:00			11:00			11:00														
PM Peak Vol	275			248			260														
PM Peak Fct	0.88			0.90			0.90														
PM Peak Hr	16:00			17:15			16:30														
Seasonal Fct	0.984			0.984			0.984			0.984											
Daily Fct	1.290			1.036			0.945			0.938											
Axle Fct	0.500			0.500			0.500			0.500											
Pulse Fct	2.000			2.000			2.000			2.000											

Collected by: NDOT
Created 07/26/2012 8:51:22AM

ROAD AADT 2,890 **S AADT 0** **N AADT 0**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

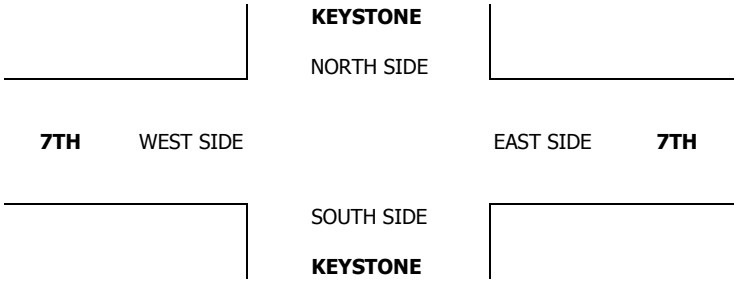
DATE:	LOCATION:	RENO	PROJECT #:	NV13-1101-0330-001
10/30/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	1
WEDNESDAY	EAST & WEST:	7TH	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

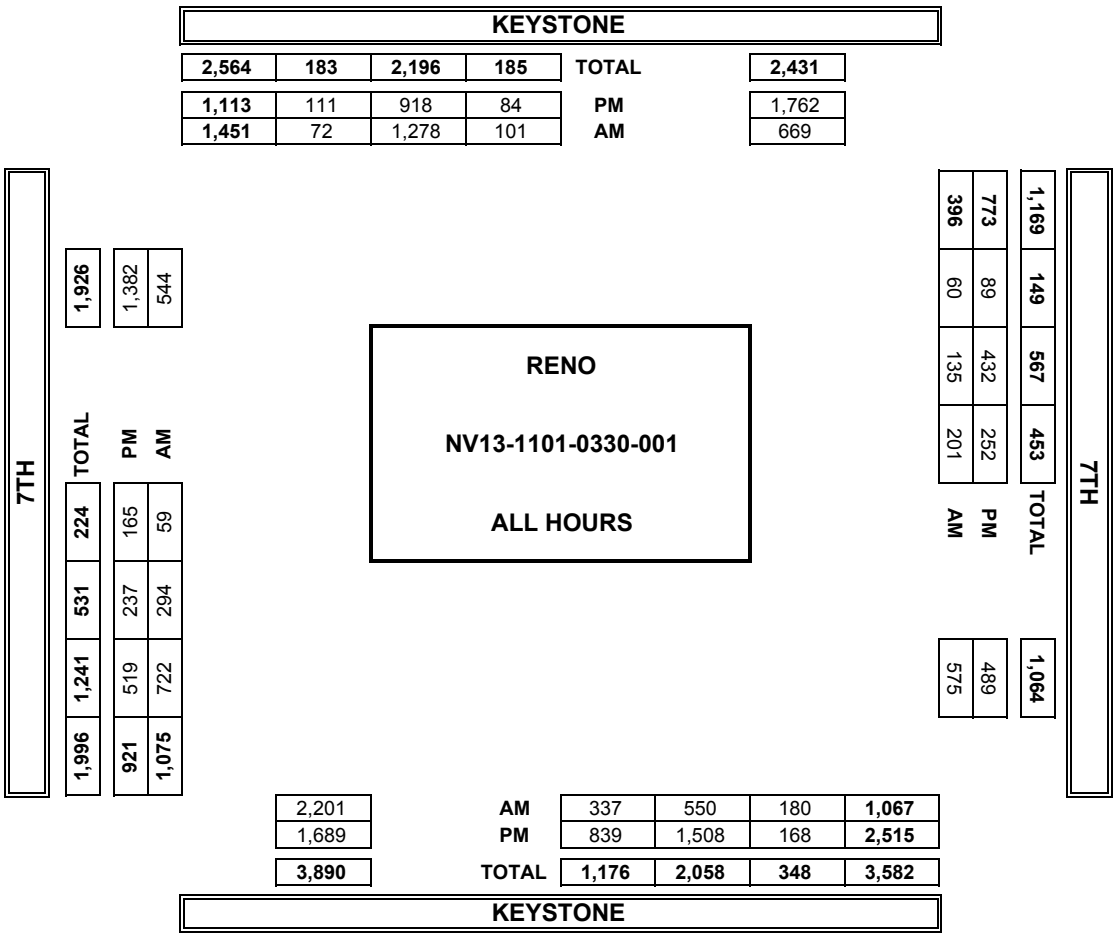
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND 7TH			WESTBOUND 7TH				U-TURNS				
	LANES:	NL 2	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 1	WL 1	WT 2	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	25	69	14	7	101	7	5	22	66	14	10	7	347	0	0	0	0	0
	7:15 AM	35	78	13	10	210	8	8	24	99	16	14	5	520	0	0	0	0	0
	7:30 AM	37	68	25	16	184	8	6	51	128	34	18	7	582	0	0	0	0	0
	7:45 AM	40	63	28	14	189	11	8	52	99	21	17	7	549	0	0	0	0	0
	8:00 AM	34	66	20	9	137	11	6	37	90	23	18	2	453	0	0	0	0	0
	8:15 AM	53	83	21	9	159	7	5	31	80	30	19	11	508	0	0	0	0	0
	8:30 AM	68	59	31	17	142	8	15	35	86	32	17	5	515	0	0	0	0	0
	8:45 AM	45	64	28	19	156	12	6	42	74	31	22	16	515	0	0	0	0	0
	VOLUMES	337	550	180	101	1,278	72	59	294	722	201	135	60	3,989	0	0	0	0	0
	APPROACH %	32%	52%	17%	7%	88%	5%	5%	27%	67%	51%	34%	15%						
	APP/DEPART	1,067	/	669	1,451	/	2,201	1,075	/	575	396	/	544	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	146	275	86	49	720	38	28	164	416	94	67	21	2,104					
	APPROACH %	29%	54%	17%	6%	89%	5%	5%	27%	68%	52%	37%	12%						
	PEAK HR FACTOR		0.968			0.885			0.822			0.771		0.904					
	APP/DEPART	507	/	324	807	/	1,230	608	/	299	182	/	251	0					
PM	4:00 PM	44	145	16	16	105	12	24	36	59	28	46	8	539	0	0	0	0	0
	4:15 PM	104	161	24	5	96	14	19	23	68	32	50	15	611	0	0	0	0	0
	4:30 PM	110	181	21	7	105	15	21	39	75	18	47	18	657	0	0	0	0	0
	4:45 PM	102	170	23	13	106	17	22	27	75	36	51	12	654	0	0	0	0	0
	5:00 PM	127	221	26	10	130	11	27	26	48	30	55	12	723	0	0	0	0	0
	5:15 PM	115	213	29	7	131	22	15	27	53	36	71	9	728	0	0	0	0	0
	5:30 PM	123	220	17	15	124	9	26	32	72	37	47	8	730	0	0	0	0	0
	5:45 PM	114	197	12	11	121	11	11	27	69	35	65	7	680	0	0	0	0	0
	VOLUMES	839	1,508	168	84	918	111	165	237	519	252	432	89	5,322	0	0	0	0	0
	APPROACH %	33%	60%	7%	8%	82%	10%	18%	26%	56%	33%	56%	12%						
	APP/DEPART	2,515	/	1,762	1,113	/	1,689	921	/	489	773	/	1,382	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	479	851	84	43	506	53	79	112	242	138	238	36	2,861					
	APPROACH %	34%	60%	6%	7%	84%	9%	18%	26%	56%	33%	58%	9%						
	PEAK HR FACTOR		0.945			0.941			0.833			0.888		0.980					
	APP/DEPART	1,414	/	966	602	/	886	433	/	239	412	/	770	0					

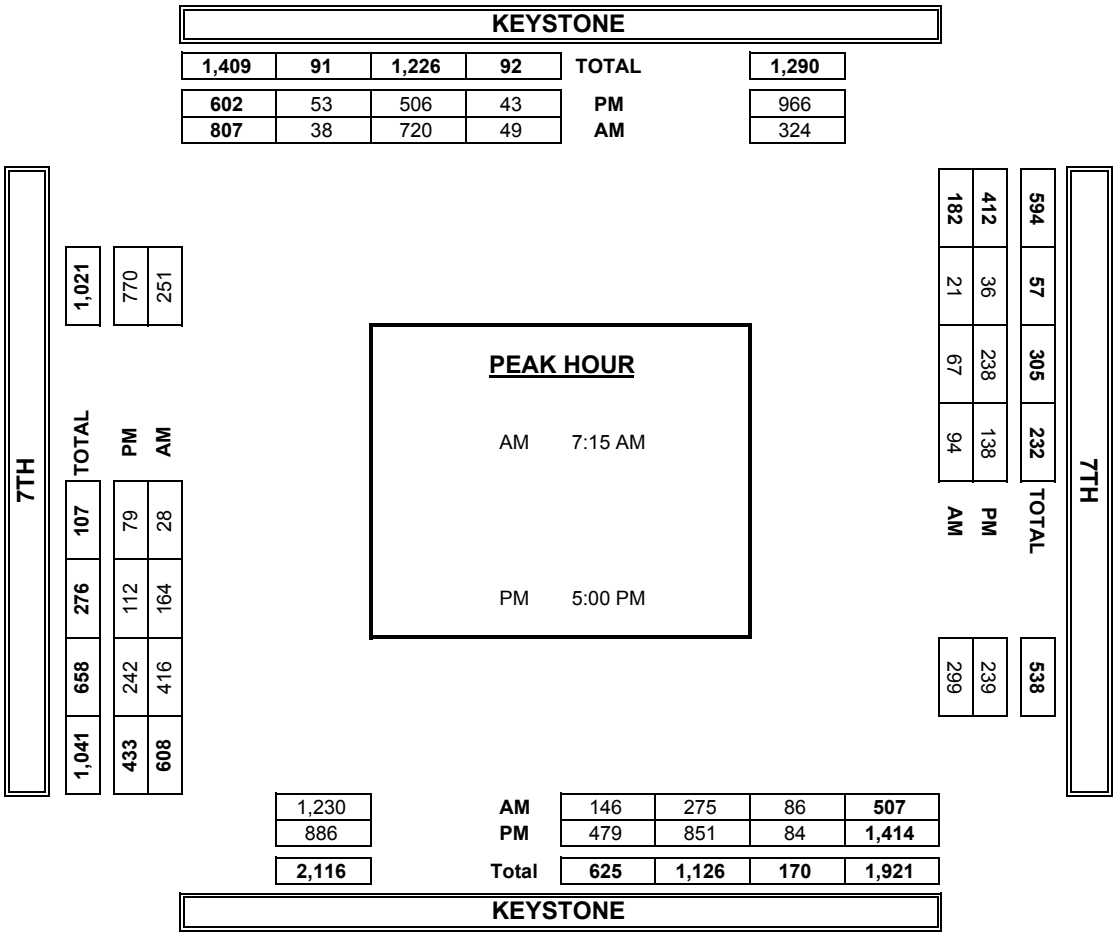


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	1
WEDNESDAY	EAST & WEST:	80 INTERCHANGE	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND 80 INTERCHANGE			WESTBOUND 80 INTERCHANGE				U-TURNS				
	LANES:	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 2	ET X	ER 1	WL 2	WT X	WR 2	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	31	42	118	150	64	19	11	0	67	98	0	62	662	2	0	0	0	2
	7:15 AM	42	45	148	206	98	18	18	0	73	116	0	70	834	2	0	0	1	3
	7:30 AM	28	50	176	218	80	11	28	0	60	90	0	91	832	1	1	1	0	3
	7:45 AM	24	56	98	168	82	20	18	0	85	114	0	68	733	3	0	1	0	4
	8:00 AM	37	35	101	142	73	7	15	0	48	106	0	104	668	2	0	0	6	8
	8:15 AM	37	41	125	143	78	13	14	0	52	104	0	78	685	1	0	1	0	2
	8:30 AM	33	39	138	171	79	18	11	0	60	120	0	85	754	1	0	0	1	2
	8:45 AM	36	52	106	169	82	17	9	0	64	104	0	98	737	0	0	0	1	1
	VOLUMES	268	360	1,010	1,367	636	123	124	0	509	852	0	656	5,905	12	1	3	9	25
	APPROACH %	16%	22%	62%	64%	30%	6%	20%	0%	80%	56%	0%	44%						
	APP/DEPART	1,638	/	1,140	2,126	/	1,997	633	/	2,377	1,508	/	391	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	131	186	523	734	333	56	79	0	266	426	0	333	3,067					
	APPROACH %	16%	22%	62%	65%	30%	5%	23%	0%	77%	56%	0%	44%						
	PEAK HR FACTOR		0.827			0.872			0.837			0.904		0.919					
	APP/DEPART	840	/	598	1,123	/	1,025	345	/	1,257	759	/	187	0					
PM	4:00 PM	58	91	136	87	71	28	21	0	51	119	0	163	825	0	0	0	3	3
	4:15 PM	84	77	127	114	76	15	20	0	49	154	0	147	863	1	0	1	2	4
	4:30 PM	62	78	150	97	61	16	27	0	43	133	0	192	859	1	0	0	0	1
	4:45 PM	67	94	168	115	83	31	25	0	49	135	0	193	960	3	0	0	1	4
	5:00 PM	103	111	171	113	82	28	20	0	51	157	0	241	1,077	1	0	1	1	3
	5:15 PM	108	132	145	108	85	28	17	0	51	150	0	239	1,063	1	0	1	0	2
	5:30 PM	89	118	125	107	71	33	22	0	40	166	0	172	943	2	0	1	0	3
	5:45 PM	78	94	113	99	90	34	18	0	51	146	0	175	898	2	0	1	0	3
	VOLUMES	649	795	1,135	840	619	213	170	0	385	1,160	0	1,522	7,488	11	0	5	7	23
	APPROACH %	25%	31%	44%	50%	37%	13%	31%	0%	69%	43%	0%	57%						
	APP/DEPART	2,579	/	2,487	1,672	/	2,164	555	/	1,975	2,682	/	862	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	367	455	609	443	321	120	84	0	191	608	0	845	4,043					
	APPROACH %	26%	32%	43%	50%	36%	14%	31%	0%	69%	42%	0%	58%						
	PEAK HR FACTOR		0.929			0.965			0.929			0.913		0.938					
	APP/DEPART	1,431	/	1,384	884	/	1,120	275	/	1,052	1,453	/	487	0					

KEYSTONE

NORTH SIDE

80 INTERCHANGE WEST SIDE EAST SIDE **80 INTERCHANGE**

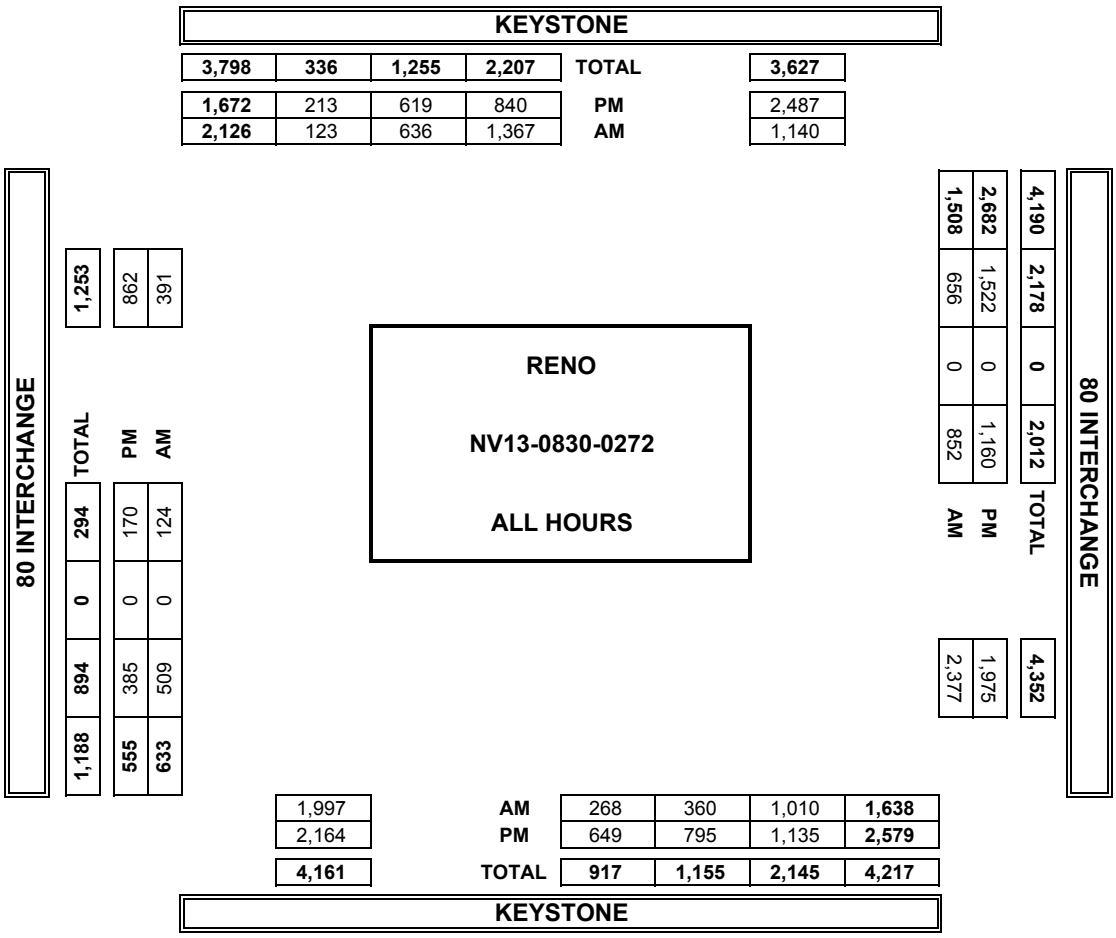
SOUTH SIDE

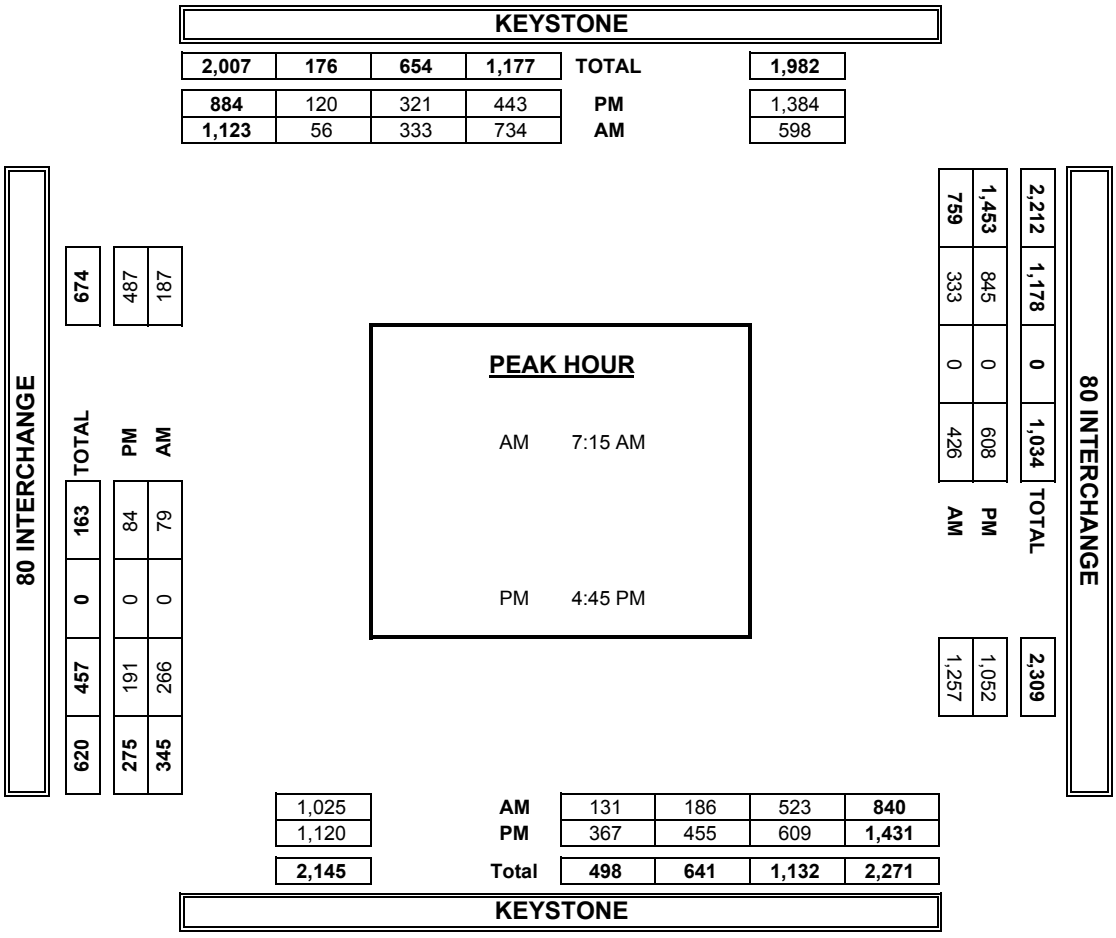
KEYSTONE

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-1101-0330-001
10/30/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	2
WEDNESDAY	EAST & WEST:	UNIVERSITY TERRACE	CONTROL:	2 WAY STOP EW

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND UNIVERSITY TERRACE			WESTBOUND UNIVERSITY TERRACE				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	5	86	2	5	161	1	0	0	10	1	0	3	274	0	0	0	0	0
	7:15 AM	8	68	9	9	209	1	2	2	29	0	1	2	340	0	0	0	0	0
	7:30 AM	11	80	7	13	194	2	1	0	10	2	2	1	323	0	0	0	0	0
	7:45 AM	12	59	3	6	180	4	1	2	6	2	1	0	276	0	0	0	0	0
	8:00 AM	2	54	8	9	137	1	1	1	6	4	0	2	225	0	0	0	0	0
	8:15 AM	15	73	5	8	158	0	3	2	10	3	0	0	277	0	0	0	0	0
	8:30 AM	5	63	4	13	170	2	1	2	12	4	5	2	283	0	0	0	0	0
	8:45 AM	5	69	8	5	133	4	2	4	10	3	1	4	248	0	0	0	0	0
	VOLUMES	63	552	46	68	1,342	15	11	13	93	19	10	14	2,246	0	0	0	0	0
	APPROACH %	10%	84%	7%	5%	94%	1%	9%	11%	79%	44%	23%	33%						
	APP/DEPART	661	/	577	1,425	/	1,454	117	/	127	43	/	88	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	36	293	21	33	744	8	4	4	55	5	4	6	1,213					
	APPROACH %	10%	84%	6%	4%	95%	1%	6%	6%	87%	33%	27%	40%						
	PEAK HR FACTOR		0.893			0.896			0.477			0.750		0.892					
	APP/DEPART	350	/	303	785	/	804	63	/	58	15	/	48	0					
PM	4:00 PM	16	159	3	7	118	2	1	2	13	6	3	3	333	0	0	0	0	0
	4:15 PM	16	165	11	8	95	0	2	1	16	9	2	0	325	0	0	0	0	0
	4:30 PM	12	198	4	2	114	0	3	1	5	6	0	5	350	0	0	0	0	0
	4:45 PM	17	166	12	5	125	5	0	1	10	5	1	8	355	0	0	0	0	0
	5:00 PM	14	237	3	4	118	1	4	2	8	7	0	7	405	0	0	0	0	0
	5:15 PM	27	209	9	3	139	1	4	0	8	3	1	2	406	0	0	0	0	0
	5:30 PM	20	222	14	10	131	1	5	2	12	3	0	13	433	0	0	0	0	0
	5:45 PM	15	187	7	2	135	2	6	4	5	2	1	11	377	0	0	0	0	0
	VOLUMES	137	1,543	63	41	975	12	25	13	77	41	8	49	2,984	0	0	0	0	0
	APPROACH %	8%	89%	4%	4%	95%	1%	22%	11%	67%	42%	8%	50%						
	APP/DEPART	1,743	/	1,617	1,028	/	1,093	115	/	117	98	/	157	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	76	855	33	19	523	5	19	8	33	15	2	33	1,621					
	APPROACH %	8%	89%	3%	3%	96%	1%	32%	13%	55%	30%	4%	66%						
	PEAK HR FACTOR		0.941			0.956			0.789			0.781		0.936					
	APP/DEPART	964	/	907	547	/	571	60	/	60	50	/	83	0					

KEYSTONE

NORTH SIDE

UNIVERSITY TERRACE WEST SIDE EAST SIDE **UNIVERSITY TERRACE**

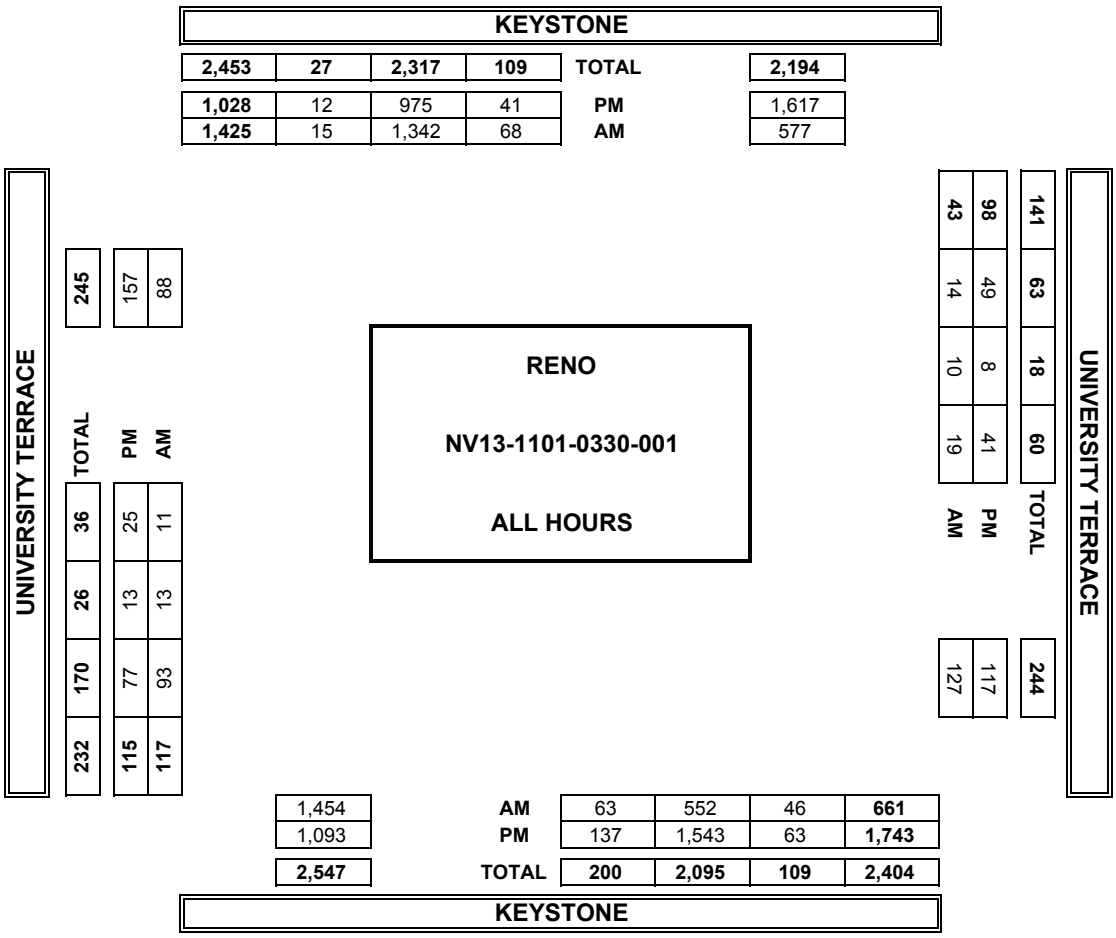
SOUTH SIDE

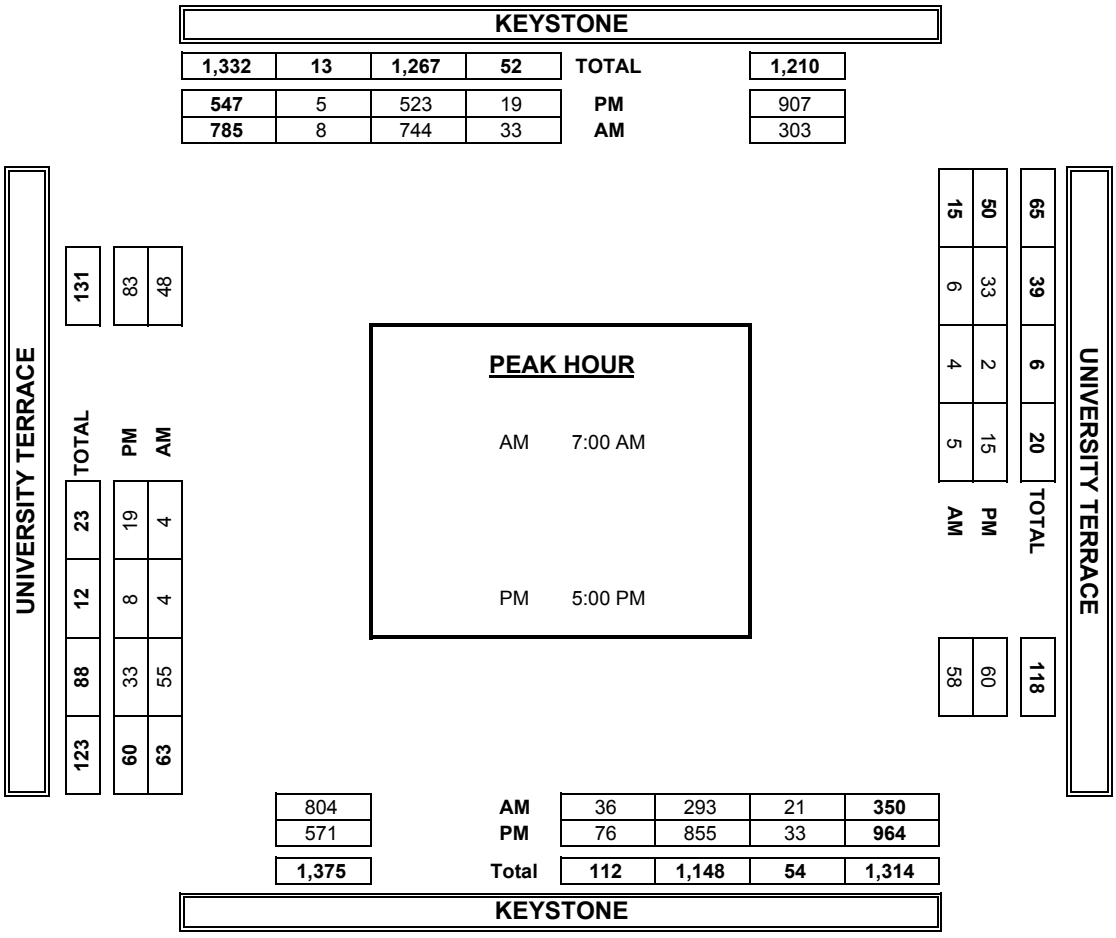
KEYSTONE

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	2
WEDNESDAY	EAST & WEST:	WEST 5TH	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND WEST 5TH			WESTBOUND WEST 5TH				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	2	164	5	12	210	2	4	2	0	1	1	22	425	0	0	0	0	0
	7:15 AM	0	210	5	21	261	7	5	3	1	0	1	18	532	0	1	0	0	1
	7:30 AM	6	227	9	24	181	8	12	4	2	2	5	18	498	1	0	0	0	1
	7:45 AM	6	147	17	40	249	8	5	4	4	1	0	23	504	0	0	0	0	0
	8:00 AM	2	143	4	23	200	4	11	2	0	5	2	20	416	0	2	0	0	2
	8:15 AM	4	159	14	28	183	12	8	6	4	4	3	33	458	0	0	0	0	0
	8:30 AM	7	161	7	27	228	19	11	5	7	3	1	32	508	0	1	0	0	1
	8:45 AM	5	143	14	24	211	17	7	6	5	5	2	42	481	0	1	0	0	1
	VOLUMES	32	1,354	75	199	1,723	77	63	32	23	21	15	208	3,822	1	5	0	0	6
	APPROACH %	2%	93%	5%	10%	86%	4%	53%	27%	19%	9%	6%	85%						
	APP/DEPART	1,461	/	1,625	1,999	/	1,767	118	/	306	244	/	124	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	14	748	36	97	901	25	26	13	7	4	7	81	1,959					
	APPROACH %	2%	94%	5%	9%	88%	2%	57%	28%	15%	4%	8%	88%						
	PEAK HR FACTOR		0.824			0.861			0.639			0.920		0.921					
	APP/DEPART	798	/	855	1,023	/	912	46	/	146	92	/	46	0					
PM	4:00 PM	9	218	15	22	186	32	27	11	7	12	9	47	595	0	2	0	0	2
	4:15 PM	8	199	6	24	232	30	28	17	18	13	9	56	640	0	1	0	0	1
	4:30 PM	7	207	8	19	194	24	30	10	9	13	14	67	602	1	1	0	0	2
	4:45 PM	9	236	9	25	217	19	22	11	13	10	14	59	644	1	0	0	0	1
	5:00 PM	6	274	12	30	234	22	27	10	17	12	13	77	734	1	1	0	0	2
	5:15 PM	8	276	7	23	241	25	33	13	15	15	8	75	739	0	0	0	0	0
	5:30 PM	5	242	9	26	231	23	25	10	11	9	12	64	667	1	1	0	0	2
	5:45 PM	11	208	9	21	239	23	26	9	13	11	10	56	636	0	0	0	0	0
	VOLUMES	63	1,860	75	190	1,774	198	218	91	103	95	89	501	5,257	4	6	0	0	10
	APPROACH %	3%	93%	4%	9%	82%	9%	53%	22%	25%	14%	13%	73%						
	APP/DEPART	1,998	/	2,579	2,162	/	1,972	412	/	356	685	/	350	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	28	1,028	37	104	923	89	107	44	56	46	47	275	2,784					
	APPROACH %	3%	94%	3%	9%	83%	8%	52%	21%	27%	13%	13%	75%						
	PEAK HR FACTOR		0.936			0.965			0.848			0.902		0.942					
	APP/DEPART	1,093	/	1,410	1,116	/	1,025	207	/	185	368	/	164	0					

KEYSTONE

NORTH SIDE

WEST 5TH WEST SIDE EAST SIDE **WEST 5TH**

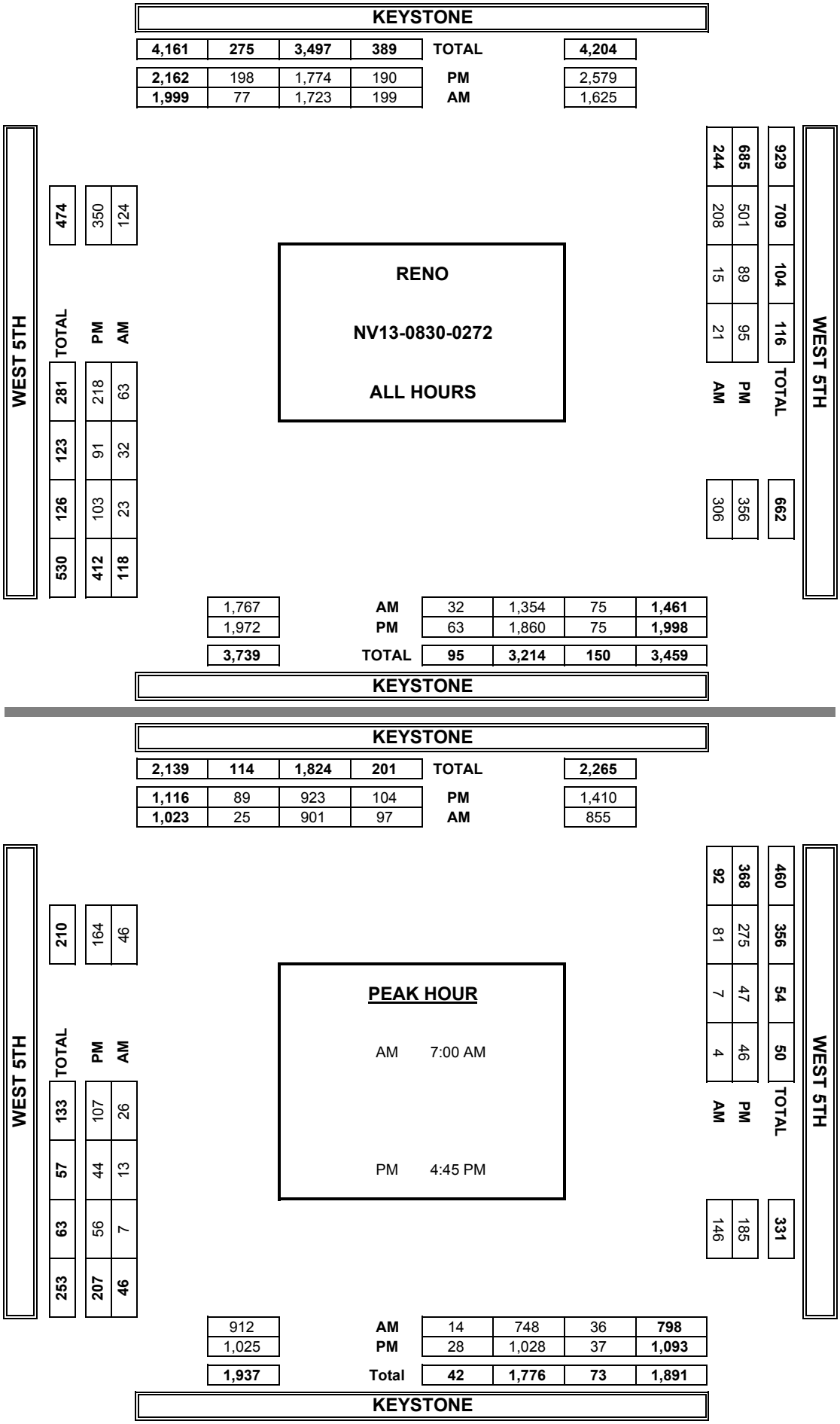
SOUTH SIDE

KEYSTONE

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

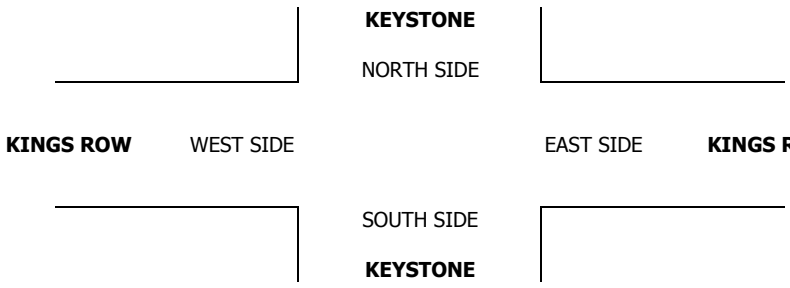
DATE:	LOCATION:	RENO	PROJECT #:	NV13-1101-0330-001
10/30/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	3
WEDNESDAY	EAST & WEST:	KINGS ROW	CONTROL:	1 WAY STOP EB

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

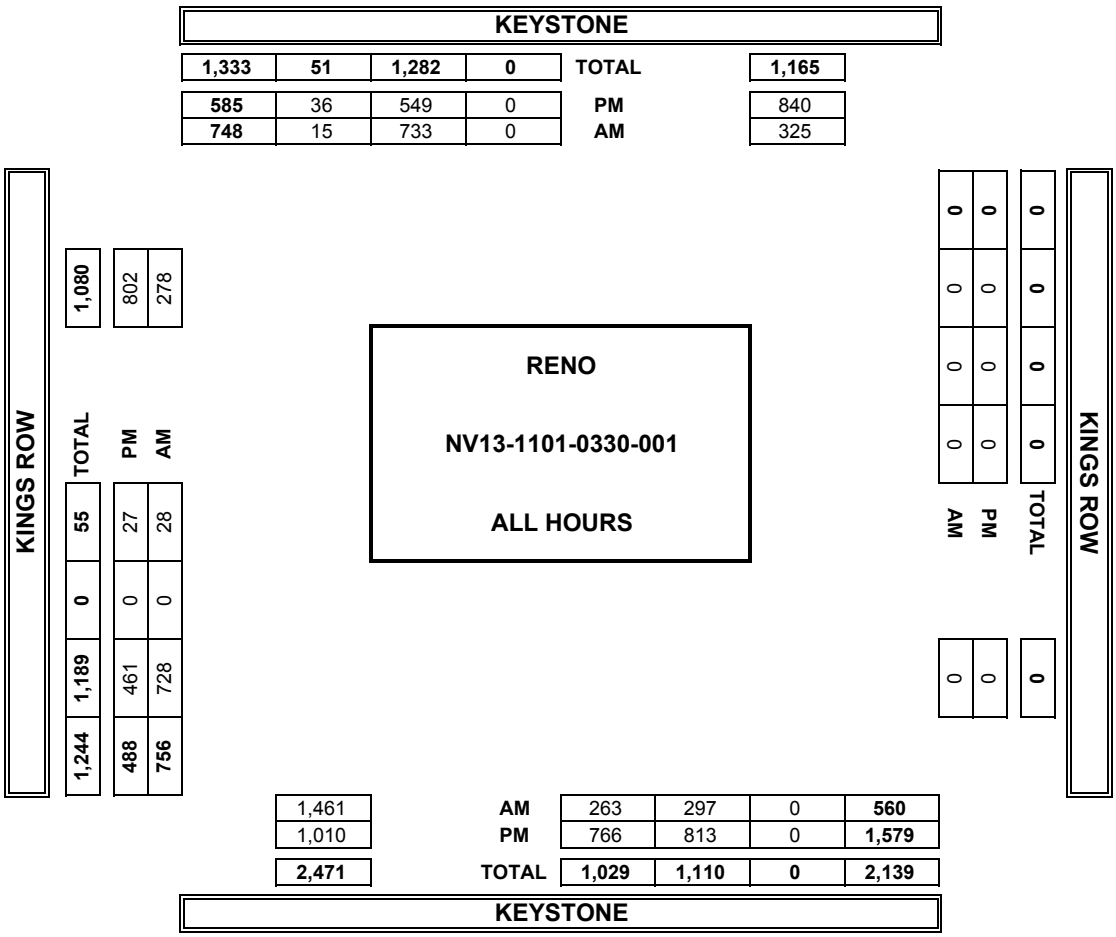
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND KINGS ROW			WESTBOUND KINGS ROW				U-TURNS				
	LANES:	NL 1	NT 2	NR X	SL X	ST 2	SR 0	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	33	38	0	0	88	2	1	0	71	0	0	0	233	0	0	0	0	0
	7:15 AM	35	34	0	0	106	0	2	0	101	0	0	0	278	0	0	0	0	0
	7:30 AM	22	55	0	0	97	2	3	0	98	0	0	0	277	0	0	0	0	0
	7:45 AM	27	50	0	0	110	1	3	0	103	0	0	0	294	0	0	0	0	0
	8:00 AM	40	22	0	0	82	1	4	0	91	0	0	0	240	0	0	0	0	0
	8:15 AM	42	25	0	0	71	3	1	0	82	0	0	0	224	0	0	0	0	0
	8:30 AM	36	31	0	0	86	3	4	0	84	0	0	0	244	0	0	0	0	0
	8:45 AM	28	42	0	0	93	3	10	0	98	0	0	0	274	0	0	0	0	0
	VOLUMES	263	297	0	0	733	15	28	0	728	0	0	0	2,064	0	0	0	0	0
	APPROACH %	47%	53%	0%	0%	98%	2%	4%	0%	96%	0%	0%	0%						
	APP/DEPART	560	/	325	748	/	1,461	756	/	0	0	/	278	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	124	161	0	0	395	4	12	0	393	0	0	0	1,089					
	APPROACH %	44%	56%	0%	0%	99%	1%	3%	0%	97%	0%	0%	0%						
	PEAK HR FACTOR		0.925			0.899			0.955			0.000		0.926					
	APP/DEPART	285	/	173	399	/	788	405	/	0	0	/	128	0					
PM	4:00 PM	78	88	0	0	57	3	2	0	66	0	0	0	294	0	0	0	0	0
	4:15 PM	92	102	0	0	56	4	5	0	56	0	0	0	315	0	0	0	0	0
	4:30 PM	78	92	0	0	55	5	3	0	51	0	0	0	284	0	0	0	0	0
	4:45 PM	87	108	0	0	75	4	3	0	60	0	0	0	337	0	0	0	0	0
	5:00 PM	101	105	0	0	76	2	4	0	61	0	0	0	349	0	0	0	0	0
	5:15 PM	117	106	0	0	89	5	5	0	52	0	0	0	374	0	0	0	0	0
	5:30 PM	107	115	0	0	70	8	3	0	60	0	0	0	363	0	0	0	0	0
	5:45 PM	106	97	0	0	71	5	2	0	55	0	0	0	336	0	0	0	0	0
	VOLUMES	766	813	0	0	549	36	27	0	461	0	0	0	2,652	0	0	0	0	0
	APPROACH %	49%	51%	0%	0%	94%	6%	6%	0%	94%	0%	0%	0%						
	APP/DEPART	1,579	/	840	585	/	1,010	488	/	0	0	/	802	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	412	434	0	0	310	19	15	0	233	0	0	0	1,423					
	APPROACH %	49%	51%	0%	0%	94%	6%	6%	0%	94%	0%	0%	0%						
	PEAK HR FACTOR		0.948			0.875			0.954			0.000		0.951					
	APP/DEPART	846	/	449	329	/	543	248	/	0	0	/	431	0					

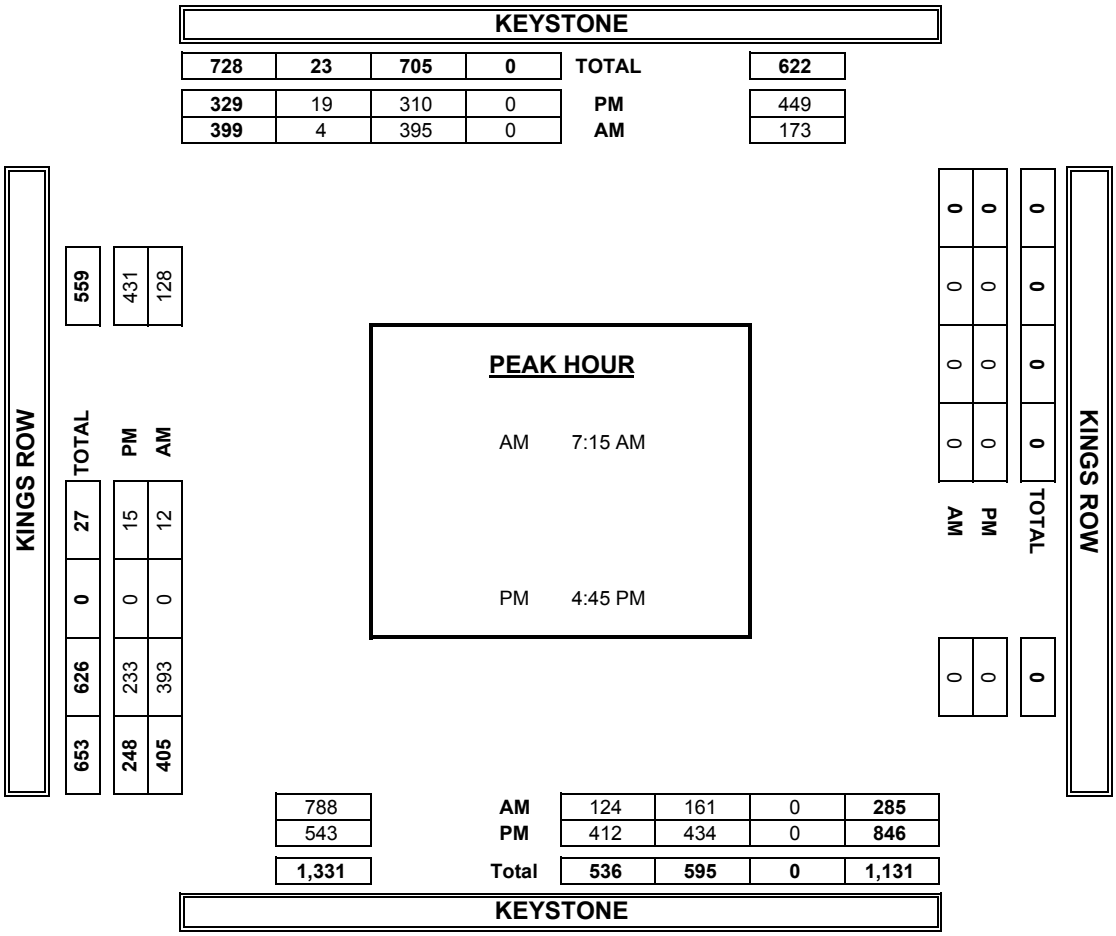


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

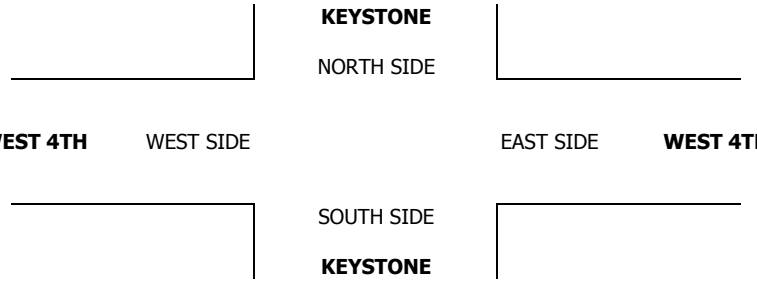
DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	3
WEDNESDAY	EAST & WEST:	WEST 4TH	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

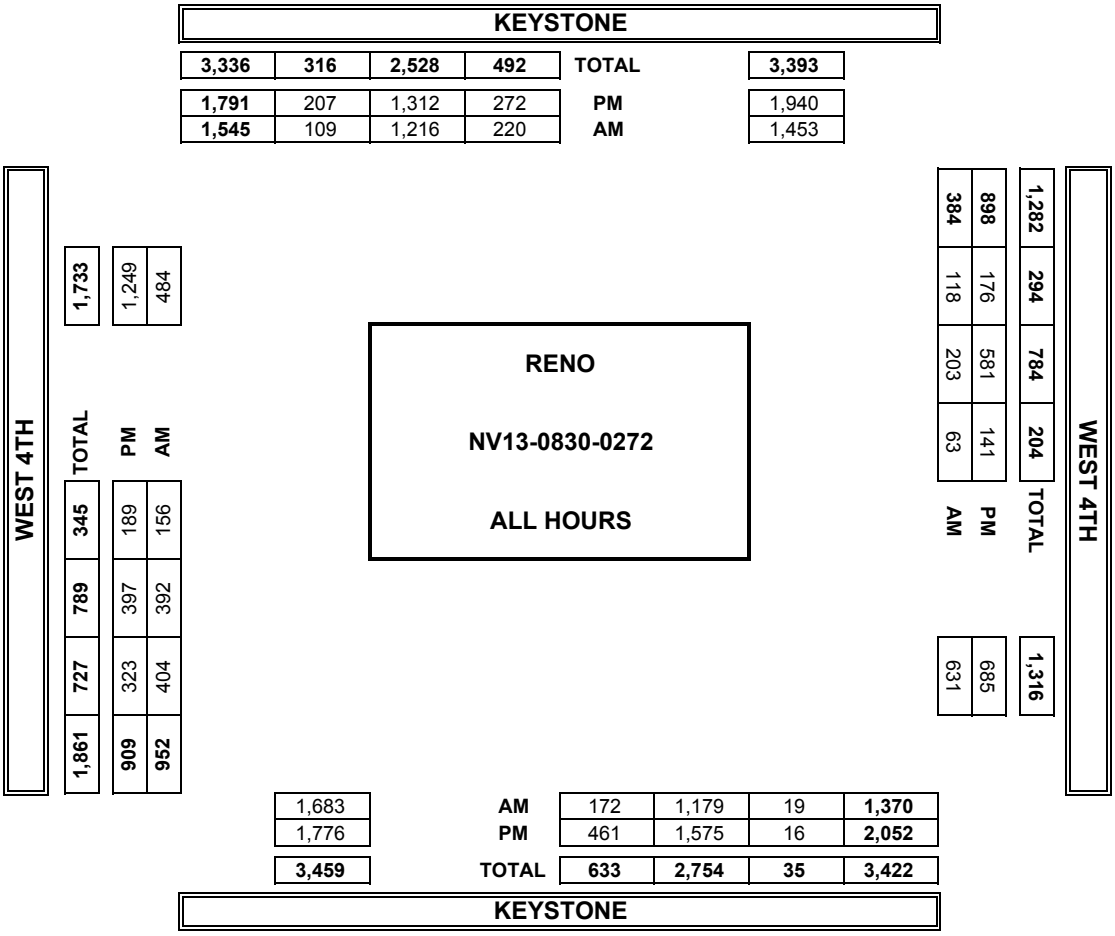
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND WEST 4TH			WESTBOUND WEST 4TH				U-TURNS				
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	17	130	2	20	149	12	19	44	42	9	23	11	478	0	0	0	0	0
	7:15 AM	19	173	2	25	210	9	17	48	78	11	20	9	621	0	0	0	0	0
	7:30 AM	32	222	4	24	133	14	25	43	46	4	20	17	584	0	0	0	0	0
	7:45 AM	25	134	2	25	168	15	19	67	61	6	25	15	562	0	0	0	0	0
	8:00 AM	18	119	2	34	134	18	16	46	42	7	26	14	476	0	0	0	0	0
	8:15 AM	20	125	4	30	138	13	22	44	44	6	29	17	492	0	0	0	0	0
	8:30 AM	21	139	1	32	138	16	21	43	43	10	31	20	515	0	0	0	0	0
	8:45 AM	20	137	2	30	146	12	17	57	48	10	29	15	523	0	0	0	0	0
	VOLUMES	172	1,179	19	220	1,216	109	156	392	404	63	203	118	4,251	0	0	0	0	0
	APPROACH %	13%	86%	1%	14%	79%	7%	16%	41%	42%	16%	53%	31%						
	APP/DEPART	1,370	/	1,453	1,545	/	1,683	952	/	631	384	/	484	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	93	659	10	94	660	50	80	202	227	30	88	52	2,245					
	APPROACH %	12%	86%	1%	12%	82%	6%	16%	40%	45%	18%	52%	31%						
	PEAK HR FACTOR		0.738			0.824			0.866			0.924		0.904					
	APP/DEPART	762	/	791	804	/	917	509	/	306	170	/	231	0					
PM	4:00 PM	47	189	4	33	149	26	21	47	49	14	62	24	665	0	0	0	0	0
	4:15 PM	43	166	1	49	135	22	24	61	42	14	74	18	649	0	0	0	0	0
	4:30 PM	56	199	2	34	162	29	30	37	40	19	77	26	711	0	0	0	0	0
	4:45 PM	48	196	0	30	193	36	16	43	33	19	63	20	697	0	0	0	0	0
	5:00 PM	66	234	2	31	175	22	32	49	46	18	79	21	775	0	0	0	0	0
	5:15 PM	77	214	3	36	175	33	20	44	41	23	95	19	780	0	0	0	0	0
	5:30 PM	65	182	2	25	173	24	26	61	38	15	63	27	701	0	0	0	0	0
	5:45 PM	59	195	2	34	150	15	20	55	34	19	68	21	672	0	0	0	0	0
	VOLUMES	461	1,575	16	272	1,312	207	189	397	323	141	581	176	5,650	0	0	0	0	0
	APPROACH %	22%	77%	1%	15%	73%	12%	21%	44%	36%	16%	65%	20%						
	APP/DEPART	2,052	/	1,940	1,791	/	1,776	909	/	685	898	/	1,249	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	247	843	7	131	705	120	98	173	160	79	314	86	2,963					
	APPROACH %	23%	77%	1%	14%	74%	13%	23%	40%	37%	16%	66%	18%						
	PEAK HR FACTOR		0.908			0.923			0.848			0.874		0.950					
	APP/DEPART	1,097	/	1,027	956	/	944	431	/	311	479	/	681	0					

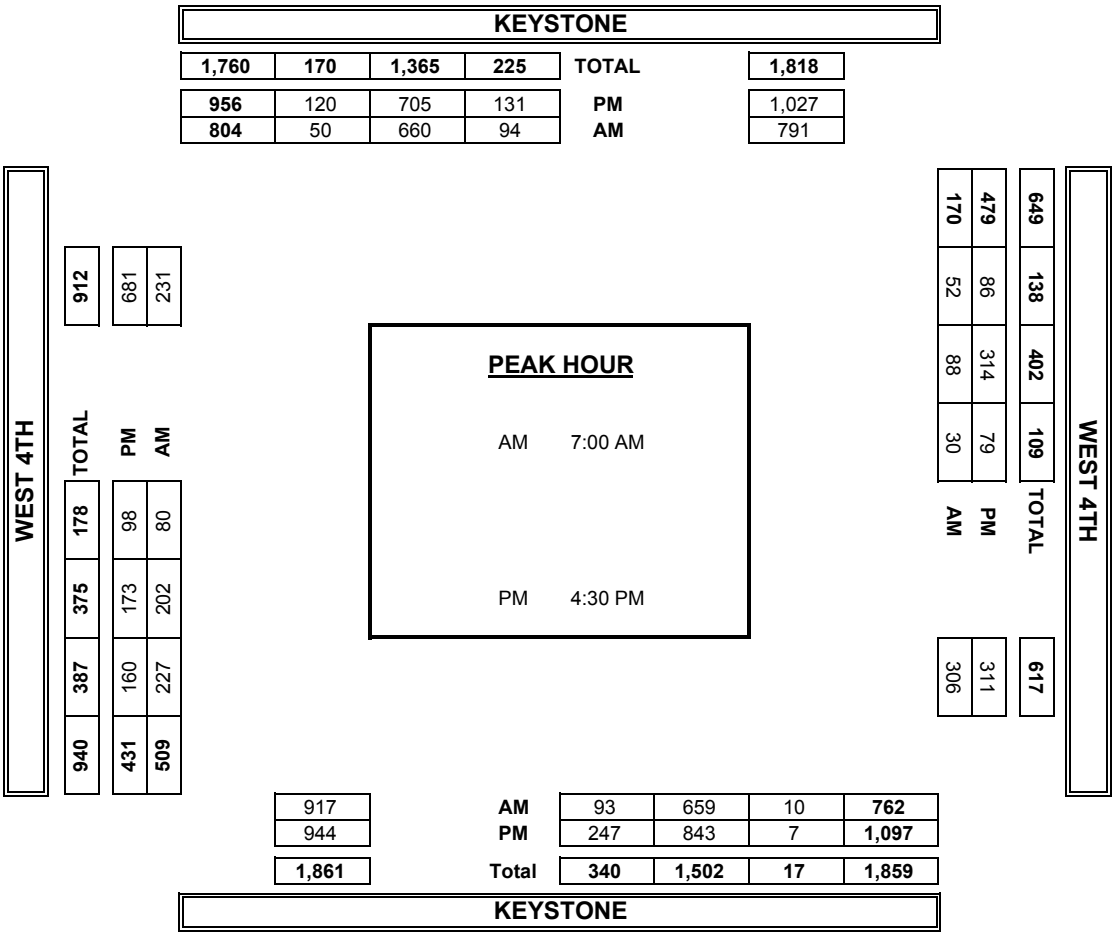


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

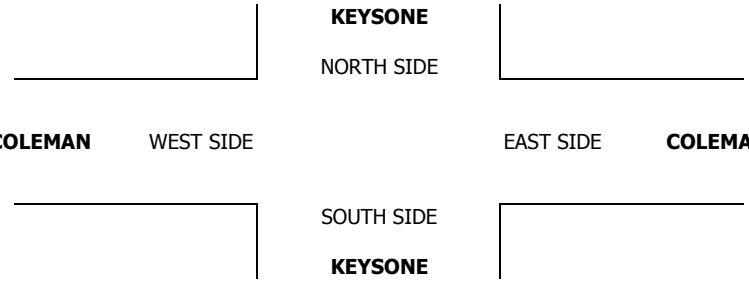
DATE:	LOCATION:	RENO	PROJECT #:	NV13-1101-0330-001
10/30/13	NORTH & SOUTH:	KEYSONE	LOCATION #:	4
WEDNESDAY	EAST & WEST:	COLEMAN	CONTROL:	4 WAY STOP

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

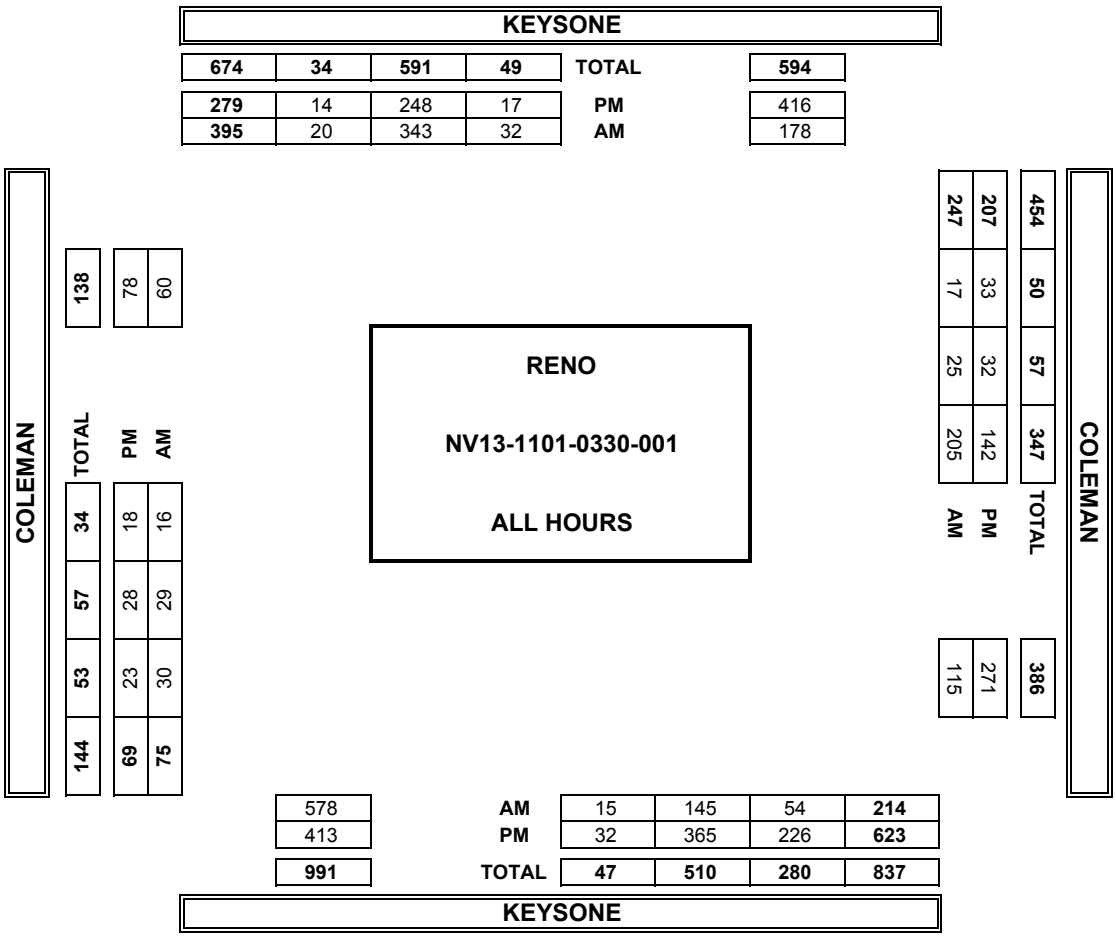
		NORTHBOUND KEYSONE			SOUTHBOUND KEYSONE			EASTBOUND COLEMAN			WESTBOUND COLEMAN				U-TURNS				
	LANES:	NL 0	NT 1	NR 1	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	1	15	10	2	39	1	0	2	2	34	7	3	116	0	0	0	0	0
	7:15 AM	2	17	3	1	50	0	4	4	7	30	5	2	125	0	0	0	0	0
	7:30 AM	3	30	9	6	51	3	5	3	3	25	1	1	140	0	0	0	0	0
	7:45 AM	2	25	6	5	56	1	2	4	2	26	0	1	130	0	0	0	0	0
	8:00 AM	0	10	5	3	25	2	0	0	4	23	2	2	76	0	0	0	0	0
	8:15 AM	4	15	8	6	45	5	2	3	2	23	2	2	117	0	0	0	0	0
	8:30 AM	0	17	6	4	40	2	2	5	6	23	7	3	115	0	0	0	0	0
	8:45 AM	3	16	7	5	37	6	1	8	4	21	1	3	112	0	0	0	0	0
	VOLUMES	15	145	54	32	343	20	16	29	30	205	25	17	931	0	0	0	0	0
	APPROACH %	7%	68%	25%	8%	87%	5%	21%	39%	40%	83%	10%	7%						
	APP/DEPART	214	/	178	395	/	578	75	/	115	247	/	60	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	8	87	28	14	196	5	11	13	14	115	13	7	511					
	APPROACH %	7%	71%	23%	7%	91%	2%	29%	34%	37%	85%	10%	5%						
	PEAK HR FACTOR		0.732			0.867			0.633			0.767		0.913					
	APP/DEPART	123	/	105	215	/	325	38	/	55	135	/	26	0					
PM	4:00 PM	4	45	31	0	30	2	1	2	1	16	2	3	137	0	0	0	0	0
	4:15 PM	4	30	25	2	29	2	2	1	3	15	3	1	117	0	0	0	0	0
	4:30 PM	5	41	25	2	30	1	4	5	1	17	3	1	135	0	0	0	0	0
	4:45 PM	3	48	23	3	37	1	1	5	3	14	2	6	146	0	0	0	0	0
	5:00 PM	3	65	35	3	34	2	3	5	3	20	7	5	185	0	0	0	0	0
	5:15 PM	4	39	32	3	27	3	4	4	5	24	9	5	159	0	0	0	0	0
	5:30 PM	5	61	25	1	30	3	2	0	4	22	4	3	160	0	0	0	0	0
	5:45 PM	4	36	30	3	31	0	1	6	3	14	2	9	139	0	0	0	0	0
	VOLUMES	32	365	226	17	248	14	18	28	23	142	32	33	1,178	0	0	0	0	0
	APPROACH %	5%	59%	36%	6%	89%	5%	26%	41%	33%	69%	15%	16%						
	APP/DEPART	623	/	416	279	/	413	69	/	271	207	/	78	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	15	213	115	10	128	9	10	14	15	80	22	19	650					
	APPROACH %	4%	62%	34%	7%	87%	6%	26%	36%	38%	66%	18%	16%						
	PEAK HR FACTOR		0.833			0.896			0.750			0.796		0.878					
	APP/DEPART	343	/	242	147	/	223	39	/	139	121	/	46	0					

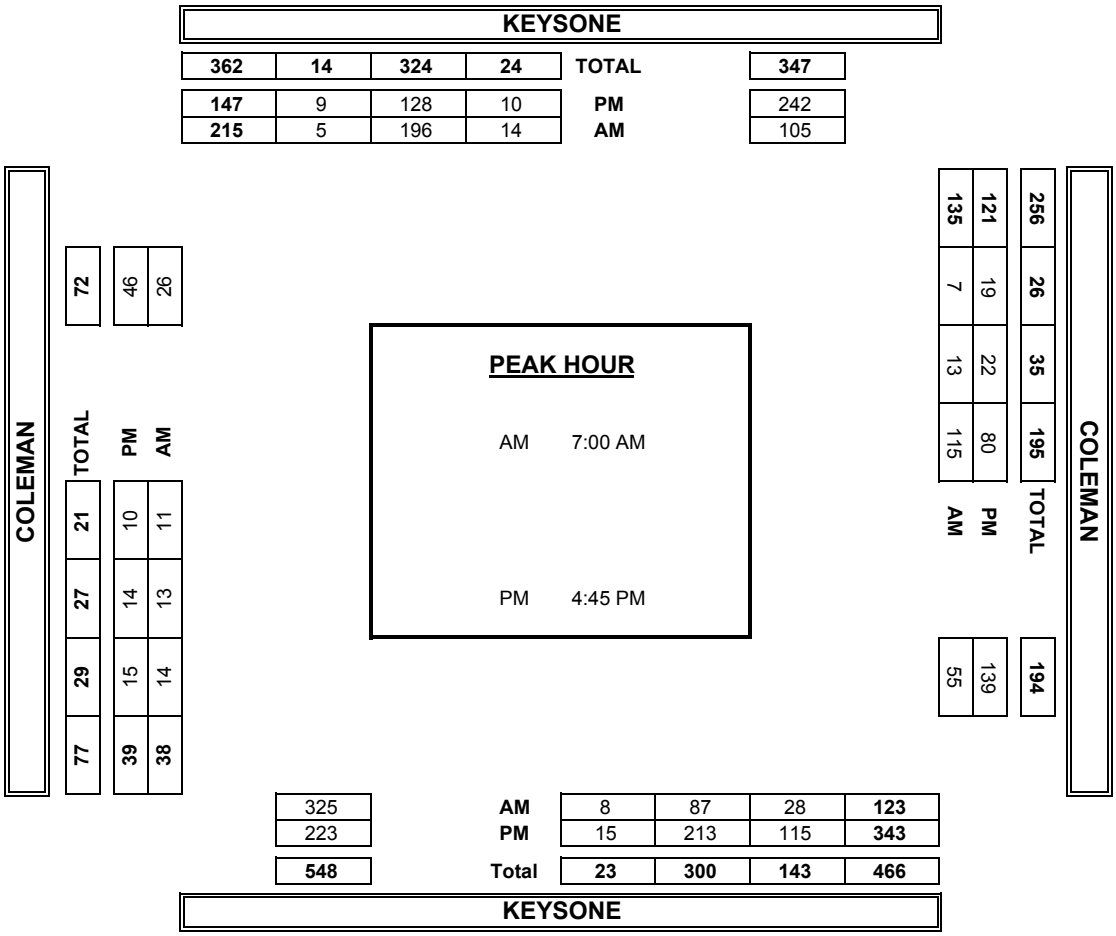


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

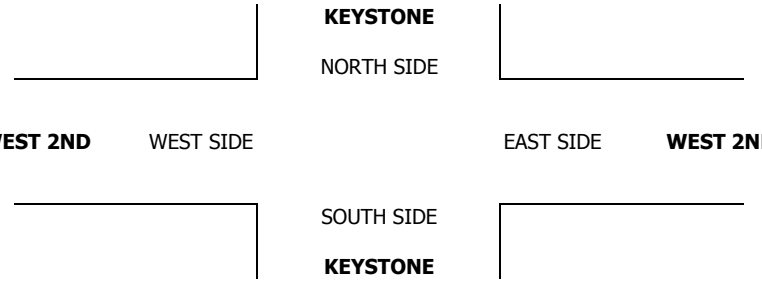
DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	4
WEDNESDAY	EAST & WEST:	WEST 2ND	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

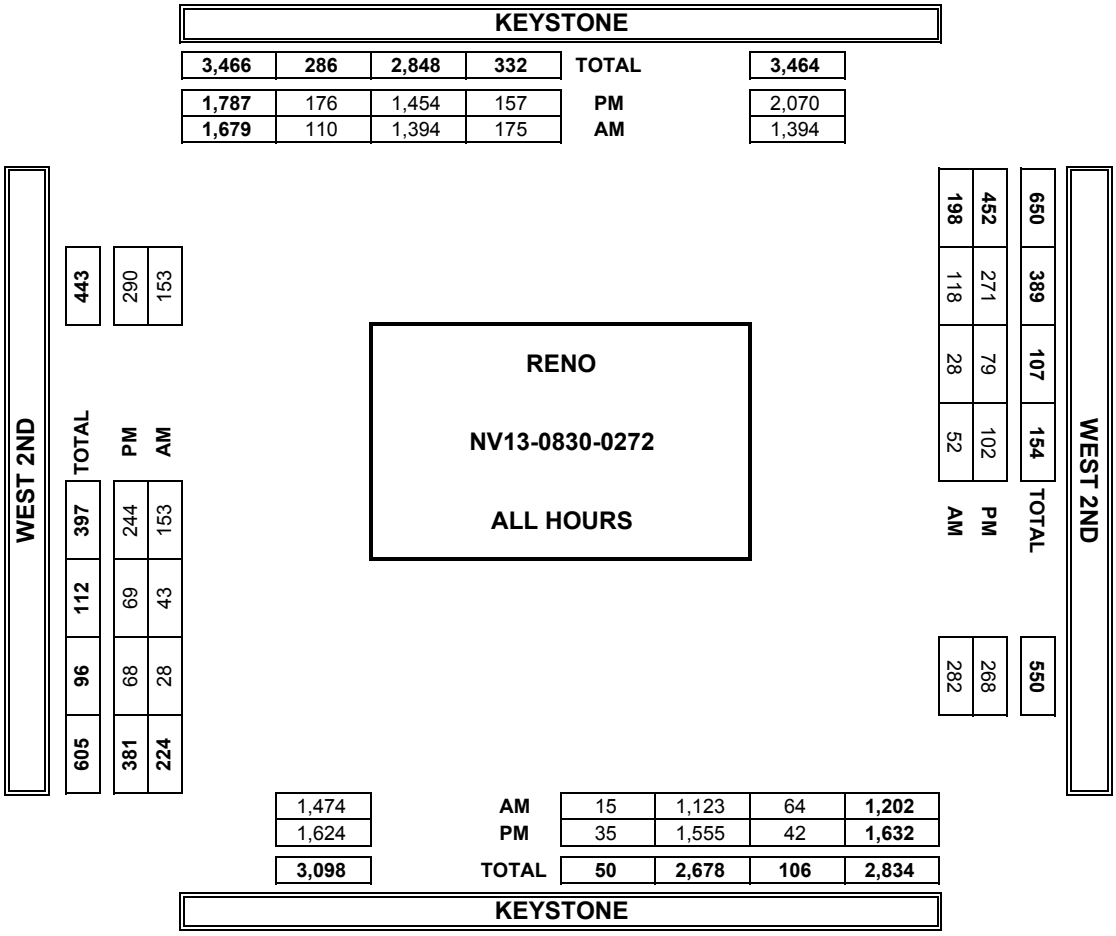
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND WEST 2ND			WESTBOUND WEST 2ND				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	4	132	4	7	186	13	10	1	3	5	3	9	377	0	0	0	0	0
	7:15 AM	1	172	8	18	273	12	14	7	4	8	2	7	526	0	0	0	0	0
	7:30 AM	1	219	8	19	147	12	29	4	5	5	4	13	466	0	0	0	0	0
	7:45 AM	0	119	6	37	181	9	22	8	5	5	1	22	415	0	0	0	0	0
	8:00 AM	1	117	12	21	142	15	12	3	2	7	3	11	346	0	0	0	0	0
	8:15 AM	3	114	7	23	156	13	24	6	2	7	1	12	368	0	0	0	0	0
	8:30 AM	2	121	11	18	163	16	24	9	1	6	5	21	397	0	0	0	0	0
	8:45 AM	3	129	8	32	146	20	18	5	6	9	9	23	408	0	0	0	0	0
	VOLUMES	15	1,123	64	175	1,394	110	153	43	28	52	28	118	3,303	0	0	0	0	0
	APPROACH %	1%	93%	5%	10%	83%	7%	68%	19%	13%	26%	14%	60%						
	APP/DEPART	1,202	/	1,394	1,679	/	1,474	224	/	282	198	/	153	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	6	642	26	81	787	46	75	20	17	23	10	51	1,784					
	APPROACH %	1%	95%	4%	9%	86%	5%	67%	18%	15%	27%	12%	61%						
	PEAK HR FACTOR		0.739			0.754			0.737			0.750		0.848					
	APP/DEPART	674	/	768	914	/	827	112	/	127	84	/	62	0					
PM	4:00 PM	2	179	8	29	163	18	32	9	7	13	9	35	504	0	0	0	0	0
	4:15 PM	5	151	6	16	150	24	30	13	10	9	8	28	450	0	0	0	0	0
	4:30 PM	3	177	8	25	174	23	38	11	8	17	14	44	542	1	0	0	0	1
	4:45 PM	6	164	3	19	195	33	38	9	7	13	8	38	533	3	0	0	0	3
	5:00 PM	7	252	2	16	196	25	15	8	8	15	11	42	597	1	0	0	0	1
	5:15 PM	6	246	4	15	212	18	25	7	11	12	9	27	592	0	0	0	0	0
	5:30 PM	3	200	5	18	193	21	29	7	9	12	8	19	524	0	0	0	0	0
	5:45 PM	3	186	6	19	171	14	37	5	8	11	12	38	510	0	0	0	0	0
	VOLUMES	35	1,555	42	157	1,454	176	244	69	68	102	79	271	4,252	5	0	0	0	5
	APPROACH %	2%	95%	3%	9%	81%	10%	64%	18%	18%	23%	17%	60%						
	APP/DEPART	1,632	/	2,070	1,787	/	1,624	381	/	268	452	/	290	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	22	839	17	75	777	99	116	35	34	57	42	151	2,264					
	APPROACH %	3%	96%	2%	8%	82%	10%	63%	19%	18%	23%	17%	60%						
	PEAK HR FACTOR		0.841			0.963			0.811			0.833		0.948					
	APP/DEPART	878	/	1,106	951	/	868	185	/	127	250	/	163	0					

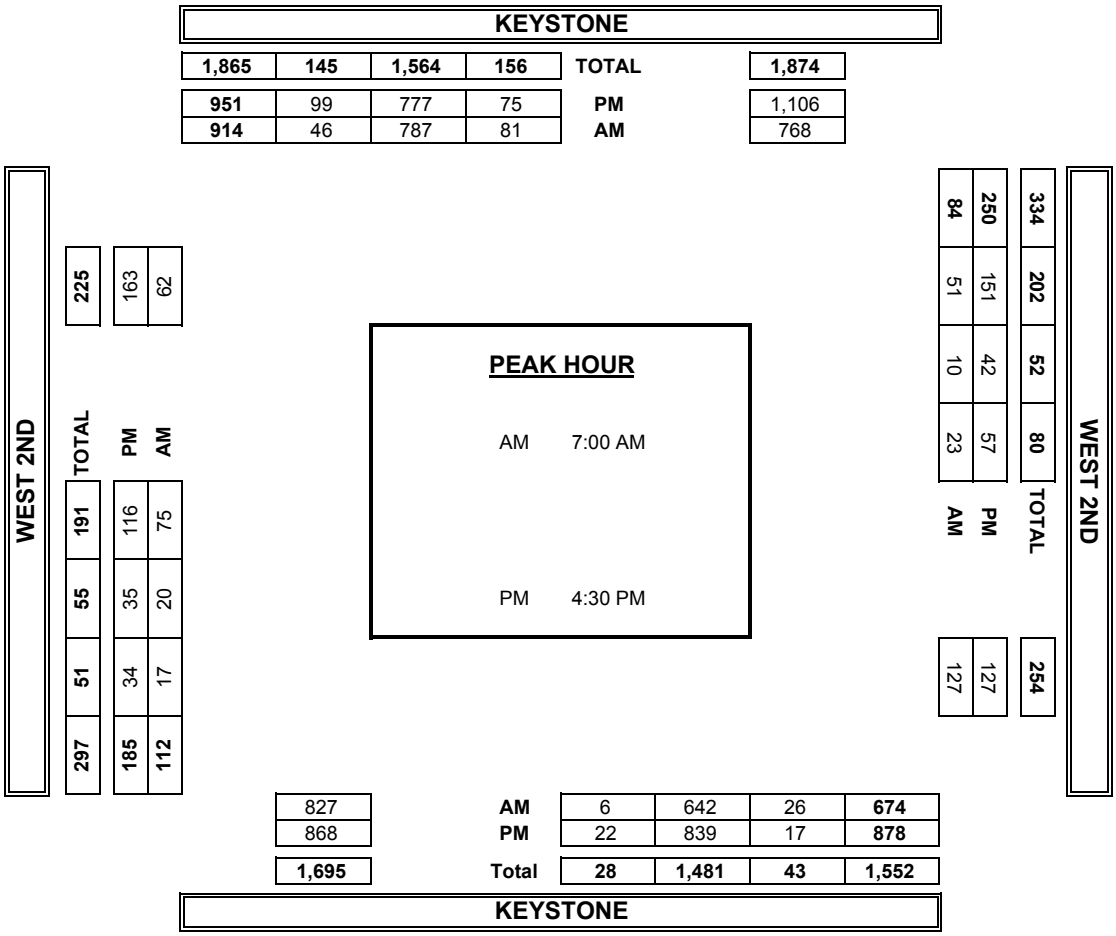


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	5
WEDNESDAY	EAST & WEST:	WEST 1ST	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND WEST 1ST			WESTBOUND WEST 1ST				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	2	123	2	12	182	2	2	0	1	0	1	17	344	0	0	0	0	0
	7:15 AM	2	171	5	32	250	3	4	1	2	3	2	8	483	0	0	0	0	0
	7:30 AM	4	194	6	26	128	0	2	0	0	3	1	23	387	0	0	0	0	0
	7:45 AM	5	111	5	59	124	2	2	2	1	1	1	14	327	0	0	0	0	0
	8:00 AM	3	113	3	46	102	9	2	0	1	3	0	18	300	0	0	0	0	0
	8:15 AM	0	103	2	36	125	2	5	3	0	0	1	15	292	0	0	0	0	0
	8:30 AM	1	112	7	29	133	9	8	4	2	5	1	13	324	0	0	0	0	0
	8:45 AM	4	126	7	39	120	2	2	2	1	2	1	15	321	0	0	0	0	0
	VOLUMES	21	1,053	37	279	1,164	29	27	12	8	17	8	123	2,778	0	0	0	0	0
	APPROACH %	2%	95%	3%	19%	79%	2%	57%	26%	17%	11%	5%	83%						
	APP/DEPART	1,111	/	1,203	1,472	/	1,189	47	/	328	148	/	58	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	13	599	18	129	684	7	10	3	4	7	5	62	1,541					
	APPROACH %	2%	95%	3%	16%	83%	1%	59%	18%	24%	9%	7%	84%						
	PEAK HR FACTOR		0.772			0.719			0.607			0.685		0.798					
	APP/DEPART	630	/	671	820	/	695	17	/	150	74	/	25	0					
PM	4:00 PM	1	147	1	26	150	2	5	2	4	8	1	38	385	0	0	0	0	0
	4:15 PM	3	122	4	27	147	0	4	1	0	1	3	40	352	0	0	0	0	0
	4:30 PM	2	144	4	24	165	2	5	2	2	7	3	38	398	0	0	0	0	0
	4:45 PM	2	129	2	22	196	4	7	1	0	13	3	35	414	0	0	0	0	0
	5:00 PM	6	196	3	18	197	4	5	3	3	2	3	62	502	0	0	0	0	0
	5:15 PM	1	192	8	32	204	7	4	1	2	8	3	55	517	0	0	0	0	0
	5:30 PM	1	158	3	23	179	4	10	1	5	6	2	42	434	0	0	0	0	0
	5:45 PM	2	152	4	17	174	1	4	1	2	5	0	38	400	0	0	0	0	0
	VOLUMES	18	1,240	29	189	1,412	24	44	12	18	50	18	348	3,402	0	0	0	0	0
	APPROACH %	1%	96%	2%	12%	87%	1%	59%	16%	24%	12%	4%	84%						
	APP/DEPART	1,287	/	1,632	1,625	/	1,480	74	/	230	416	/	60	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	10	675	16	95	776	19	26	6	10	29	11	194	1,867					
	APPROACH %	1%	96%	2%	11%	87%	2%	62%	14%	24%	12%	5%	83%						
	PEAK HR FACTOR		0.855			0.916			0.656			0.873		0.903					
	APP/DEPART	701	/	895	890	/	815	42	/	117	234	/	40	0					

KEYSTONE

NORTH SIDE

WEST 1ST WEST SIDE EAST SIDE **WEST 1ST**

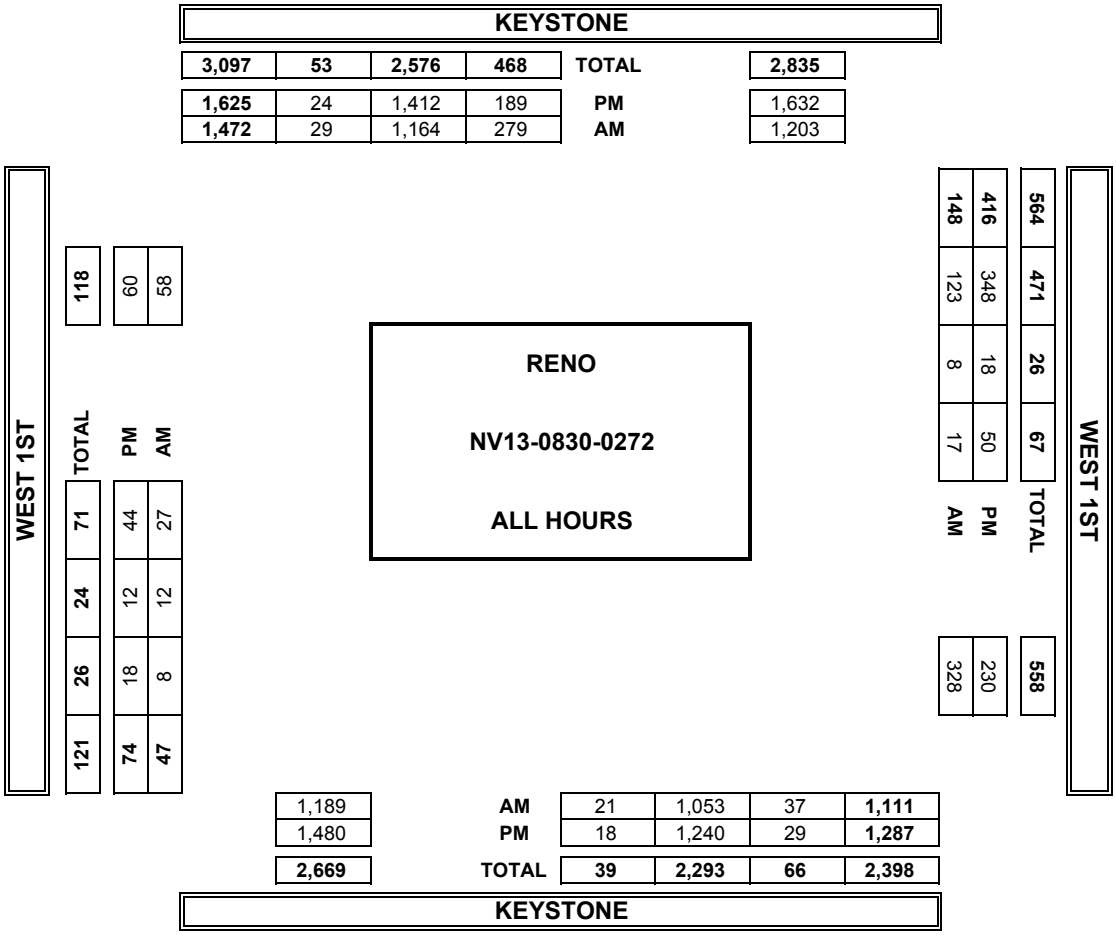
SOUTH SIDE

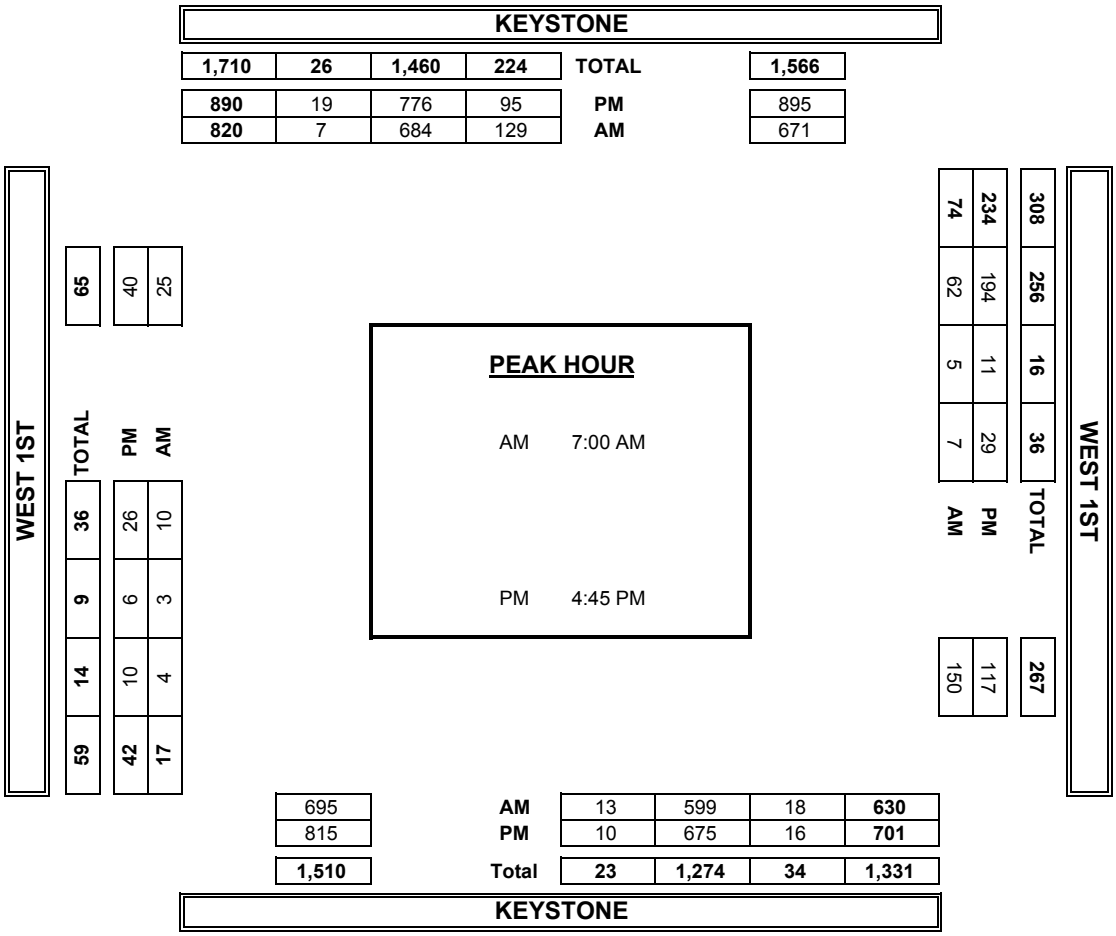
KEYSTONE

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	6
WEDNESDAY	EAST & WEST:	JONES	CONTROL:	2 WAY STOP EW

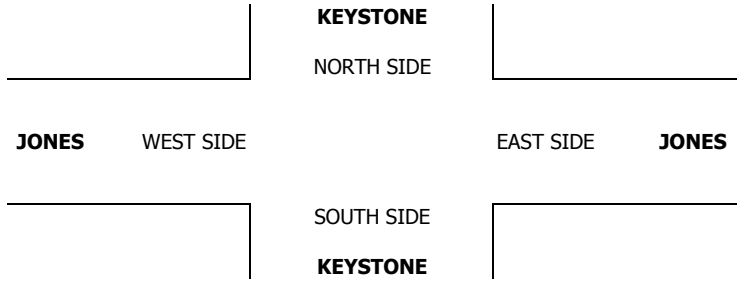
ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

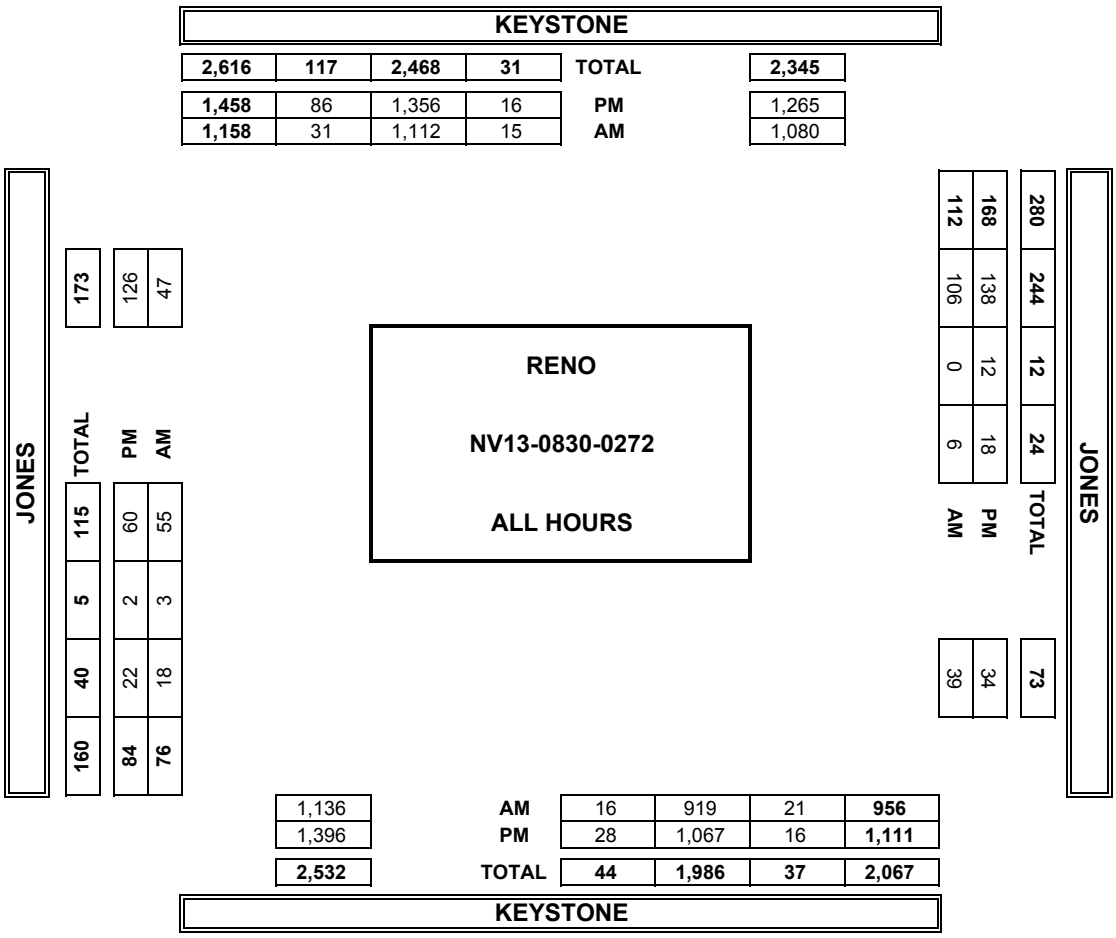
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND JONES			WESTBOUND JONES				U-TURNS				
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	0	99	1	2	171	4	5	2	3	0	0	14	301	0	0	0	0	0
	7:15 AM	3	151	4	1	247	3	6	1	3	1	0	14	434	1	0	0	0	1
	7:30 AM	2	177	7	1	124	5	6	0	0	2	0	30	354	1	0	0	0	1
	7:45 AM	1	114	3	1	123	5	6	0	3	3	0	9	268	1	0	0	0	1
	8:00 AM	1	86	1	3	87	3	8	0	3	0	0	11	203	0	0	0	0	0
	8:15 AM	3	85	2	2	119	4	8	0	1	0	0	10	234	2	0	0	0	2
	8:30 AM	2	96	2	2	113	2	8	0	1	0	0	9	235	1	0	0	0	1
	8:45 AM	4	111	1	3	128	5	8	0	4	0	0	9	273	0	0	0	0	0
	VOLUMES	16	919	21	15	1,112	31	55	3	18	6	0	106	2,302	6	0	0	0	6
	APPROACH %	2%	96%	2%	1%	96%	3%	72%	4%	24%	5%	0%	95%						
	APP/DEPART	956	/	1,080	1,158	/	1,136	76	/	39	112	/	47	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	6	541	15	5	665	17	23	3	9	6	0	67	1,357					
	APPROACH %	1%	96%	3%	1%	97%	2%	66%	9%	26%	8%	0%	92%						
	PEAK HR FACTOR		0.755			0.684			0.875			0.570		0.782					
	APP/DEPART	562	/	631	687	/	680	35	/	23	73	/	23	0					
PM	4:00 PM	2	123	4	2	142	15	6	1	4	1	1	18	319	0	0	0	0	0
	4:15 PM	4	102	0	3	129	10	9	0	1	2	2	11	273	0	0	0	0	0
	4:30 PM	3	118	1	1	157	9	6	0	4	3	2	18	322	0	0	0	0	0
	4:45 PM	3	118	4	1	196	10	9	0	2	4	2	10	359	0	0	0	0	0
	5:00 PM	3	169	4	5	186	9	8	0	4	5	0	28	421	0	0	0	0	0
	5:15 PM	4	160	2	3	193	9	9	0	1	0	1	26	408	0	1	0	0	1
	5:30 PM	3	143	1	0	187	12	5	0	5	2	3	15	376	0	0	0	0	0
	5:45 PM	6	134	0	1	166	12	8	1	1	1	1	12	343	1	0	0	0	1
	VOLUMES	28	1,067	16	16	1,356	86	60	2	22	18	12	138	2,821	1	1	0	0	2
	APPROACH %	3%	96%	1%	1%	93%	6%	71%	2%	26%	11%	7%	82%						
	APP/DEPART	1,111	/	1,265	1,458	/	1,396	84	/	34	168	/	126	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	13	590	11	9	762	40	31	0	12	11	6	79	1,564					
	APPROACH %	2%	96%	2%	1%	94%	5%	72%	0%	28%	11%	6%	82%						
	PEAK HR FACTOR		0.872			0.979			0.896			0.727		0.929					
	APP/DEPART	614	/	700	811	/	785	43	/	20	96	/	59	0					

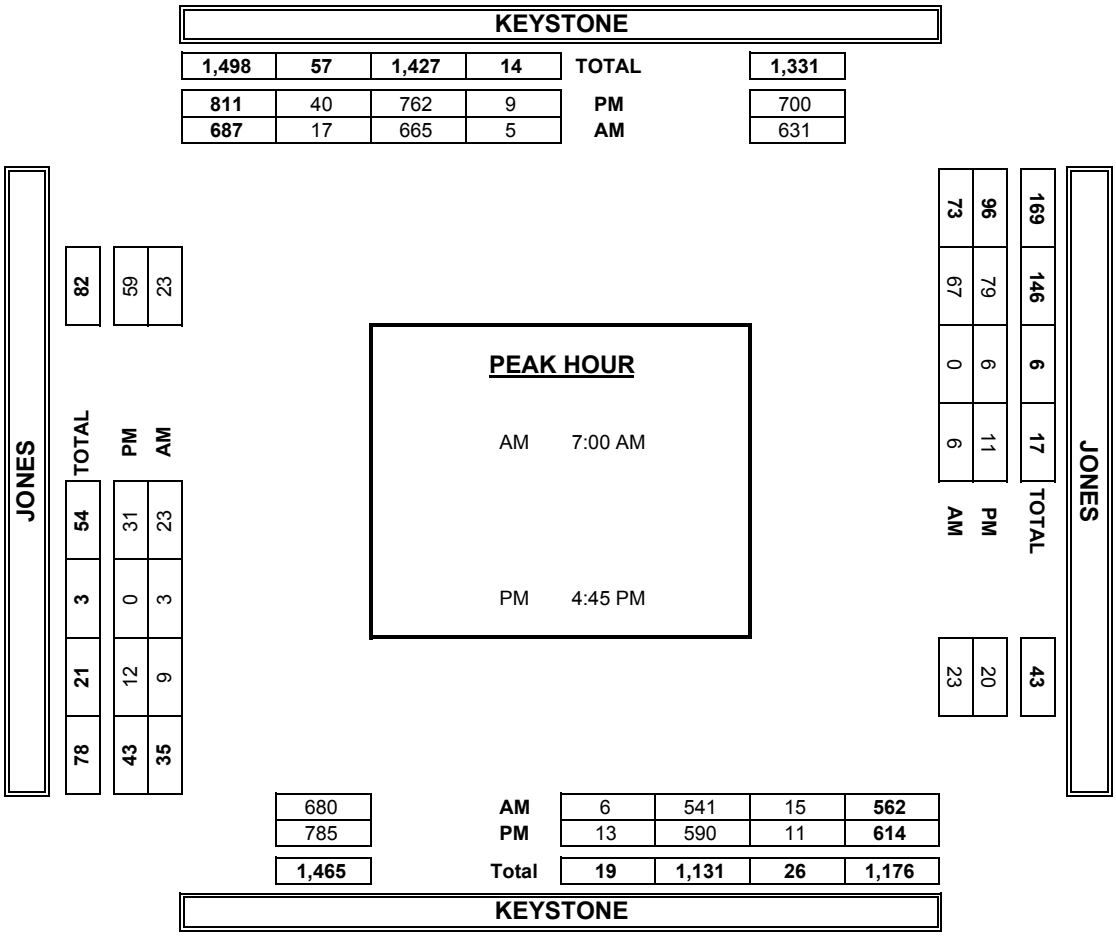


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	8:00 AM	1	0	1	2	4	1	0	1	2	4	0	0	0	0	0
	8:15 AM	0	1	2	0	3	0	0	1	0	1	0	1	1	0	2
	8:30 AM	1	1	1	2	5	0	1	1	1	3	1	0	0	1	2
	8:45 AM	1	3	1	2	7	1	3	1	2	7	0	0	0	0	0
	TOTAL	4	5	5	9	23	2	4	4	8	18	2	1	1	1	5
PM	4:00 PM	1	0	3	8	12	1	0	2	5	8	0	0	1	3	4
	4:15 PM	0	1	2	2	5	0	0	1	2	3	0	1	1	0	2
	4:30 PM	1	0	1	1	3	1	0	1	1	3	0	0	0	0	0
	4:45 PM	1	1	0	5	7	1	0	0	5	6	0	1	0	0	1
	5:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
	5:15 PM	1	0	0	4	5	0	0	0	3	3	1	0	0	1	2
	5:30 PM	0	2	1	3	6	0	2	0	1	3	0	0	1	2	3
	5:45 PM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0
	TOTAL	5	4	7	26	42	4	2	4	18	28	1	2	3	8	14

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

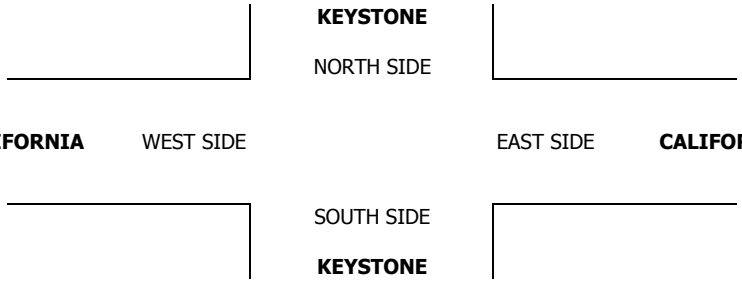
DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/22/13	NORTH & SOUTH:	KEYSTONE	LOCATION #:	7
THURSDAY	EAST & WEST:	CALIFORNIA	CONTROL:	SIGNAL

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

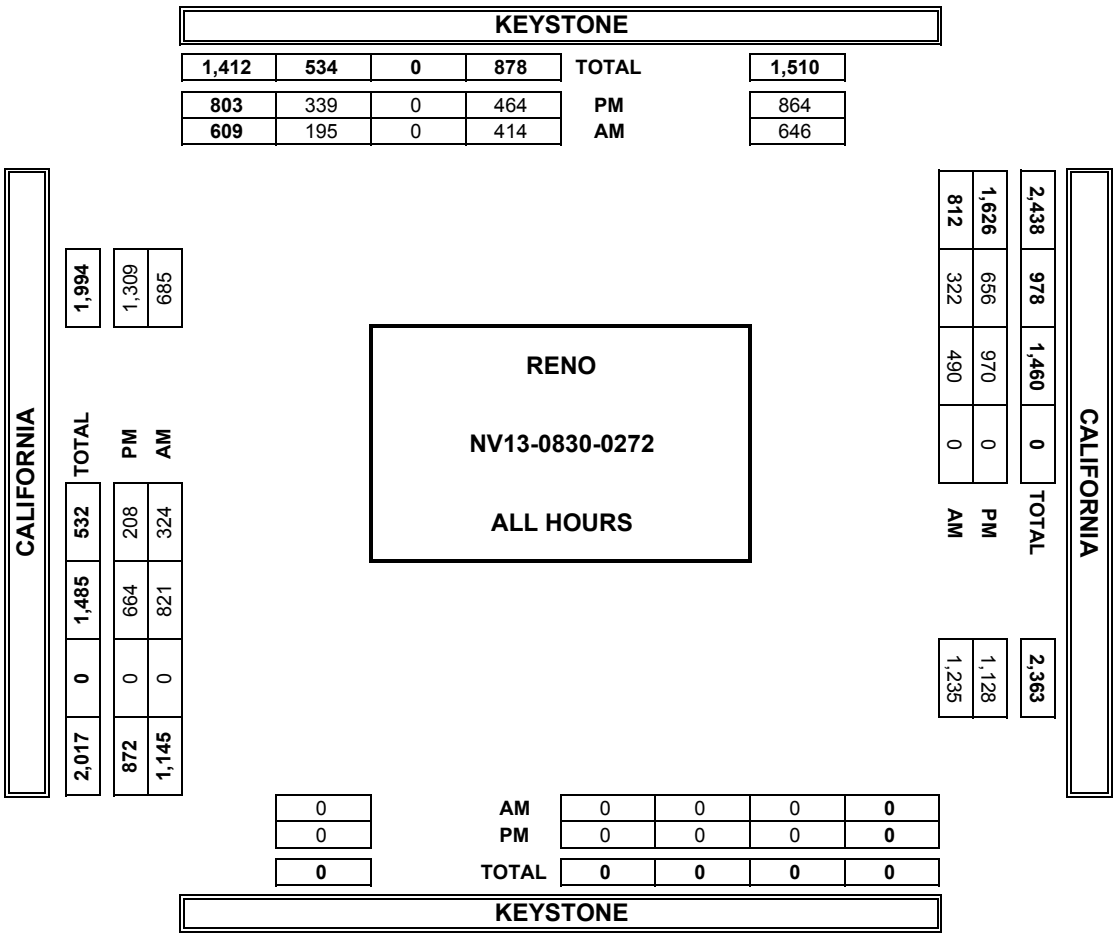
		NORTHBOUND KEYSTONE			SOUTHBOUND KEYSTONE			EASTBOUND CALIFORNIA			WESTBOUND CALIFORNIA				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 1	ER X	WL X	WT 2	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	0	0	0	33	0	25	30	66	0	0	81	26	261	0	0	0	0	0
	7:15 AM	0	0	0	40	0	19	59	119	0	0	105	31	373	0	0	0	0	0
	7:30 AM	0	0	0	55	0	32	50	145	0	0	64	48	394	0	0	0	0	0
	7:45 AM	0	0	0	51	0	18	42	133	0	0	60	43	347	0	0	0	0	0
	8:00 AM	0	0	0	63	0	20	30	87	0	0	33	34	267	0	0	0	0	0
	8:15 AM	0	0	0	55	0	24	41	76	0	0	42	52	290	0	0	0	0	0
	8:30 AM	0	0	0	61	0	25	34	90	0	0	49	34	293	0	0	0	0	0
	8:45 AM	0	0	0	56	0	32	38	105	0	0	56	54	341	0	0	0	0	0
	VOLUMES	0	0	0	414	0	195	324	821	0	0	490	322	2,566	0	0	0	0	0
	APPROACH %	0%	0%	0%	68%	0%	32%	28%	72%	0%	0%	60%	40%						
	APP/DEPART	0	/	646	609	/	0	1,145	/	1,235	812	/	685	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	209	0	89	181	484	0	0	262	156	1,381					
	APPROACH %	0%	0%	0%	70%	0%	30%	27%	73%	0%	0%	63%	37%						
	PEAK HR FACTOR		0.000			0.856			0.853			0.768		0.876					
	APP/DEPART	0	/	337	298	/	0	665	/	693	418	/	351	0					
PM	4:00 PM	0	0	0	49	0	41	19	75	0	0	94	65	343	0	0	0	0	0
	4:15 PM	0	0	0	65	0	37	16	80	0	0	97	81	376	0	0	0	0	0
	4:30 PM	0	0	0	60	0	41	23	96	0	0	114	58	392	0	0	0	0	0
	4:45 PM	0	0	0	49	0	42	32	70	0	0	122	85	400	0	0	0	0	0
	5:00 PM	0	0	0	68	0	47	33	91	0	0	157	106	502	0	0	0	0	0
	5:15 PM	0	0	0	63	0	41	35	80	0	0	158	91	468	0	0	0	0	0
	5:30 PM	0	0	0	47	0	49	28	86	0	0	118	103	431	0	0	0	0	0
	5:45 PM	0	0	0	63	0	41	22	86	0	0	110	67	389	0	0	0	0	0
	VOLUMES	0	0	0	464	0	339	208	664	0	0	970	656	3,301	0	0	0	0	0
	APPROACH %	0%	0%	0%	58%	0%	42%	24%	76%	0%	0%	60%	40%						
	APP/DEPART	0	/	864	803	/	0	872	/	1,128	1,626	/	1,309	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	0	227	0	179	128	327	0	0	555	385	1,801					
	APPROACH %	0%	0%	0%	56%	0%	44%	28%	72%	0%	0%	59%	41%						
	PEAK HR FACTOR		0.000			0.883			0.917			0.894		0.897					
	APP/DEPART	0	/	513	406	/	0	455	/	554	940	/	734	0					

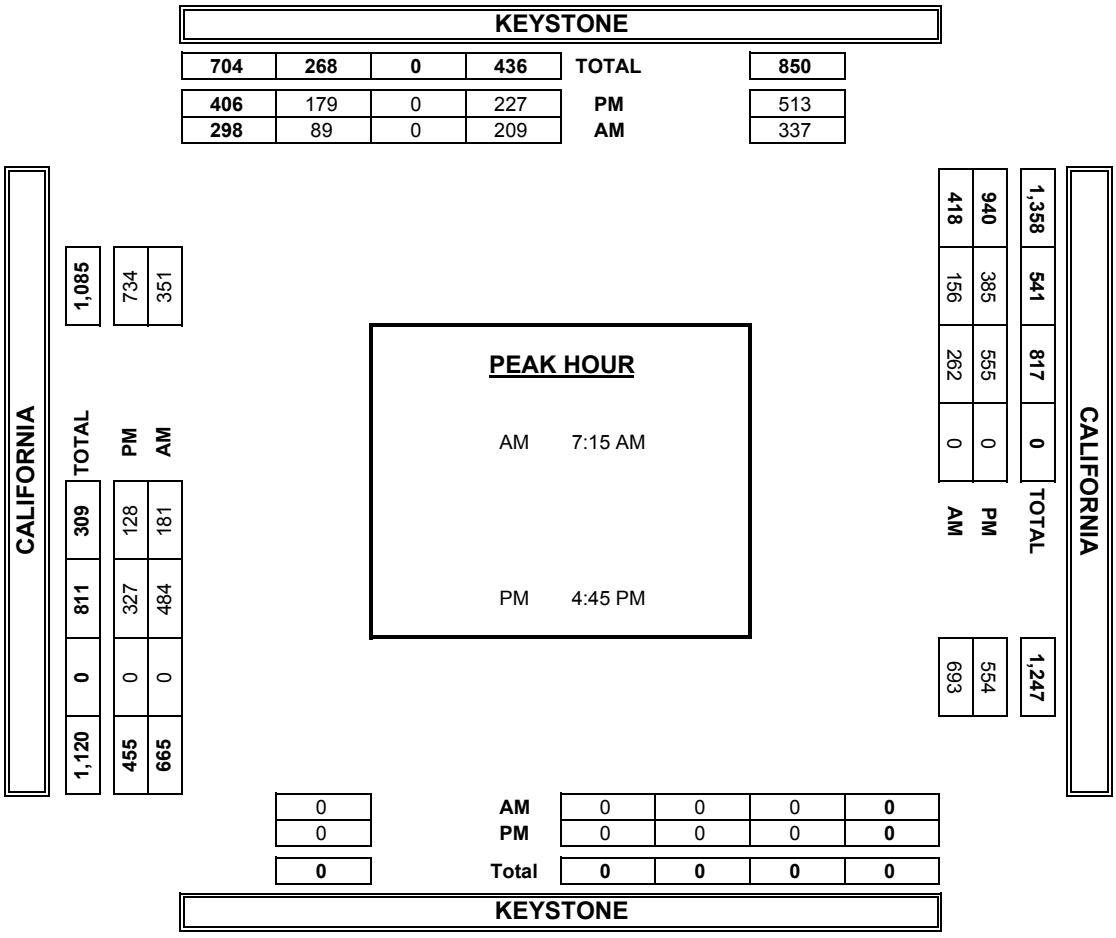


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 8/22/13 THURSDAY

LOCATION: RENO
NORTH & SOUTH: BOOTH
EAST & WEST: CALIFORNIA

PROJECT #:
LOCATION #: 8
CONTROL: SIGNAL

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N
◄ W E ►
S ▼

		NORTHBOUND BOOTH			SOUTHBOUND BOOTH			EASTBOUND CALIFORNIA			WESTBOUND CALIFORNIA				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	0	0	0	29	0	14	17	66	0	0	63	39	228	0	0	0	0	0
	7:15 AM	0	0	0	68	0	16	41	112	0	0	39	88	364	0	0	0	0	0
	7:30 AM	0	0	0	82	0	15	27	114	0	0	39	55	332	0	0	0	0	0
	7:45 AM	0	0	0	43	0	7	5	130	0	0	50	28	263	0	0	0	0	0
	8:00 AM	0	0	0	22	0	7	6	92	0	0	32	17	176	0	0	0	0	0
	8:15 AM	0	0	0	28	0	5	7	91	0	0	46	23	200	0	0	0	0	0
	8:30 AM	0	0	0	22	0	5	12	100	0	0	57	17	213	0	0	0	0	0
	8:45 AM	0	0	0	34	0	12	9	112	0	0	69	17	253	0	0	0	0	0
	VOLUMES	0	0	0	328	0	81	124	817	0	0	395	284	2,029	0	0	0	0	0
	APPROACH %	0%	0%	0%	80%	0%	20%	13%	87%	0%	0%	58%	42%						
	APP/DEPART	0	/	408	409	/	0	941	/	1,145	679	/	476	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	0	0	0	222	0	52	90	422	0	0	191	210	1,187					
	APPROACH %	0%	0%	0%	81%	0%	19%	18%	82%	0%	0%	48%	52%						
	PEAK HR FACTOR		0.000			0.706			0.837			0.789		0.815					
	APP/DEPART	0	/	300	274	/	0	512	/	644	401	/	243	0					
PM	4:00 PM	0	0	0	28	0	13	4	63	0	0	109	23	240	0	0	0	0	0
	4:15 PM	0	0	0	38	0	15	12	62	0	0	102	31	260	0	0	0	0	0
	4:30 PM	0	0	0	45	0	19	14	72	0	0	111	45	306	0	0	0	0	0
	4:45 PM	0	0	0	38	0	23	8	61	0	0	119	41	290	0	0	0	0	0
	5:00 PM	0	0	0	36	0	22	7	92	0	0	162	46	365	0	0	0	0	0
	5:15 PM	0	0	0	26	0	16	4	88	0	0	150	51	335	0	0	0	0	0
	5:30 PM	0	0	0	39	0	18	9	77	0	0	126	33	302	0	0	0	0	0
	5:45 PM	0	0	0	24	0	15	16	81	0	0	106	42	284	0	0	0	0	0
	VOLUMES	0	0	0	274	0	141	74	596	0	0	985	312	2,382	0	0	0	0	0
	APPROACH %	0%	0%	0%	66%	0%	34%	11%	89%	0%	0%	76%	24%						
	APP/DEPART	0	/	386	415	/	0	670	/	870	1,297	/	1,126	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	145	0	80	33	313	0	0	542	183	1,296					
	APPROACH %	0%	0%	0%	64%	0%	36%	10%	90%	0%	0%	75%	25%						
	PEAK HR FACTOR		0.000			0.879			0.874			0.871		0.888					
	APP/DEPART	0	/	216	225	/	0	346	/	458	725	/	622	0					

BOOTH

NORTH SIDE

CALIFORNIA WEST SIDE EAST SIDE **CALIFORNIA**

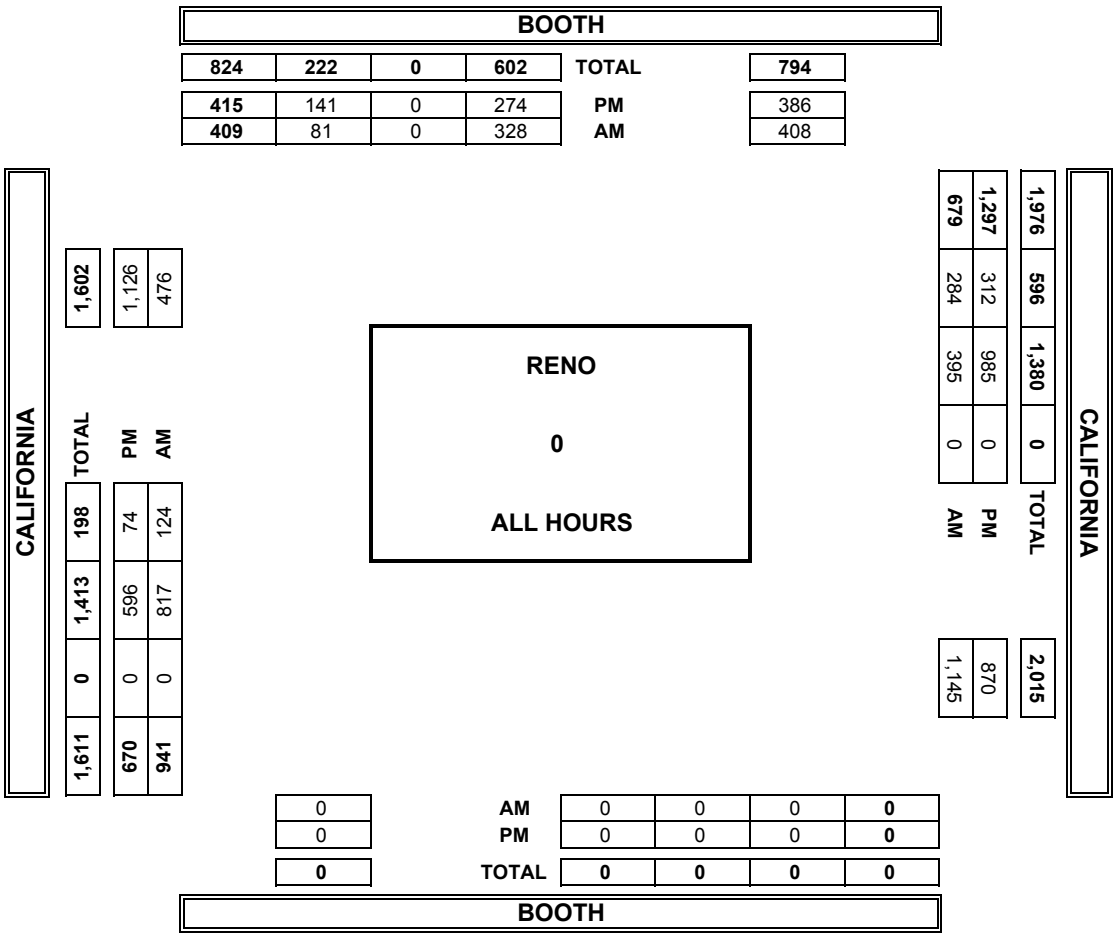
SOUTH SIDE

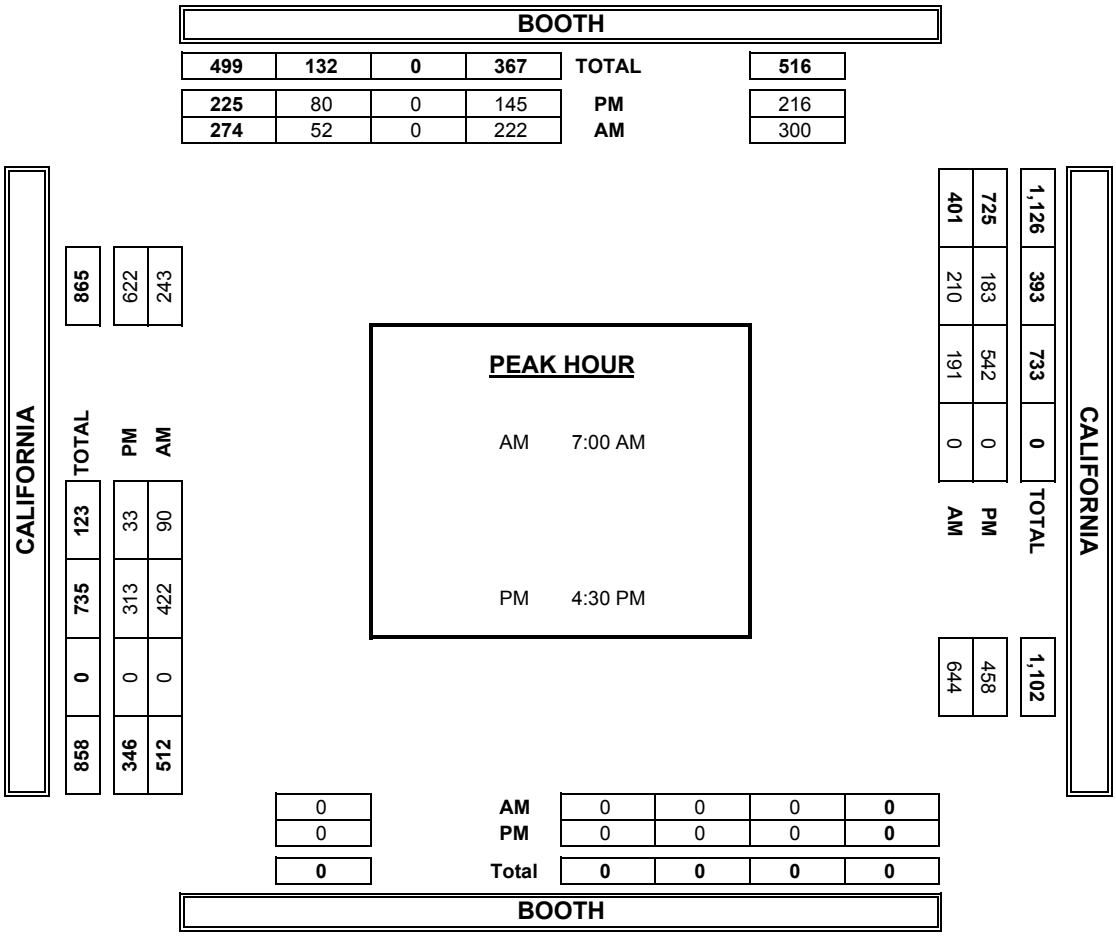
BOOTH

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

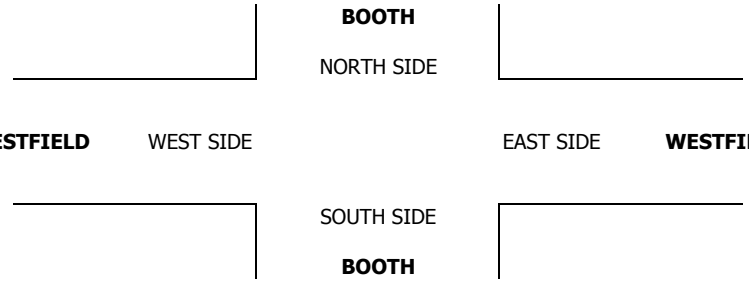
DATE:	LOCATION:	RENO	PROJECT #:	
8/22/13	NORTH & SOUTH:	BOOTH	LOCATION #:	9
THURSDAY	EAST & WEST:	WESTFIELD	CONTROL:	1 WAY STOP EB

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

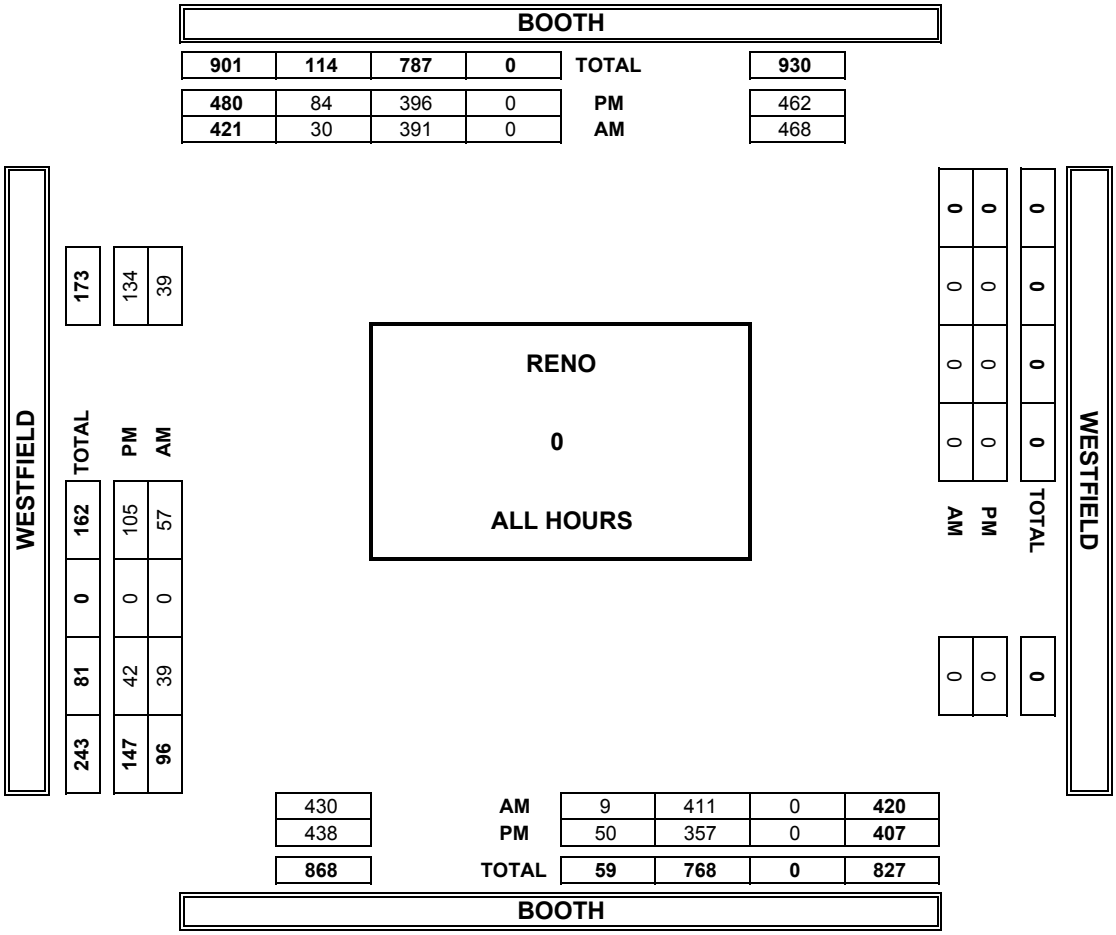
		NORTHBOUND BOOTH			SOUTHBOUND BOOTH			EASTBOUND WESTFIELD			WESTBOUND WESTFIELD				U-TURNS				
	LANES:	NL 1	NT 2	NR X	SL X	ST 1	SR 0	EL 0.5	ET X	ER 0.5	WL X	WT X	WR X	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	1	57	0	0	34	0	9	0	5	0	0	0	106	0	0	0	0	0
	7:15 AM	1	150	0	0	97	2	7	0	7	0	0	0	264	0	0	0	0	0
	7:30 AM	2	85	0	0	97	7	10	0	1	0	0	0	202	0	0	0	0	0
	7:45 AM	1	15	0	0	41	2	10	0	7	0	0	0	76	0	0	0	0	0
	8:00 AM	0	19	0	0	26	3	1	0	5	0	0	0	54	0	0	0	0	0
	8:15 AM	2	29	0	0	27	4	5	0	5	0	0	0	72	0	0	0	0	0
	8:30 AM	0	28	0	0	29	3	5	0	3	0	0	0	68	0	0	0	0	0
	8:45 AM	2	28	0	0	40	9	10	0	6	0	0	0	95	0	0	0	0	0
	VOLUMES	9	411	0	0	391	30	57	0	39	0	0	0	937	0	0	0	0	0
	APPROACH %	2%	98%	0%	0%	93%	7%	59%	0%	41%	0%	0%	0%						
	APP/DEPART	420	/	468	421	/	430	96	/	0	0	/	39	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	5	307	0	0	269	11	36	0	20	0	0	0	648					
	APPROACH %	2%	98%	0%	0%	96%	4%	64%	0%	36%	0%	0%	0%						
	PEAK HR FACTOR		0.517			0.673			0.824			0.000		0.614					
	APP/DEPART	312	/	343	280	/	289	56	/	0	0	/	16	0					
PM	4:00 PM	5	32	0	0	45	5	14	0	3	0	0	0	104	0	0	0	0	0
	4:15 PM	3	41	0	0	52	14	14	0	3	0	0	0	127	0	0	0	0	0
	4:30 PM	9	34	0	0	35	11	9	0	9	0	0	0	107	0	0	0	0	0
	4:45 PM	3	51	0	0	55	9	14	0	10	0	0	0	142	0	0	0	0	0
	5:00 PM	6	42	0	0	53	13	10	0	7	0	0	0	131	0	0	0	0	0
	5:15 PM	7	62	0	0	47	15	16	0	4	0	0	0	151	0	0	0	0	0
	5:30 PM	11	39	0	0	62	10	12	0	4	0	0	0	138	0	0	0	0	0
	5:45 PM	6	56	0	0	47	7	16	0	2	0	0	0	134	0	0	0	0	0
	VOLUMES	50	357	0	0	396	84	105	0	42	0	0	0	1,034	0	0	0	0	0
	APPROACH %	12%	88%	0%	0%	83%	18%	71%	0%	29%	0%	0%	0%						
	APP/DEPART	407	/	462	480	/	438	147	/	0	0	/	134	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	27	194	0	0	217	47	52	0	25	0	0	0	562					
	APPROACH %	12%	88%	0%	0%	82%	18%	68%	0%	32%	0%	0%	0%						
	PEAK HR FACTOR		0.801			0.917			0.802			0.000		0.930					
	APP/DEPART	221	/	246	264	/	242	77	/	0	0	/	74	0					

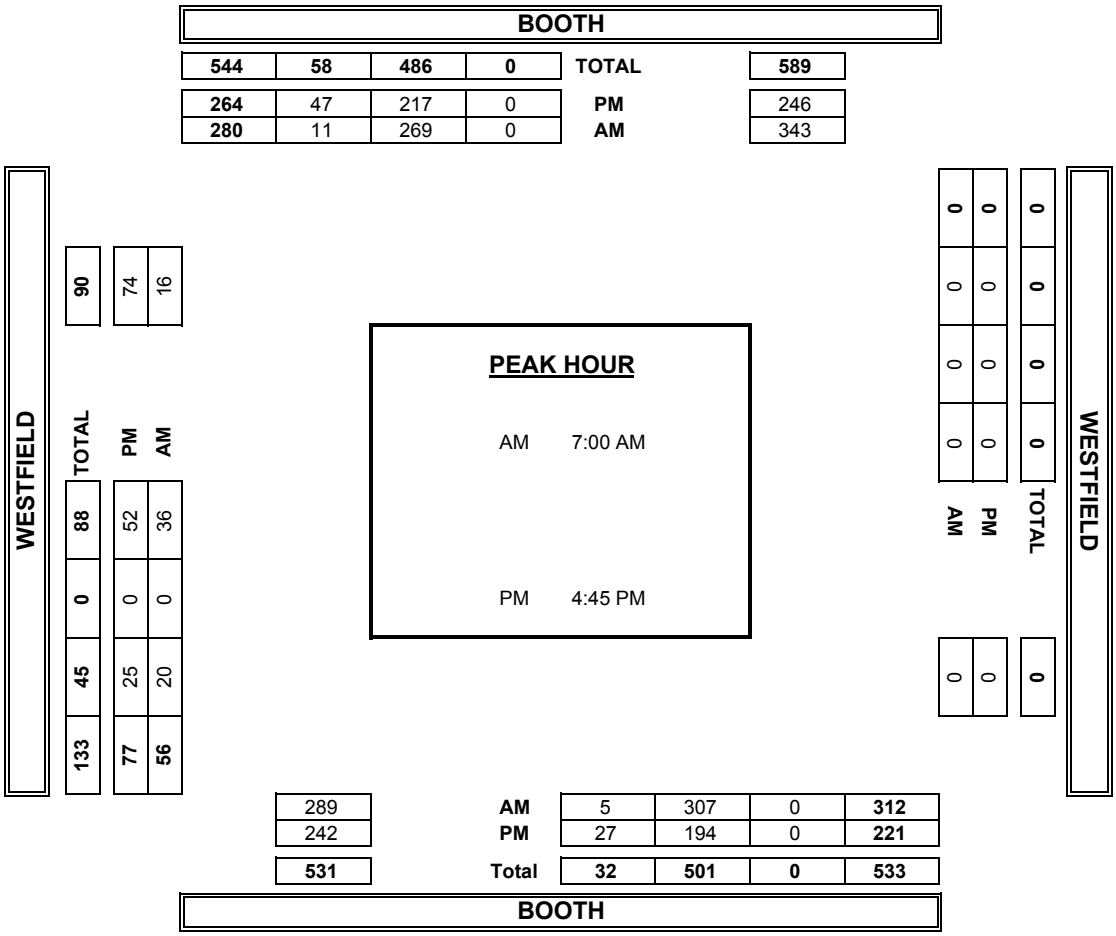


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	
8/21/13	NORTH & SOUTH:	BOOTH	LOCATION #:	10
WEDNESDAY	EAST & WEST:	FOSTER	CONTROL:	SIGNAL

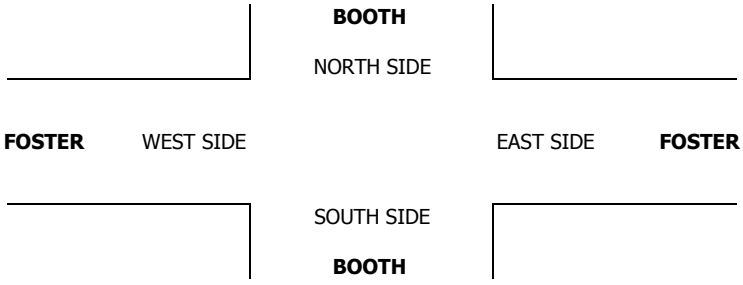
ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

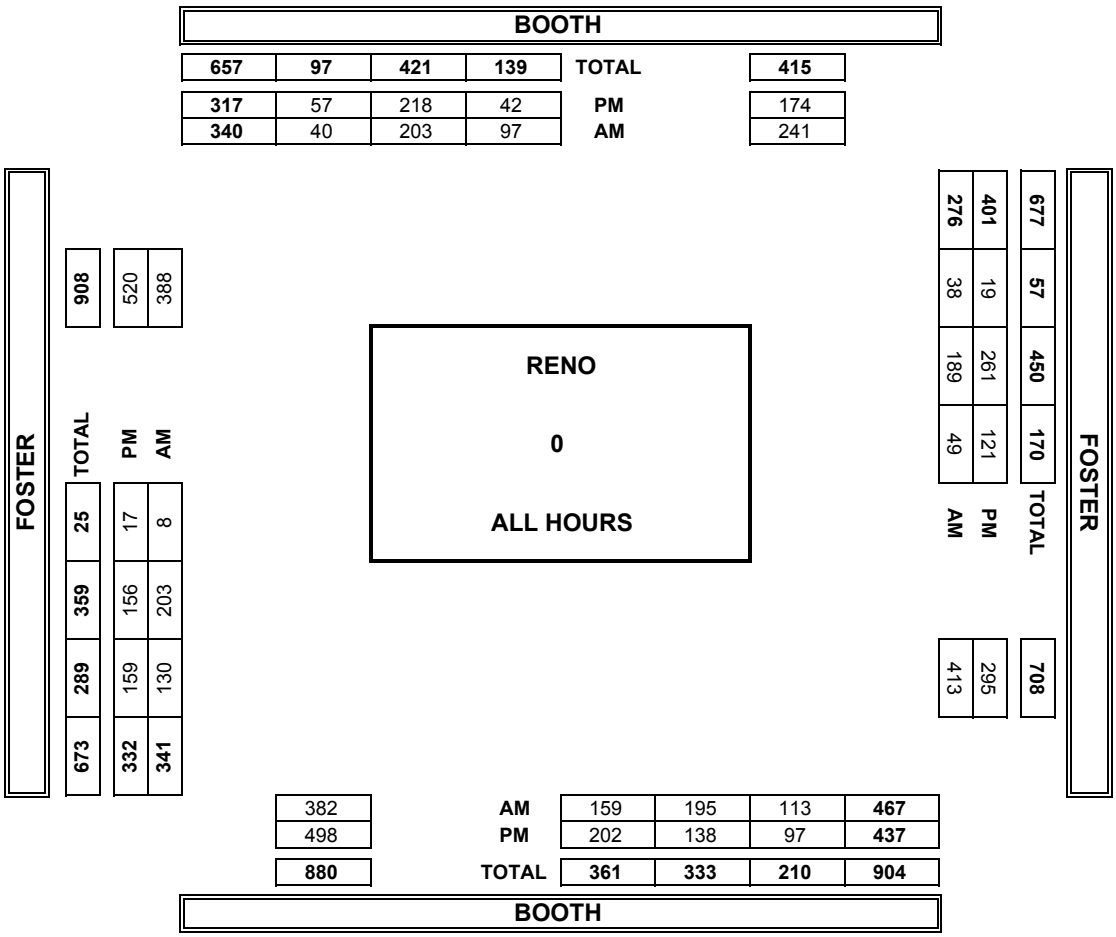
		NORTHBOUND BOOTH			SOUTHBOUND BOOTH			EASTBOUND FOSTER			WESTBOUND FOSTER				U-TURNS				
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	15	19	17	10	15	4	0	16	10	2	37	4	149	0	0	0	0	0
	7:15 AM	75	60	15	33	46	6	4	49	34	6	62	9	399	0	0	0	0	0
	7:30 AM	36	51	8	35	58	13	1	48	39	2	40	11	342	0	0	0	0	0
	7:45 AM	8	13	13	7	16	4	1	25	12	4	9	3	115	0	0	0	0	0
	8:00 AM	4	12	12	3	8	2	2	9	6	6	17	5	86	0	0	0	0	0
	8:15 AM	7	8	15	5	18	7	0	18	9	6	10	3	106	0	0	0	0	0
	8:30 AM	6	14	20	3	15	2	0	26	8	5	8	2	109	0	0	0	0	0
	8:45 AM	8	18	13	1	27	2	0	12	12	18	6	1	118	0	0	0	0	0
	VOLUMES	159	195	113	97	203	40	8	203	130	49	189	38	1,424	0	0	0	0	0
	APPROACH %	34%	42%	24%	29%	60%	12%	2%	60%	38%	18%	68%	14%						
	APP/DEPART	467	/	241	340	/	382	341	/	413	276	/	388	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	134	143	53	85	135	27	6	138	95	14	148	27	1,005					
	APPROACH %	41%	43%	16%	34%	55%	11%	3%	58%	40%	7%	78%	14%						
	PEAK HR FACTOR		0.550			0.583			0.679			0.614		0.630					
	APP/DEPART	330	/	176	247	/	244	239	/	276	189	/	309	0					
PM	4:00 PM	39	41	22	13	61	12	7	35	42	23	46	5	346	0	0	0	0	0
	4:15 PM	30	16	14	6	33	7	2	21	24	15	38	3	209	0	0	0	0	0
	4:30 PM	25	20	10	8	32	8	2	12	19	11	27	2	176	0	0	0	0	0
	4:45 PM	26	13	9	4	19	6	1	17	12	22	27	1	157	0	0	0	0	0
	5:00 PM	19	9	11	4	13	6	0	16	10	12	27	2	129	0	0	0	0	0
	5:15 PM	21	12	8	4	11	6	1	14	13	13	34	1	138	0	0	0	0	0
	5:30 PM	25	19	15	2	31	9	3	22	25	15	30	2	198	0	0	0	0	0
	5:45 PM	17	8	8	1	18	3	1	19	14	10	32	3	134	0	0	0	0	0
	VOLUMES	202	138	97	42	218	57	17	156	159	121	261	19	1,487	0	0	0	0	0
	APPROACH %	46%	32%	22%	13%	69%	18%	5%	47%	48%	30%	65%	5%						
	APP/DEPART	437	/	174	317	/	498	332	/	295	401	/	520	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	120	90	55	31	145	33	12	85	97	71	138	11	888					
	APPROACH %	45%	34%	21%	15%	69%	16%	6%	44%	50%	32%	63%	5%						
	PEAK HR FACTOR		0.650			0.608			0.577			0.743		0.642					
	APP/DEPART	265	/	113	209	/	313	194	/	171	220	/	291	0					

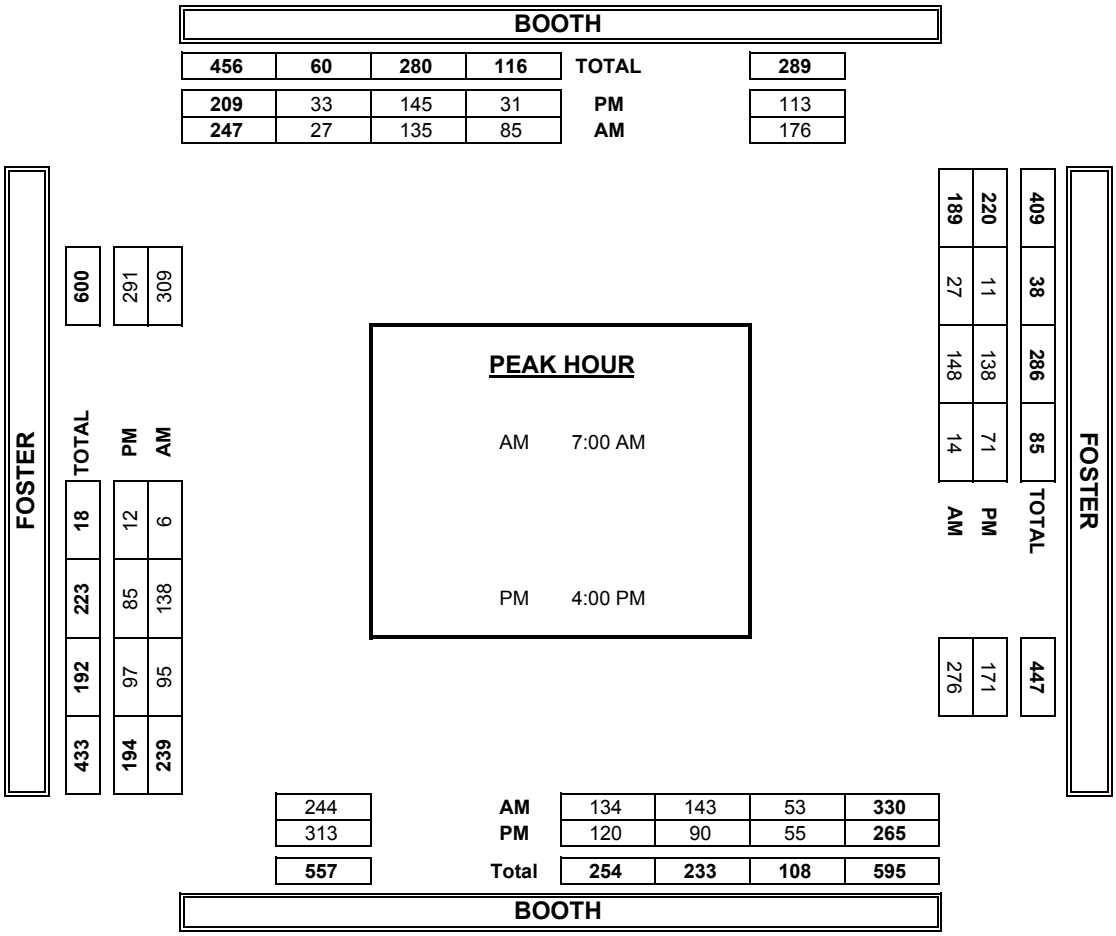


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 8/22/13 THURSDAY

LOCATION: RENO
NORTH & SOUTH: BOOTH
EAST & WEST: IDLEWOOD

PROJECT #:
LOCATION #: 11
CONTROL: 1 WAY STOP EB

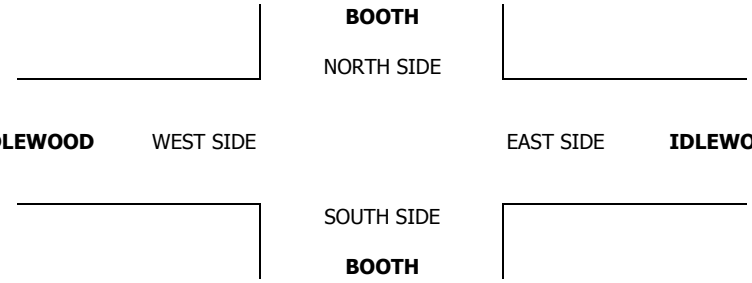
ALL CLASSES

NOTES:

AM PM MD OTHER OTHER

N ▲ S ▼ W ◄ E ►

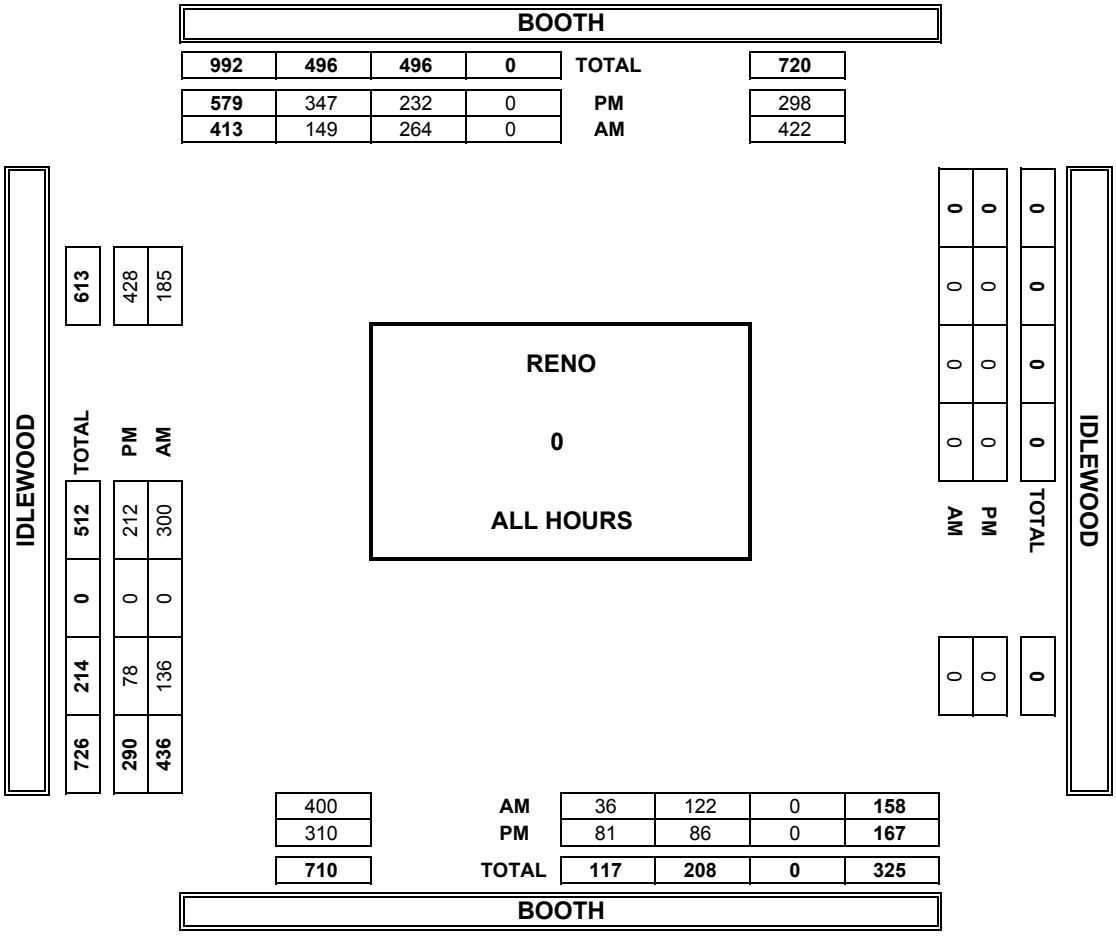
		NORTHBOUND BOOTH			SOUTHBOUND BOOTH			EASTBOUND IDLEWOOD			WESTBOUND IDLEWOOD				U-TURNS				
	LANES:	NL 0	NT 1	NR X	SL X	ST 1	SR 0	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	1	13	0	0	36	7	26	0	13	0	0	0	96	0	0	0	0	0
	7:15 AM	5	24	0	0	93	24	26	0	45	0	0	0	217	0	0	0	0	0
	7:30 AM	9	38	0	0	52	16	53	0	34	0	0	0	202	0	0	0	0	0
	7:45 AM	5	7	0	0	19	14	36	0	9	0	0	0	90	0	0	0	0	0
	8:00 AM	1	8	0	0	19	20	30	0	5	0	0	0	83	0	0	0	0	0
	8:15 AM	6	12	0	0	16	21	37	0	8	0	0	0	100	0	0	0	0	0
	8:30 AM	5	7	0	0	12	21	52	0	6	0	0	0	103	0	0	0	0	0
	8:45 AM	4	13	0	0	17	26	40	0	16	0	0	0	116	0	0	0	0	0
	VOLUMES	36	122	0	0	264	149	300	0	136	0	0	0	1,007	0	0	0	0	0
	APPROACH %	23%	77%	0%	0%	64%	36%	69%	0%	31%	0%	0%	0%						
	APP/DEPART	158	/	422	413	/	400	436	/	0	0	/	185	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	20	82	0	0	200	61	141	0	101	0	0	0	605					
	APPROACH %	20%	80%	0%	0%	77%	23%	58%	0%	42%	0%	0%	0%						
	PEAK HR FACTOR		0.543			0.558			0.695			0.000		0.697					
	APP/DEPART	102	/	223	261	/	301	242	/	0	0	/	81	0					
PM	4:00 PM	7	16	0	0	22	45	22	0	15	0	0	0	127	0	0	0	0	0
	4:15 PM	9	9	0	0	27	35	25	0	9	0	0	0	114	0	0	0	0	0
	4:30 PM	2	8	0	0	16	42	25	0	5	0	0	0	98	0	0	0	0	0
	4:45 PM	7	10	0	0	30	42	27	0	11	0	0	0	127	0	0	0	0	0
	5:00 PM	20	9	0	0	42	46	23	0	8	0	0	0	148	0	0	0	0	0
	5:15 PM	14	20	0	0	41	47	33	0	11	0	0	0	166	0	0	0	0	0
	5:30 PM	9	7	0	0	31	38	27	0	11	0	0	0	123	0	0	0	0	0
	5:45 PM	13	7	0	0	23	52	30	0	8	0	0	0	133	0	0	0	0	0
	VOLUMES	81	86	0	0	232	347	212	0	78	0	0	0	1,036	0	0	0	0	0
	APPROACH %	49%	51%	0%	0%	40%	60%	73%	0%	27%	0%	0%	0%						
	APP/DEPART	167	/	298	579	/	310	290	/	0	0	/	428	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	56	43	0	0	137	183	113	0	38	0	0	0	570					
	APPROACH %	57%	43%	0%	0%	43%	57%	75%	0%	25%	0%	0%	0%						
	PEAK HR FACTOR		0.728			0.909			0.858			0.000		0.858					
	APP/DEPART	99	/	156	320	/	175	151	/	0	0	/	239	0					

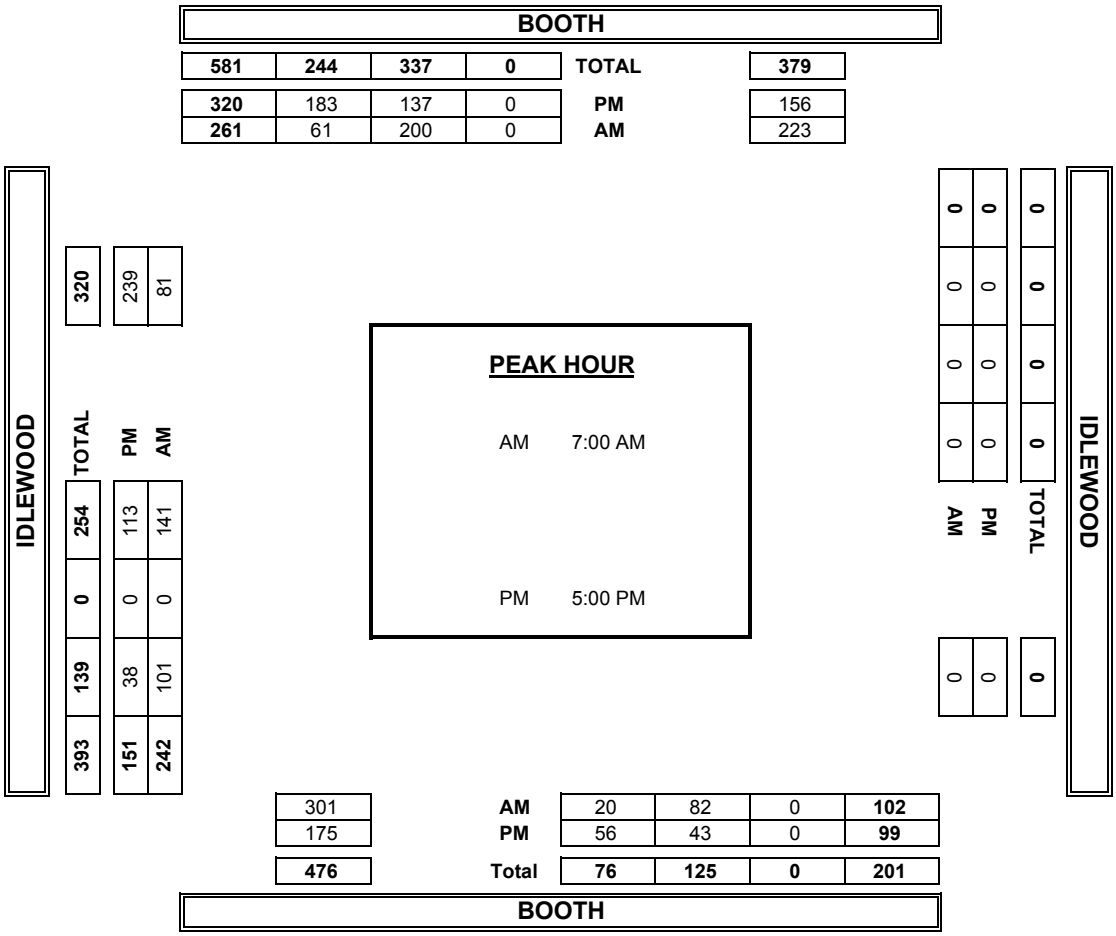


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 8/22/13 THURSDAY

LOCATION: RENO
NORTH & SOUTH: BOOTH
EAST & WEST: RIVERSIDE

PROJECT #:
LOCATION #: 12
CONTROL: 2 WAY STOP EB & SB

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER

▲ N
◄ W E ►
S ▼

		NORTHBOUND BOOTH			SOUTHBOUND BOOTH			EASTBOUND RIVERSIDE			WESTBOUND RIVERSIDE				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	1	0	34	0	1	0	0	0	1	43	0	0	80	0	0	0	0	0
	7:15 AM	2	0	54	0	1	0	0	0	0	126	1	0	184	0	0	0	0	0
	7:30 AM	3	0	92	1	0	0	0	2	2	54	2	0	156	0	0	0	0	0
	7:45 AM	1	0	40	0	0	0	0	0	3	25	1	0	70	0	0	0	0	0
	8:00 AM	1	0	39	0	0	0	0	1	0	37	2	0	80	0	0	0	0	0
	8:15 AM	1	0	45	0	0	0	0	1	0	40	1	1	89	0	0	0	0	0
	8:30 AM	1	0	57	1	1	0	0	2	1	33	1	0	97	0	0	0	0	0
	8:45 AM	2	0	51	0	0	0	0	0	1	40	0	0	94	0	0	0	0	0
	VOLUMES	12	0	412	2	3	0	0	6	8	398	8	1	850	0	0	0	0	0
	APPROACH %	3%	0%	97%	40%	60%	0%	0%	43%	57%	98%	2%	0%						
	APP/DEPART	424	/	1	5	/	409	14	/	420	407	/	20	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	7	0	225	1	1	0	0	3	5	242	6	0	490					
	APPROACH %	3%	0%	97%	50%	50%	0%	0%	38%	63%	98%	2%	0%						
	PEAK HR FACTOR		0.611			0.500			0.500			0.488		0.666					
	APP/DEPART	232	/	0	2	/	248	8	/	229	248	/	13	0					
PM	4:00 PM	2	0	34	1	1	0	0	1	0	62	1	4	106	0	0	0	0	0
	4:15 PM	1	0	35	0	0	0	0	1	2	64	3	2	108	0	0	0	0	0
	4:30 PM	0	0	34	1	1	0	0	0	0	57	2	0	95	0	0	0	0	0
	4:45 PM	2	0	38	0	0	0	0	0	0	71	3	0	114	0	0	0	0	0
	5:00 PM	0	0	34	0	0	0	0	0	3	85	2	1	125	0	0	0	0	0
	5:15 PM	2	0	47	1	0	0	0	0	3	87	2	1	143	0	0	0	0	0
	5:30 PM	1	0	34	1	0	0	0	1	0	68	0	0	105	0	0	0	0	0
	5:45 PM	3	0	34	0	0	0	0	0	0	76	2	0	115	0	0	0	0	0
	VOLUMES	11	0	290	4	2	0	0	3	8	570	15	8	911	0	0	0	0	0
	APPROACH %	4%	0%	96%	67%	33%	0%	0%	27%	73%	96%	3%	1%						
	APP/DEPART	301	/	8	6	/	580	11	/	297	593	/	26	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	6	0	149	2	0	0	0	1	6	316	6	2	488					
	APPROACH %	4%	0%	96%	100%	0%	0%	0%	14%	86%	98%	2%	1%						
	PEAK HR FACTOR		0.791			0.500			0.583			0.900		0.853					
	APP/DEPART	155	/	2	2	/	322	7	/	152	324	/	12	0					

BOOTH

NORTH SIDE

RIVERSIDE WEST SIDE EAST SIDE **RIVERSIDE**

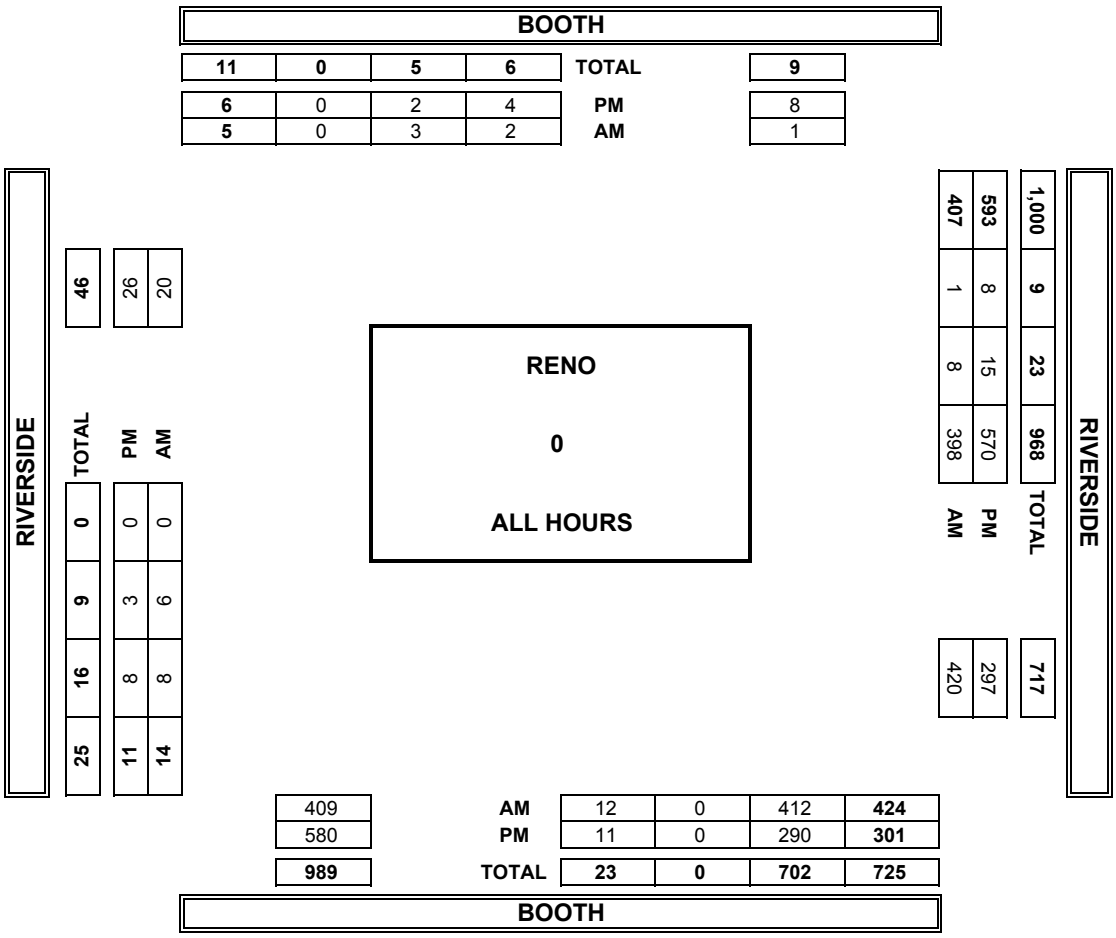
SOUTH SIDE

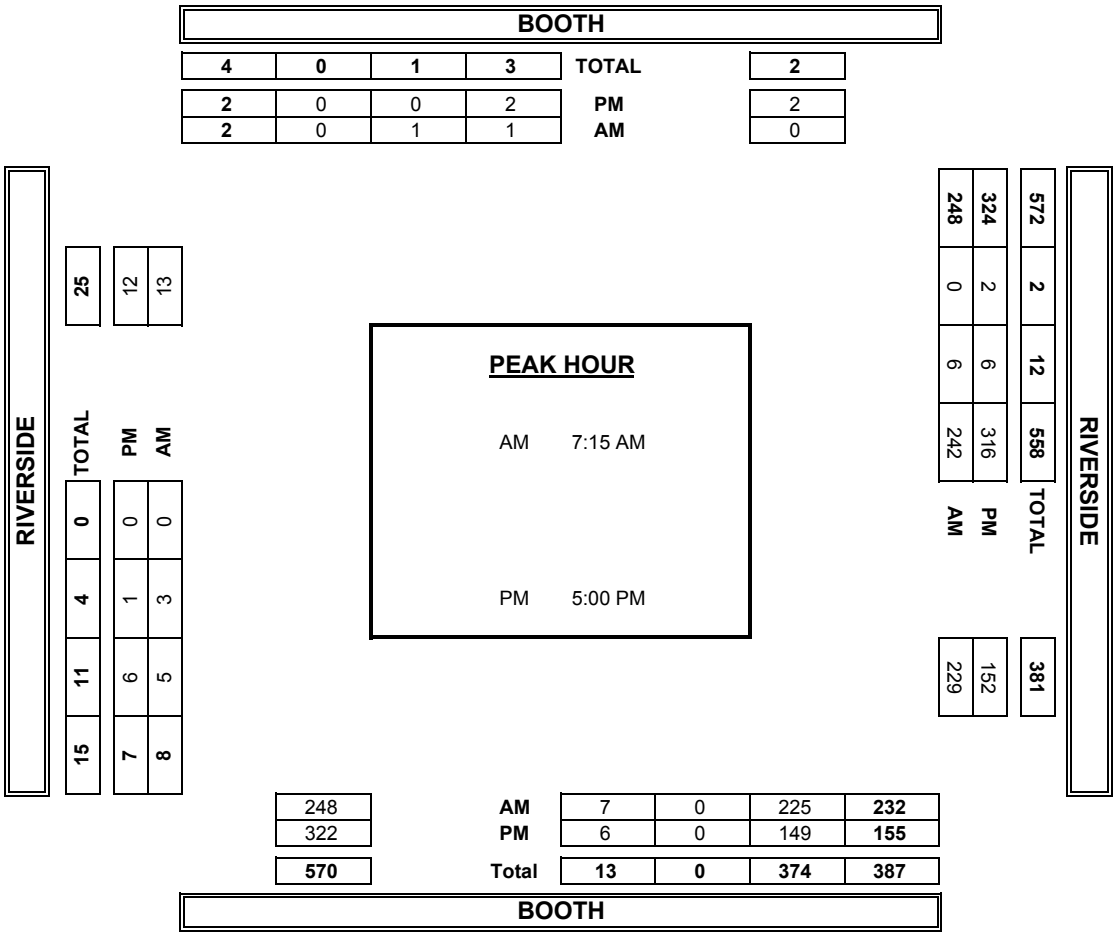
BOOTH

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	RENO	PROJECT #:	NV13-0830-0272
8/21/13	NORTH & SOUTH:	CHERRY	LOCATION #:	13
WEDNESDAY	EAST & WEST:	CALIFORNIA	CONTROL:	1 WAY STOP SB

ALL CLASSES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND CHERRY			SOUTHBOUND CHERRY			EASTBOUND CALIFORNIA			WESTBOUND CALIFORNIA				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0.5	ST X	SR 0.5	EL 1	ET 1	ER X	WL X	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	0	0	0	1	0	3	0	77	0	0	56	0	137	0	0	0	0	0
	7:15 AM	0	0	0	0	0	1	2	145	0	0	47	1	196	0	0	0	0	0
	7:30 AM	0	0	0	2	0	0	0	135	0	0	48	2	187	0	0	0	0	0
	7:45 AM	0	0	0	2	0	0	1	126	0	0	52	0	181	0	0	0	0	0
	8:00 AM	0	0	0	3	0	1	0	87	0	0	46	0	137	0	0	0	0	0
	8:15 AM	0	0	0	1	0	2	0	90	0	0	48	1	142	0	0	0	0	0
	8:30 AM	0	0	0	2	0	0	1	107	0	0	59	0	169	0	0	0	0	0
	8:45 AM	0	0	0	3	0	1	0	115	0	0	75	1	195	0	0	0	0	0
	VOLUMES	0	0	0	14	0	8	4	882	0	0	431	5	1,344	0	0	0	0	0
	APPROACH %	0%	0%	0%	64%	0%	36%	0%	100%	0%	0%	99%	1%						
	APP/DEPART	0	/	9	22	/	0	886	/	896	436	/	439	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	7	0	2	3	493	0	0	193	3	701					
	APPROACH %	0%	0%	0%	78%	0%	22%	1%	99%	0%	0%	98%	2%						
	PEAK HR FACTOR		0.000			0.563			0.844			0.875		0.894					
	APP/DEPART	0	/	6	9	/	0	496	/	500	196	/	195	0					
PM	4:00 PM	0	0	0	1	0	1	0	76	0	0	121	2	201	0	0	0	0	0
	4:15 PM	0	0	0	3	0	3	0	68	0	0	128	1	203	0	0	0	0	0
	4:30 PM	0	0	0	1	0	0	2	64	0	0	100	1	168	0	0	0	0	0
	4:45 PM	0	0	0	2	0	2	0	89	0	0	145	1	239	0	0	0	0	0
	5:00 PM	0	0	0	0	0	2	1	95	0	0	177	0	275	0	0	0	0	0
	5:15 PM	0	0	0	5	0	2	0	90	0	0	153	4	254	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	72	0	0	139	3	214	0	0	0	0	0
	5:45 PM	0	0	0	2	0	0	2	91	0	0	127	0	222	0	0	0	0	0
	VOLUMES	0	0	0	14	0	10	5	645	0	0	1,090	12	1,776	0	0	0	0	0
	APPROACH %	0%	0%	0%	58%	0%	42%	1%	99%	0%	0%	99%	1%						
	APP/DEPART	0	/	17	24	/	0	650	/	659	1,102	/	1,100	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	0	7	0	6	1	346	0	0	614	8	982					
	APPROACH %	0%	0%	0%	54%	0%	46%	0%	100%	0%	0%	99%	1%						
	PEAK HR FACTOR		0.000			0.464			0.904			0.879		0.893					
	APP/DEPART	0	/	9	13	/	0	347	/	353	622	/	620	0					

CHERRY

NORTH SIDE

CALIFORNIA WEST SIDE EAST SIDE **CALIFORNIA**

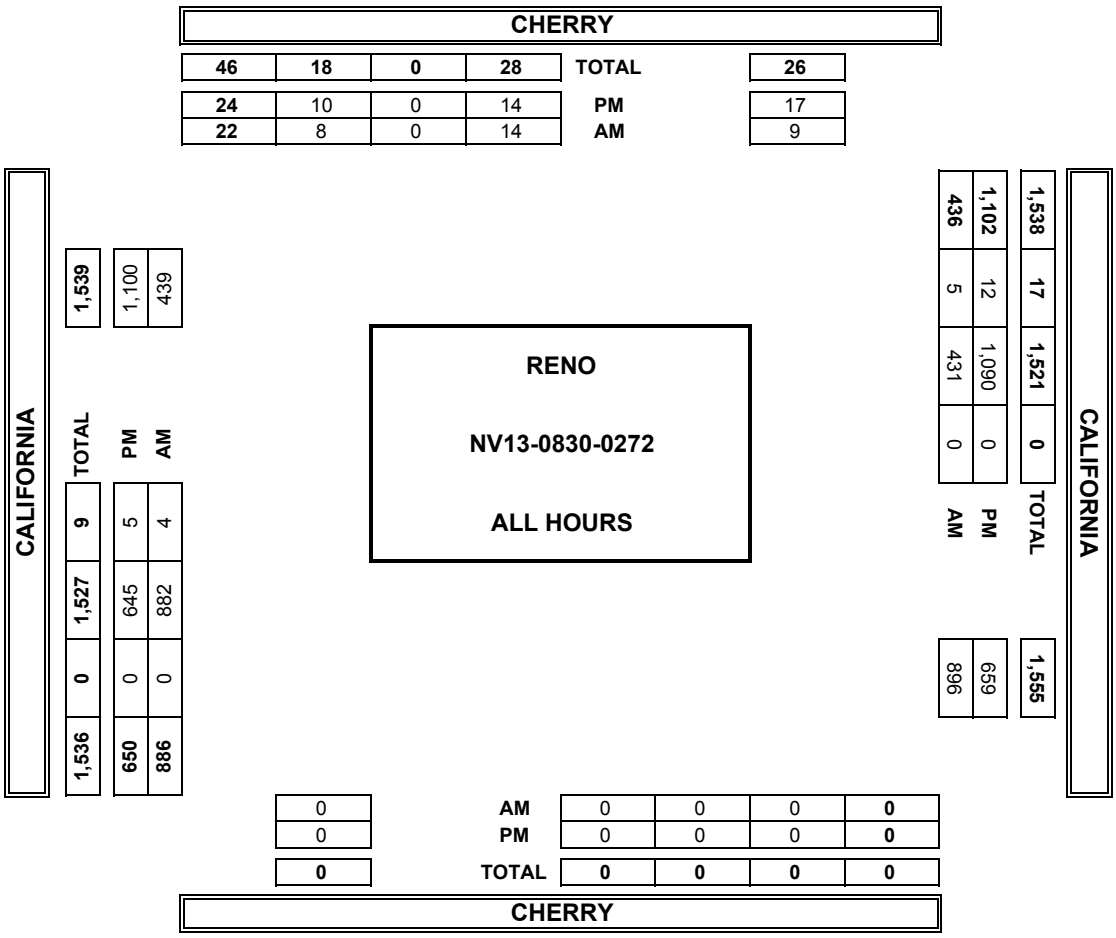
SOUTH SIDE

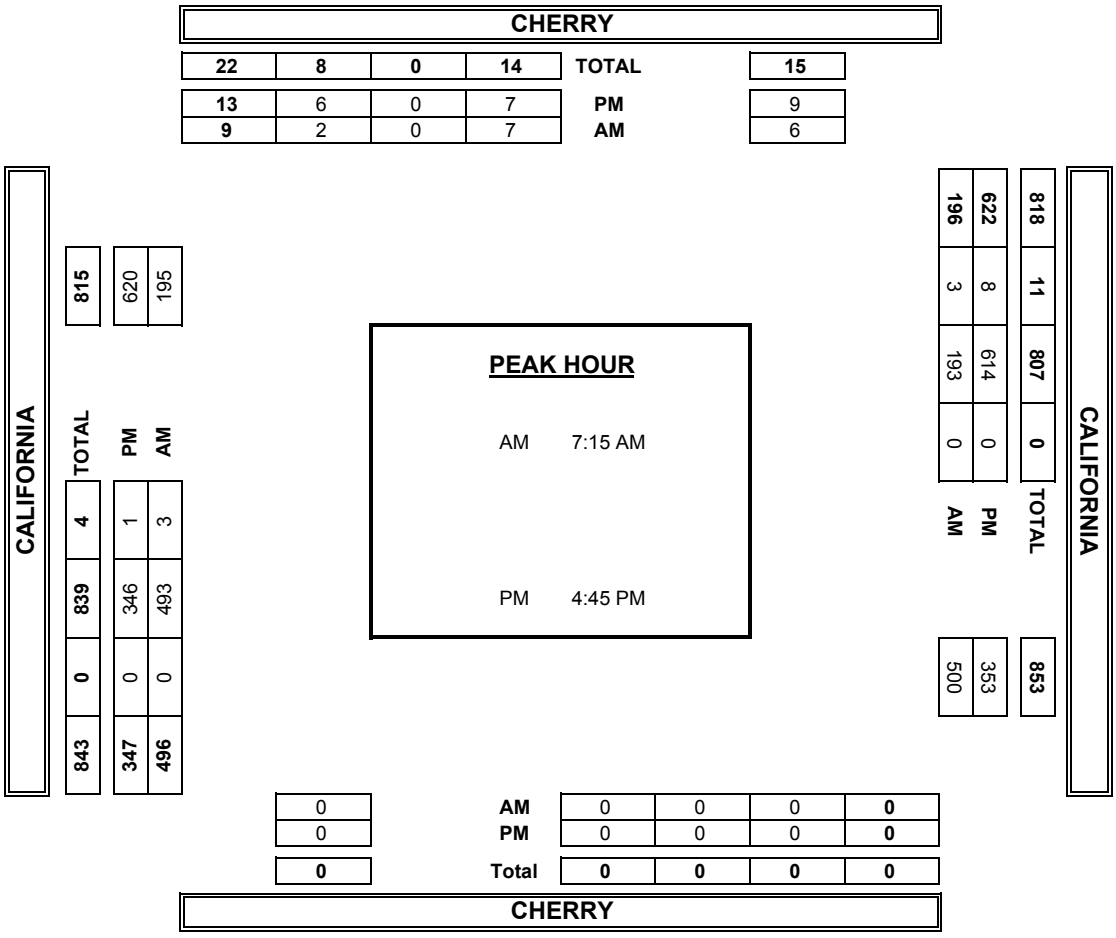
CHERRY

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 8/22/13 THURSDAY

LOCATION: RENO
NORTH & SOUTH: NEWLANDS
EAST & WEST: CALIFORNIA

PROJECT #: NV13-0830-0272
LOCATION #: 14
CONTROL: 1 WAY STOP NB

ALL CLASSES

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND NEWLANDS			SOUTHBOUND NEWLANDS			EASTBOUND CALIFORNIA			WESTBOUND CALIFORNIA				U-TURNS				
	LANES:	NL X	NT X	NR X	SL X	ST X	SR X	EL X	ET 1	ER 1	WL 1	WT 1	WR X	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	0	0	0	0	0	0	0	81	20	2	109	0	212	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	121	35	2	132	0	290	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	165	35	1	115	0	316	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	168	15	1	102	0	286	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	130	22	2	68	0	222	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	114	16	0	91	0	221	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	134	19	3	86	0	242	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	144	18	1	107	0	270	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	1,057	180	12	810	0	2,059	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	85%	15%	1%	99%	0%						
	APP/DEPART	0	/	0	0	/	192	1,237	/	1,057	822	/	810	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	0	0	0	0	584	107	6	417	0	1,114					
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	85%	15%	1%	99%	0%						
	PEAK HR FACTOR		0.000			0.000			0.864			0.789		0.881					
	APP/DEPART	0	/	0	0	/	113	691	/	584	423	/	417	0					
PM	4:00 PM	0	0	0	0	0	0	0	100	26	4	161	0	291	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	106	38	2	176	0	322	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	119	32	8	168	0	327	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	91	31	2	211	0	335	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	129	32	4	260	0	425	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	104	38	5	251	0	398	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	99	37	6	219	0	361	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	115	31	8	178	0	332	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	863	265	39	1,624	0	2,791	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	77%	23%	2%	98%	0%						
	APP/DEPART	0	/	0	0	/	304	1,128	/	863	1,663	/	1,624	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	0	0	0	0	0	423	138	17	941	0	1,519					
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	75%	25%	2%	98%	0%						
	PEAK HR FACTOR		0.000			0.000			0.871			0.907		0.894					
	APP/DEPART	0	/	0	0	/	155	561	/	423	958	/	941	0					

NEWLANDS

NORTH SIDE

CALIFORNIA WEST SIDE EAST SIDE **CALIFORNIA**

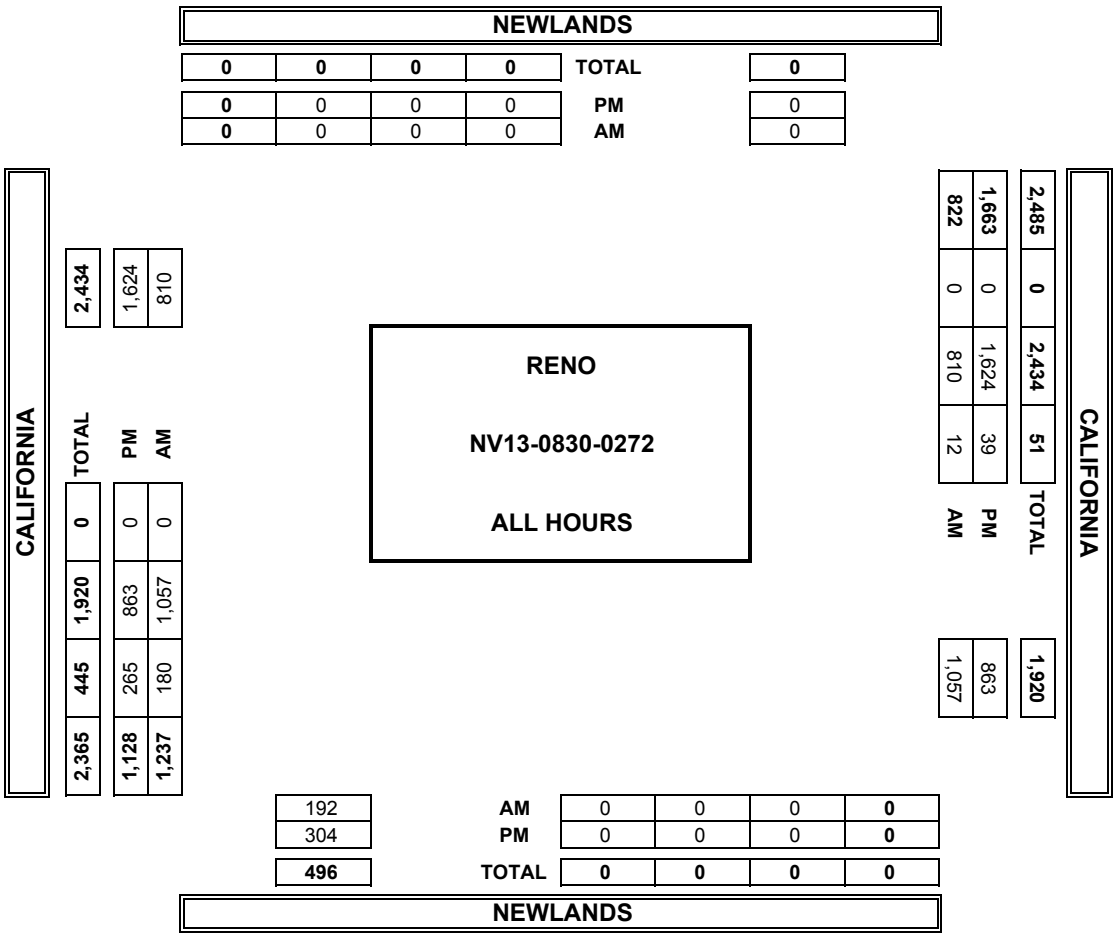
SOUTH SIDE

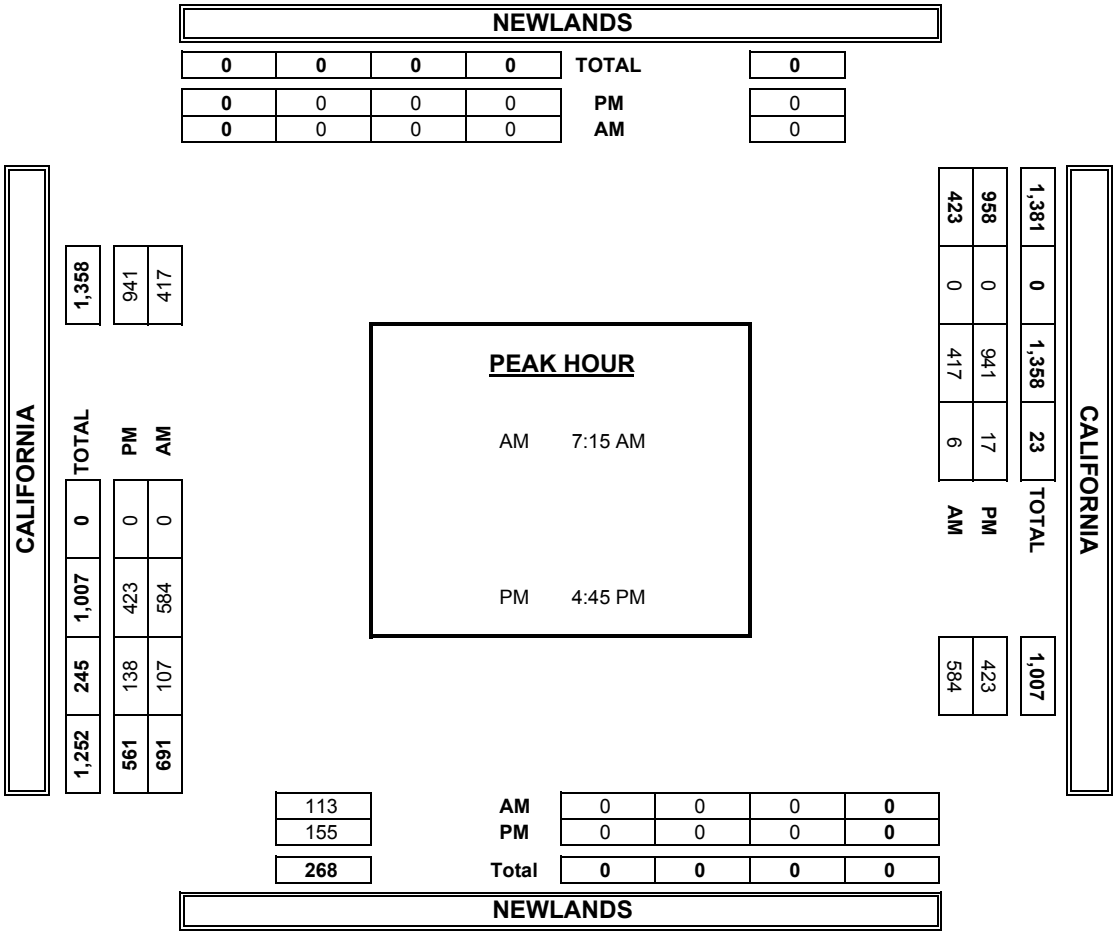
NEWLANDS

		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





Appendix E

12-Hour Bicycle, Pedestrian, and ADA Counts

12-Hour Pedestrian, Bicycle and Wheelchair Counts
California Street and Newlands Circle

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other Activity**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	0	2	0	10	8	**20**	0	2	0	0	2	**4**	0	0	0	0	0	**0**
7:30 AM	0	1	0	2	2	**5**	0	1	0	0	1	**2**	0	0	0	0	0	**0**
8:00 AM	0	0	0	0	1	**1**	0	2	0	0	1	**3**	0	0	0	0	0	**0**
8:30 PM	0	1	0	3	1	**5**	0	2	0	0	2	**4**	0	0	0	0	0	**0**
9:00 AM	0	0	0	1	0	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
9:30 AM	0	1	0	1	3	**5**	0	0	0	0	5	**5**	0	0	0	0	0	**0**
10:00 AM	0	2	0	1	3	**6**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
10:30 AM	0	1	0	1	2	**4**	0	0	0	0	2	**2**	0	0	0	0	0	**0**
11:00 AM	0	2	0	2	1	**5**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
11:30 AM	0	2	0	2	0	**4**	0	1	0	0	1	**2**	0	0	0	0	0	**0**
12:00 PM	0	1	0	0	1	**2**	0	0	0	0	6	**6**	0	0	0	0	0	**0**
12:30 PM	0	1	0	2	4	**7**	0	0	0	0	3	**3**	0	0	0	0	0	**0**
1:00 PM	0	3	0	1	1	**5**	0	3	0	0	0	**3**	0	0	0	0	0	**0**
1:30 PM	0	2	0	0	0	**2**	0	2	0	0	0	**2**	0	0	0	0	0	**0**
2:00 PM	0	2	0	0	2	**4**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
2:30 PM	0	1	0	0	7	**8**	0	0	0	0	2	**2**	0	0	0	0	0	**0**
3:00 PM	0	0	0	0	0	**0**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
3:30 PM	0	1	0	0	2	**3**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
4:00 PM	0	0	0	0	1	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
4:30 PM	0	0	0	0	1	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
5:00 PM	0	1	0	0	0	**1**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
5:30 PM	0	1	0	0	0	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
6:00 PM	0	0	0	1	3	**4**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
6:30 PM	0	0	0	0	1	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
Total	**0**	**25**	**0**	**27**	**44**	**96**	**0**	**16**	**0**	**0**	**27**	**43**	**0**	**0**	**0**	**0**	**0**	**0**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Booth Street and Foster Drive

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	7	18	18	14	3	**60**	0	1	0	3	1	**5**	0	0	0	0	0	**0**
7:30 AM	1	2	1	15	0	**19**	0	1	0	2	0	**3**	0	0	0	0	0	**0**
8:00 AM	0	3	3	2	1	**9**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
8:30 PM	0	0	2	3	0	**5**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
9:00 AM	0	2	1	0	1	**4**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
9:30 AM	0	0	0	2	3	**5**	0	2	0	0	0	**2**	0	0	0	0	0	**0**
10:00 AM	1	2	1	2	0	**6**	0	0	0	2	0	**2**	0	0	0	0	0	**0**
10:30 AM	0	0	2	0	0	**2**	0	1	0	1	0	**2**	0	0	0	0	0	**0**
11:00 AM	4	130	7	254	2	**397**	0	0	2	3	2	**7**	0	0	0	1	0	**1**
11:30 AM	6	84	11	228	0	**329**	0	1	3	2	1	**7**	0	0	0	0	0	**0**
12:00 PM	0	0	0	2	0	**2**	0	1	0	0	2	**3**	0	0	0	0	0	**0**
12:30 PM	0	1	3	3	0	**7**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
1:00 PM	0	5	0	5	1	**11**	0	2	0	1	0	**3**	0	0	0	0	0	**0**
1:30 PM	1	3	1	2	0	**7**	0	0	0	1	1	**2**	0	0	0	0	0	**0**
2:00 PM	1	1	7	3	0	**12**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
2:30 PM	0	15	11	13	0	**39**	0	0	0	2	0	**2**	0	0	0	0	0	**0**
3:00 PM	0	4	3	6	0	**13**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
3:30 PM	0	0	0	3	1	**4**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
4:00 PM	0	6	4	7	4	**21**	0	1	0	1	0	**2**	0	0	0	0	0	**0**
4:30 PM	0	3	2	4	1	**10**	0	1	0	1	1	**3**	0	0	0	0	0	**0**
5:00 PM	0	2	1	3	2	**8**	0	1	0	2	1	**4**	0	0	0	0	0	**0**
5:30 PM	0	4	3	6	1	**14**	0	0	0	1	5	**6**	0	0	0	0	0	**0**
6:00 PM	1	1	0	2	3	**7**	0	0	0	1	3	**4**	0	0	0	0	0	**0**
6:30 PM	0	1	1	0	0	**2**	0	1	0	0	3	**4**	0	0	0	0	0	**0**
Total	**22**	**287**	**82**	**579**	**23**	**993**	**0**	**15**	**5**	**23**	**24**	**67**	**0**	**0**	**0**	**1**	**0**	**1**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Booth Street and Riverside Drive

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	2	1	0	1	19	**23**	0	0	0	1	14	**15**	0	0	0	0	0	**0**
7:30 AM	4	6	1	0	52	**63**	0	0	0	1	6	**7**	0	0	0	0	0	**0**
8:00 AM	1	5	1	1	25	**33**	0	0	0	0	10	**10**	0	0	0	0	3	**3**
8:30 PM	0	1	0	0	32	**33**	0	0	0	0	12	**12**	0	0	0	0	0	**0**
9:00 AM	0	0	1	0	31	**32**	0	0	0	0	18	**18**	0	0	0	0	0	**0**
9:30 AM	1	0	0	2	32	**35**	0	0	0	0	12	**12**	0	0	0	0	0	**0**
10:00 AM	1	2	0	0	40	**43**	0	0	0	0	19	**19**	0	0	0	0	0	**0**
10:30 AM	0	0	1	0	41	**42**	0	0	0	1	9	**10**	0	0	0	0	2	**2**
11:00 AM	0	3	0	0	38	**41**	0	0	0	0	22	**22**	0	0	0	0	0	**0**
11:30 AM	0	1	0	1	44	**46**	0	0	0	0	16	**16**	0	0	0	0	0	**0**
12:00 PM	1	0	0	1	24	**26**	0	0	0	0	8	**8**	0	0	0	0	0	**0**
12:30 PM	0	4	1	0	31	**36**	0	1	0	2	9	**12**	0	0	0	0	1	**1**
1:00 PM	2	4	0	0	20	**26**	0	0	0	0	6	**6**	0	0	0	0	0	**0**
1:30 PM	0	1	1	0	14	**16**	0	0	0	0	5	**5**	0	0	0	0	1	**1**
2:00 PM	0	0	2	1	14	**17**	0	0	0	0	6	**6**	0	0	0	0	1	**1**
2:30 PM	2	0	0	0	12	**14**	0	0	0	1	10	**11**	0	0	0	0	1	**1**
3:00 PM	0	1	0	0	8	**9**	0	0	0	0	3	**3**	0	0	0	0	0	**0**
3:30 PM	0	0	1	0	15	**16**	0	0	0	0	10	**10**	0	0	0	0	0	**0**
4:00 PM	1	0	2	1	16	**20**	0	0	0	1	16	**17**	0	0	0	0	0	**0**
4:30 PM	3	5	3	4	14	**29**	0	0	0	0	12	**12**	0	0	0	0	0	**0**
5:00 PM	0	1	2	1	17	**21**	0	0	0	3	11	**14**	0	0	0	0	3	**3**
5:30 PM	2	1	1	1	17	**22**	0	0	0	0	8	**8**	0	0	0	0	0	**0**
6:00 PM	0	0	0	0	7	**7**	0	0	0	0	3	**3**	0	0	0	0	0	**0**
6:30 PM	0	0	0	0	9	**9**	0	0	0	0	5	**5**	0	0	0	0	0	**0**
Total	**20**	**36**	**17**	**14**	**572**	**659**	**0**	**1**	**0**	**10**	**250**	**261**	**0**	**0**	**0**	**0**	**12**	**12**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Keystone Avenue and Coleman Street

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	0	1	0	0	0	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
7:30 AM	1	0	1	1	0	**3**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
8:00 AM	1	0	0	2	1	**4**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
8:30 PM	0	1	0	0	0	**1**	0	2	0	0	1	**3**	0	0	0	0	0	**0**
9:00 AM	3	0	0	0	0	**3**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
9:30 AM	0	0	0	0	2	**2**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
10:00 AM	2	1	0	0	2	**5**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
10:30 AM	5	0	0	3	0	**8**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
11:00 AM	0	1	0	0	0	**1**	1	0	0	0	0	**1**	0	0	0	0	0	**0**
11:30 AM	0	0	0	0	2	**2**	1	0	0	1	0	**2**	0	0	0	0	0	**0**
12:00 PM	0	0	0	1	0	**1**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
12:30 PM	2	0	0	1	4	**7**	0	0	1	0	0	**1**	0	0	0	0	0	**0**
1:00 PM	7	0	0	5	1	**13**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
1:30 PM	0	0	0	0	5	**5**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
2:00 PM	0	13	1	0	4	**18**	1	2	0	0	0	**3**	0	0	0	0	0	**0**
2:30 PM	1	3	0	1	0	**5**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
3:00 PM	0	0	0	0	2	**2**	2	0	0	0	0	**2**	0	0	0	0	0	**0**
3:30 PM	0	0	0	0	0	**0**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
4:00 PM	0	0	0	0	1	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
4:30 PM	2	2	0	3	0	**7**	0	0	0	1	0	**1**	0	0	0	0	0	**0**
5:00 PM	1	0	0	1	2	**4**	1	1	0	0	0	**2**	0	0	0	0	0	**0**
5:30 PM	0	0	0	1	2	**3**	0	0	0	0	2	**2**	0	0	0	0	0	**0**
6:00 PM	0	1	0	0	1	**2**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
6:30 PM	0	0	0	0	1	**1**	1	0	0	0	0	**1**	0	0	0	0	0	**0**
Total	**25**	**23**	**2**	**19**	**30**	**99**	**7**	**10**	**1**	**2**	**5**	**25**	**0**	**0**	**0**	**0**	**0**	**0**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Keystone Avenue and King's Row

Start Time	Pedestrian Counts					Bicycle Counts					Wheelchair Counts				
	North Leg	South Leg	West Leg	Other*	Total	North Leg	South Leg	West Leg	Other**	Total	North Leg	South Leg	West Leg	Other*	Total
7:00 AM	1	0	0	2	**3**	0	0	0	0	**0**	0	0	0	0	**0**
7:30 AM	0	0	0	1	**1**	0	1	0	0	**1**	0	0	0	0	**0**
8:00 AM	0	1	0	2	**3**	0	0	0	0	**0**	0	0	0	0	**0**
8:30 PM	1	0	0	1	**2**	0	0	0	0	**0**	0	0	0	0	**0**
9:00 AM	0	0	0	2	**2**	0	0	0	0	**0**	0	0	0	0	**0**
9:30 AM	0	0	0	4	**4**	0	1	0	3	**4**	0	0	0	0	**0**
10:00 AM	2	1	1	0	**4**	1	0	2	1	**4**	0	0	0	0	**0**
10:30 AM	2	0	0	0	**2**	0	1	1	4	**6**	0	0	0	0	**0**
11:00 AM	0	0	1	0	**1**	0	0	1	0	**1**	0	0	0	0	**0**
11:30 AM	1	1	0	1	**3**	0	0	0	0	**0**	0	0	0	0	**0**
12:00 PM	0	0	0	2	**2**	0	0	1	0	**1**	0	0	0	0	**0**
12:30 PM	1	2	1	5	**9**	0	0	0	4	**4**	0	0	0	0	**0**
1:00 PM	0	1	0	1	**2**	1	0	3	2	**6**	0	0	0	0	**0**
1:30 PM	1	1	1	4	**7**	0	2	0	2	**4**	0	0	0	0	**0**
2:00 PM	1	2	4	3	**10**	0	1	2	6	**9**	0	0	0	0	**0**
2:30 PM	0	1	0	3	**4**	1	0	1	1	**3**	0	0	0	0	**0**
3:00 PM	0	0	0	2	**2**	0	0	0	2	**2**	0	0	0	0	**0**
3:30 PM	0	0	1	8	**9**	0	0	1	2	**3**	0	0	0	0	**0**
4:00 PM	0	0	1	1	**2**	0	0	0	2	**2**	0	0	0	0	**0**
4:30 PM	0	0	1	3	**4**	0	0	0	2	**2**	0	0	0	0	**0**
5:00 PM	0	0	0	2	**2**	0	0	1	0	**1**	0	0	0	0	**0**
5:30 PM	1	1	3	2	**7**	0	0	1	1	**2**	0	0	0	0	**0**
6:00 PM	0	0	1	2	**3**	0	1	0	2	**3**	0	0	0	0	**0**
6:30 PM	0	1	0	3	**4**	0	0	1	1	**2**	0	0	0	0	**0**
Total	**11**	**12**	**15**	**54**	**92**	**3**	**7**	**15**	**35**	**60**	**0**	**0**	**0**	**0**	**0**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Keystone Avenue and 7th Street

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	0	2	0	5	3	**10**	0	0	0	0	1	**1**	0	0	0	0	0	**0**
7:30 AM	1	0	1	0	3	**5**	0	1	0	2	0	**3**	0	0	0	0	0	**0**
8:00 AM	2	3	0	1	4	**10**	1	0	0	0	0	**1**	0	0	0	0	0	**0**
8:30 PM	4	2	3	0	1	**10**	0	1	0	0	0	**1**	0	0	0	0	0	**0**
9:00 AM	2	2	2	3	2	**11**	0	2	0	0	0	**2**	0	0	0	0	0	**0**
9:30 AM	1	2	1	3	3	**10**	0	2	0	1	0	**3**	0	0	0	0	0	**0**
10:00 AM	2	3	0	3	2	**10**	0	0	1	0	1	**2**	0	0	0	0	0	**0**
10:30 AM	1	2	2	4	3	**12**	1	2	0	1	1	**5**	0	0	0	0	0	**0**
11:00 AM	3	4	1	1	3	**12**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
11:30 AM	3	4	4	5	5	**21**	0	1	1	1	1	**4**	0	0	0	0	0	**0**
12:00 PM	5	3	3	0	4	**15**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
12:30 PM	4	6	3	4	2	**19**	0	2	0	0	0	**2**	0	0	0	0	0	**0**
1:00 PM	3	2	1	3	1	**10**	1	0	1	1	1	**4**	0	0	0	0	0	**0**
1:30 PM	5	4	2	5	5	**21**	0	3	0	1	2	**6**	0	0	0	0	0	**0**
2:00 PM	6	5	2	1	1	**15**	1	1	0	0	0	**2**	0	0	0	0	0	**0**
2:30 PM	3	3	4	3	2	**15**	0	1	2	1	0	**4**	0	0	0	0	0	**0**
3:00 PM	4	3	3	6	5	**21**	0	2	0	0	1	**3**	0	0	0	0	0	**0**
3:30 PM	4	4	3	8	3	**22**	1	2	1	2	0	**6**	0	0	0	0	0	**0**
4:00 PM	7	8	4	2	5	**26**	1	1	1	0	2	**5**	0	0	0	0	0	**0**
4:30 PM	2	2	1	3	2	**10**	0	0	0	1	1	**2**	0	0	0	0	0	**0**
5:00 PM	5	3	4	1	3	**16**	1	1	1	0	0	**3**	0	0	0	0	0	**0**
5:30 PM	3	4	2	4	2	**15**	1	1	1	1	1	**5**	0	0	0	0	0	**0**
6:00 PM	2	3	1	3	3	**12**	0	1	0	0	1	**2**	0	0	0	0	0	**0**
6:30 PM	0	2	1	2	2	**7**	2	0	0	1	2	**5**	0	0	0	0	0	**0**
Total	**72**	**76**	**48**	**70**	**69**	**335**	**10**	**24**	**9**	**13**	**15**	**71**	**0**	**0**	**0**	**0**	**0**	**0**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Keystone Avenue and I-80

Start Time	Pedestrian Counts			Bicycle Counts			Wheelchair Counts		
	East Leg	West Leg	Total	East Leg	West Leg	Total	East Leg	West Leg	Total
7:00 AM	1	10	**11**	1	2	**3**	0	0	**0**
7:30 AM	1	6	**7**	1	2	**3**	0	0	**0**
8:00 AM	2	6	**8**	0	1	**1**	0	0	**0**
8:30 PM	0	1	**1**	0	0	**0**	0	0	**0**
9:00 AM	0	2	**2**	0	0	**0**	0	0	**0**
9:30 AM	0	6	**6**	0	2	**2**	0	0	**0**
10:00 AM	1	4	**5**	0	1	**1**	0	0	**0**
10:30 AM	1	2	**3**	0	1	**1**	0	0	**0**
11:00 AM	3	6	**9**	2	1	**3**	0	0	**0**
11:30 AM	1	10	**11**	1	1	**2**	0	0	**0**
12:00 PM	1	1	**2**	0	0	**0**	0	0	**0**
12:30 PM	2	5	**7**	0	1	**1**	0	0	**0**
1:00 PM	0	13	**13**	0	3	**3**	0	0	**0**
1:30 PM	7	7	**14**	0	2	**2**	0	0	**0**
2:00 PM	4	11	**15**	0	2	**2**	0	0	**0**
2:30 PM	3	11	**14**	0	0	**0**	0	0	**0**
3:00 PM	1	10	**11**	0	1	**1**	0	0	**0**
3:30 PM	3	6	**9**	0	3	**3**	0	0	**0**
4:00 PM	0	8	**8**	1	1	**2**	0	1	**1**
4:30 PM	1	5	**6**	1	3	**4**	0	0	**0**
5:00 PM	4	4	**8**	2	2	**4**	0	0	**0**
5:30 PM	0	10	**10**	1	3	**4**	0	0	**0**
6:00 PM	3	6	**9**	0	1	**1**	0	0	**0**
6:30 PM	0	3	**3**	1	2	**3**	0	0	**0**
Total	**39**	**153**	**192**	**11**	**35**	**46**	**0**	**1**	**1**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

12-Hour Pedestrian, Bicycle and Wheelchair Counts
Keystone Avenue and 4th Street

Start Time	Pedestrian Counts						Bicycle Counts						Wheelchair Counts					
	North Leg	South Leg	East Leg	West Leg	Other*	Total	North Leg	South Leg	East Leg	West Leg	Other**	Total	North Leg	South Leg	East Leg	West Leg	Other*	Total
7:00 AM	0	7	0	1	0	**8**	0	2	0	0	0	**2**	0	0	0	0	0	**0**
7:30 AM	2	2	0	2	0	**6**	0	2	2	0	1	**5**	0	0	0	0	0	**0**
8:00 AM	1	2	4	2	0	**9**	0	1	1	0	0	**2**	0	0	0	0	0	**0**
8:30 PM	0	9	7	2	0	**18**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
9:00 AM	4	2	6	9	2	**23**	0	1	0	0	1	**2**	0	1	1	0	0	**2**
9:30 AM	1	7	6	3	0	**17**	0	1	0	0	1	**2**	0	0	0	0	0	**0**
10:00 AM	3	15	5	9	0	**32**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
10:30 AM	2	5	4	2	0	**13**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
11:00 AM	2	10	3	5	0	**20**	0	0	1	0	0	**1**	0	0	0	0	0	**0**
11:30 AM	5	11	6	8	0	**30**	0	0	0	0	1	**1**	0	1	0	0	0	**1**
12:00 PM	1	6	2	0	0	**9**	0	1	0	1	0	**2**	0	0	0	0	0	**0**
12:30 PM	2	8	1	11	0	**22**	0	0	0	1	0	**1**	0	0	0	0	0	**0**
1:00 PM	3	4	4	7	1	**19**	0	0	3	0	0	**3**	0	0	0	0	0	**0**
1:30 PM	0	7	0	1	0	**8**	0	2	1	1	1	**5**	0	0	0	0	0	**0**
2:00 PM	2	22	3	11	0	**38**	0	5	3	3	0	**11**	0	0	0	0	0	**0**
2:30 PM	0	7	0	1	0	**8**	0	0	1	0	0	**1**	0	0	0	0	0	**0**
3:00 PM	0	16	10	6	0	**32**	0	1	1	0	2	**4**	0	0	0	0	0	**0**
3:30 PM	0	4	1	2	0	**7**	0	1	1	0	0	**2**	0	0	0	0	0	**0**
4:00 PM	1	16	11	0	0	**28**	0	1	2	0	1	**4**	0	0	0	0	0	**0**
4:30 PM	3	11	10	8	0	**32**	0	3	2	2	0	**7**	0	0	0	0	0	**0**
5:00 PM	2	24	13	4	0	**43**	0	3	4	2	0	**9**	0	0	0	0	0	**0**
5:30 PM	1	15	1	2	0	**19**	0	1	1	3	1	**6**	0	0	0	0	0	**0**
6:00 PM	2	8	2	0	0	**12**	0	1	1	0	0	**2**	0	0	0	0	0	**0**
6:30 PM	4	13	2	10	0	**29**	0	1	3	0	0	**4**	0	0	0	0	0	**0**
Total	**41**	**231**	**101**	**106**	**3**	**482**	**0**	**27**	**27**	**13**	**9**	**76**	**0**	**2**	**1**	**0**	**0**	**3**

*Pedestrian/wheelchair activity on the sidewalks (i.e., not using the crosswalks)

**Bicyles on the sidewalks and/or those behaving like autos (i.e., those that occupy the entire lane).

Appendix F

Signal Timing Information

Station : 41 - KEYSTONE & 7TH (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		14		17		14		17								
Min Green	4	6		6	4	6		6								
Passage	2	3		2	2	3		2								
Max1	16	35		30	30	35		30								
Max2	16	35		30	30	35		30								
Yellow	3.5	4		4	3.5	4		4								
Red	0.5	0.5		0.5	0.5	0.5		0.5								
Red Revert	4	4		4	4	4		4								
Added Initial																
Max Initial	4	6		6	4	6		6								
Time Before Reduce	4	6		6	4	6		6								
Cars Before Reduce																
Time To Reduce	10	20		20	20	20		20								
Reduce By																
Min Gap	1	1.5		1	1	1.5		1								
Dynamic Max Limit																
Dynamic Max Step						2										
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry		ON				ON										
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call																
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry				ON				ON								
Sim Gap Enable		ON		ON		ON		ON								
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input			ON	ON	ON	ON
Override Flash			ON	ON	ON	ON
Override Higher			ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15				
Min Green	4	4				
Min Walk						
Ped Clear	17	14				
Track Green						
Min Dwell	15	15				
Max Presence	120	120				
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 41 - KEYSTONE & 7TH (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		11	11	120	56	11	5		17		16	56		48	19	53		48								
9		1	254																							
11		3	2	110	25	2	1	4	17		17	46		47	28	35		47								
15	30	4	3	120	108	3	1	4	17		15	67		38	46	36		38								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:50:22 PM

Station : 41 - KEYSTONE & 7TH (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																						1			2
4												1																																			1				2
5																																																			1
6																																																			1
7																																																			1
8																																																			1
9																																																			1
10																																																			1
11																																																			1
12																																																			1
13																																																			1
14																																																			1
15																																																			1
16																																																			1
17																																																			1
18																																																			1
19																																																			1
20																																																			1
21																																																			1
22																																																			1
23																																																			1
24																																																			1
25																																																			1
26																																																			1
27																																																			1
28																																																			1
29																																																			1
30																																																			1
31																																																			1
32																																																			1

User Comments:

Station : 39 - KEYSTONE & I-80 (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7				7										
Ped Clearance		5				7										
Min Green	4	4	4	4	4	4	6	4								
Passage	3	2	2	2	3	2	2	2								
Max1	35	30	35	15	20	30	20	15								
Max2	50	30	50	13	30	30	20	13								
Yellow	4	4	4	4	4	4	4	4								
Red	4	8	7	1	4	8	7	1								
Red Revert	4	4	4	4	4	4	4	4								
Added Initial																
Max Initial	4	4	4	4	3	4	6	4								
Time Before Reduce	4	4	4	4	3	4	6	4								
Cars Before Reduce																
Time To Reduce	25	20	25	6	20	20	10	8								
Reduce By																
Min Gap	1	1	1	0.7	1.8	1	1	1								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call								ON								
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry																
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input				ON	ON	ON
Override Flash					ON	ON
Override Higher					ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15				
Min Green	4	4				
Min Walk						
Ped Clear	5	5				
Track Green						
Min Dwell	15	15				
Max Presence	120	120				
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 39 - KEYSTONE & I-80 (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		11	11	120	46	11	1		17		47	25	35	13	22	50	31	17								
9		1	254																							
11		3	2	110	105	2	1	4	17		32	34	32	12	24	42	32	12								
15	30	4	3	120	59	3	1	4	17		32	38	37	13	36	34	37	13								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:50:44 PM

Station : 39 - KEYSTONE & I-80 (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1									2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																	1						2
4												1																																1						2
5																																																		1
6																																																		1
7																																																		1
8																																																		1
9																																																		1
10																																																		1
11																																																		1
12																																																		1
13																																																		1
14																																																		1
15																																																		1
16																																																		1
17																																																		1
18																																																		1
19																																																		1
20																																																		1
21																																																		1
22																																																		1
23																																																		1
24																																																		1
25																																																		1
26																																																		1
27																																																		1
28																																																		1
29																																																		1
30																																																		1
31																																																		1
32																																																		1

User Comments:

Station : 36 - KEYSTONE & 5TH (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		15		23		15		23								
Min Green	4	6		6	4	6		6								
Passage	2	2.5		2	2	2.5		2								
Max1	22	35		27	22	35		27								
Max2	22	35		27	22	35		27								
Yellow	3	4		3.5	3	4		3.5								
Red	1	1		1	1	1		1								
Red Revert	4	4		4	4	4		4								
Added Initial																
Max Initial	4	6		6	4	6		6								
Time Before Reduce	4	6		6	4	6		6								
Cars Before Reduce																
Time To Reduce	11	24		16	11	24		16								
Reduce By																
Min Gap	1	1.5		1	1	1.5		1								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry				ON				ON								
Sim Gap Enable		ON		ON		ON		ON								
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input					ON	ON
Override Flash					ON	ON
Override Higher					ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15				
Min Green	6	6				
Min Walk						
Ped Clear	23	15				
Track Green						
Min Dwell	15	15				
Max Presence	120	120				
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 36 - KEYSTONE & 5TH (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		11	11	120	64	11	5		17		25	51		44	16	60		44								
9		1	254																							
11		3	2	110	92	2	1	4	17		29	38		43	18	49		43								
15	30	4	3	120	42	3	5	4	17		24	52		44	17	59		44								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:50:01 PM

Station : 36 - KEYSTONE & 5TH (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																	1						2
4												1																																	1						2
5																																																		1
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30																																																		1
31																																																		1
32																																																		1

User Comments:

Station : 38 - KEYSTONE & 4TH (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		15		18		18		18								
Min Green	4	6	4	6	4	6	4	6								
Passage	2	2	2	2	2	2	2	2								
Max1	30	35	20	30	20	35	20	30								
Max2	30	35	20	30	20	35	20	30								
Yellow	3.5	4	3.5	4	3.5	4	3.5	4								
Red	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5								
Red Revert	4	4	4	4	4	4	4	4								
Added Initial																
Max Initial	4	6	4	6	4	6	4	6								
Time Before Reduce	4	6	4	6	4	6	4	6								
Cars Before Reduce																
Time To Reduce	18	22	10	18	10	22	10	18								
Reduce By																
Min Gap	1	1	1	1	1	1	1	1								
Dynamic Max Limit																
Dynamic Max Step						2										
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry																
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 38 - KEYSTONE & 4TH (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		11	11	120	84	11	6		17		14	58	13	35	30	42	13	35								
9		1	254																							
11		3	2	110	88	2	1	4	17		25	33	17	35	24	34	17	35								
15	30	4	3	120	4	3	2	4	17		17	58	14	31	35	40	14	31								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:49:37 PM

Station : 38 - KEYSTONE & 4TH (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																	1						2
4												1																																	1						2
5																																																		1
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31																																																		1
32																																																		1

User Comments:

Station : 40 - KEYSTONE & 2ND (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		16		16		16		16								
Min Green	4	6		4	4	6		4								
Passage	2	2.5		2	2	2.5		2								
Max1	20	30		25	25	30		25								
Max2	20	30		25	25	30		25								
Yellow	3.5	3.5		3.5	3.5	3.5		3.5								
Red	0.5	0.5		0.5	0.5	0.5		0.5								
Red Revert	4	4		4	4	4		4								
Added Initial																
Max Initial	4	6		4	4	6		4								
Time Before Reduce	4	6		4	4	6		4								
Cars Before Reduce																
Time To Reduce	15	20		15	15	20		15								
Reduce By																
Min Gap	1	1		1	1	1		1								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry				ON				ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input			ON	ON	ON	ON
Override Flash			ON	ON	ON	ON
Override Higher			ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15				
Min Green	4	4				
Min Walk						
Ped Clear	15	15				
Track Green						
Min Dwell	15	15				
Max Presence	120	120				
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 40 - KEYSTONE & 2ND (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		11	11	120	22	11	6		17		15	71		34	10	76		34								
9		1	254																							
11		3	2	110	81	2	1	4	17		28	46		36	25	49		36								
15	30	4	3	120	86	3	1	4	17		18	66		36	14	70		36								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:48:25 PM

Station : 40 - KEYSTONE & 2ND (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																							2
4												1																																		1						2
5																																																			1
6																																																			1
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32																																																			1

User Comments:

Station : 37 - KEYSTONE & 1ST (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		15		15		15		15								
Min Green	3	8		4	3	8		4								
Passage	2	3		2.5	2	3		2.5								
Max1	15	35		25	15	35		25								
Max2	15	35		25	15	35		25								
Yellow	3.5	4		3.5	3.5	4		3.5								
Red	0.5	0.5		0.5	0.5	0.5		0.5								
Red Revert	4	4		4	4	4		4								
Added Initial																
Max Initial	4	8		4	4	8		4								
Time Before Reduce	4	8		4	4	8		4								
Cars Before Reduce																
Time To Reduce	8	20		12	8	20		12								
Reduce By																
Min Gap	1	1.5		1	1	1.5		1								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON		ON								
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call																
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry				ON				ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Prepared By		Date Implemented

Reviewed By		Traffic Engineer

Station : 37 - KEYSTONE & 1ST (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		5	4	50	24	4	1	4	17		8	25		17	8	25		17								
9		1	254																							
15	30	6	5	60	25	5	1	4	17		10	30		20	8	32		20								
18	30	1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															
		1	254																							
7		11	11	120	62	11	6		17		16	59		45	10	65		45								
9		1	254																							
11	20	3	2	110	85	2	1	4	17		28	54		28	17	65		28								
12	30	1	254																							
14	30	3	2	110	85	2	1	4	17		28	54		28	17	65		28								
15	30	4	3	120	41	3	1	4	17		30	64		26	18	76		26								
18	30	1	254																							

City of Reno Timing Sheet 9/6/2013 1:44:07 PM

Station : 37 - KEYSTONE & 1ST (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2										3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1		1	1	1	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1																																							2
4												1																																		1						2
5							1							1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
6						1														1	1	1	1	1	1	1	1	1	1	1	1																					3
7								1						1	1	1	1	1															1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
8																																																		1
9																																																			1
10																																																			1
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User Comments:

Station : 35 - KEYSTONE & CALIFORNIA (Standard File)

Phase	1	2 (SL)	3 (EL)	4 (WT)	5	6	7	8	9	10	11	12	13	14	15	16
Walk																
Ped Clearance																
Min Green		6	4	12												
Passage		2	2	3												
Max1		30	30	30												
Max2		30	30	30												
Yellow		4	4	4												
Red																
Red Revert		4	4	4												
Added Initial																
Max Initial		6	4	12												
Time Before Reduce	4	6	12	6												
Cars Before Reduce																
Time To Reduce		16	16	16												
Reduce By																
Min Gap		1	1	1												
Dynamic Max Limit																
Dynamic Max Step																
Enable		ON	ON	ON												
Auto Entry																
Auto Exit																
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall				ON												
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry																
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input					ON	ON
Override Flash					ON	ON
Override Higher					ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15	15	15		
Min Green	6	6	6	6		
Min Walk						
Ped Clear						
Track Green						
Min Dwell	15	15	15	15		
Max Presence	90	90	90	90		
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 35 - KEYSTONE & CALIFORNIA (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		2	1	80		1	1	4	17			29	21	30		29	21	30								
9		2	1	80		1	1	4	17			29	21	30		29	21	30								
15		2	1	80		1	1	4	17			29	21	30		29	21	30								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:52:12 PM

Station : 35 - KEYSTONE & CALIFORNIA (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1		1	1	1	1	1	1																											1					2
4												1	1	1	1	1	1	1																											1					2
5																																																			1
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32																																																			1

User Comments:

Station : 1 - BOOTH & CALIFORNIA (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7												
Ped Clearance		25		25												
Min Green	4	4	4	6												
Passage	2	2	2	3												
Max1	30	20	20	32												
Max2	30	20	20	32												
Yellow	3.5	3.5	3.5	4												
Red	0.5	0.5	0.5	1												
Red Revert	4	4	4	4												
Added Initial																
Max Initial	4	4	4	6												
Time Before Reduce	4	4	4	6												
Cars Before Reduce																
Time To Reduce	15	15	15	20												
Reduce By																
Min Gap	1	1	1	1												
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON	ON	ON												
Auto Entry				ON												
Auto Exit				ON												
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall				ON												
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry																
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 1 - BOOTH & CALIFORNIA (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7		2	1	80		1	1	4	17		20	24	17	19		44		36								
9		3	2	80		2	1	4	17		20	24	12	24		44		36								
15		4	3	80		3	1	4	17		20	24	12	24		44		36								
19		1	254																							
Day Plan 2											**Easy**															
		1	254																							
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:51:12 PM

Station : 1 - BOOTH & CALIFORNIA (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2									3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3											1		1	1	1	1	1	1																												1					2
4												1	1	1	1	1	1	1																												1					2
5																																																			1
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User Comments:

Station : 2 - BOOTH & FOSTER (Standard File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		12		12		12		12								
Min Green		4		4		4		4								
Passage		2		2		2		2								
Max1		35		25		35		25								
Max2		35		25		35		25								
Yellow		3.5		3.5		3.5		3.5								
Red		0.5		0.5		0.5		0.5								
Red Revert		4		4		4		4								
Added Initial																
Max Initial		4		4		4		4								
Time Before Reduce		4		4		4		4								
Cars Before Reduce																
Time To Reduce		15		15		15		15								
Reduce By																
Min Gap		1		1		1		1								
Dynamic Max Limit																
Dynamic Max Step																
Enable		ON		ON		ON		ON								
Auto Entry		ON				ON										
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call									ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input					ON	ON
Override Flash					ON	ON
Override Higher					ON	ON
Flash Dwell						
Link						
Delay						
Min Duration	15	15	15	15		
Min Green	6	6	6	6		
Min Walk						
Ped Clear						
Track Green						
Min Dwell	15	15	15	15		
Max Presence	90	90	90	90		
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Station : 2 - BOOTH & FOSTER (Standard File)

Coordination

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 1											**Easy**															
		1	254																							
7	34	1	254																							
Day Plan 2											**Easy**															
Day Plan 3											**Easy**															

City of Reno Timing Sheet 9/6/2013 1:51:30 PM

Station : 2 - BOOTH & FOSTER (Standard File)

Hour	Minute	Action	Pattern	Cycle	Offset	Split	Seqnc	Short	Long	Dwell	Split 1	Split 2	Split 3	Split 4	Split 5	Split 6	Split 7	Split 8	Split 9	Split 10	Split 11	Split 12	Split 13	Split 14	Split 15	Split 16
Day Plan 4											**Easy**															

Scheduler

	Month											Day of Week							Day of Month									1										2										3		
Plan	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	Day Plan
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																																																		1
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User Comments:

Appendix G

HCS and Synchro Analysis Worksheets

California and Keystone - AM

EBT is a free movement, but HCS reports delay for this movement as well.

HCS does not have the capability to model free movements. The correct delay was manually calculated.

Results reported from HCS:

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	257	662			432	162				297		149
Movement Control Delay	46.8	6.5			12.9	13				36.1		29
Approach Delay	17.8			13.0			0.0			33.7		
Intersection Delay	20.0											

Results for High-T intersection (EBT free):

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	257	662			432	162				297		149
Movement Control Delay	46.8	0			12.9	13				36.1		29
Approach Delay	**13.1**			**13.0**			**0.0**			**33.7**		
Intersection Delay	**17.7**											

California and Keystone - PM

EBT is a free movement, but HCS reports delay for this movement as well.

HCS does not have the capability to model free movements. The correct delay was manually calculated.

Results reported from HCS:

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	165	447			694	362				282		224
Movement Control Delay	39.4	6.2			11.3	13				34.6		32
Approach Delay	15.1			11.9			0.0			33.5		
Intersection Delay	17.8											

Results for High-T intersection (EBT free):

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	165	447			694	362				224		282
Movement Control Delay	39.4	0			11.3	13				34.6		32
Approach Delay	**10.6**			**11.9**			**0.0**			**33.5**		
Intersection Delay	**16.5**											

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*Keystone and Coleman/12th*
Agency/Co.	*Jacobs*	Jurisdiction	*RTC*
Date Performed	*10/21/2013*	Analysis Year	*2013*
Analysis Time Period	*Existing AM*		

Project Description *Keystone Avenue Corridor Study*

East/West Street: *Coleman/12th*	North/South Street: *Keystone*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*20*	*140*	*50*	*10*	*270*	*10*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*23*	*162*	*58*	*11*	*313*	*11*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*1*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration	*LT*		*R*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*20*	*140*	*10*	*10*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*11*	*11*	*23*	*162*	*11*	*11*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*23*	*11*		*184*			*45*	
C (m) (veh/h)	*1228*	*1409*		*415*			*525*	
v/c	*0.02*	*0.01*		*0.44*			*0.09*	
95% queue length	*0.06*	*0.02*		*2.22*			*0.28*	
Control Delay (s/veh)	*8.0*	*7.6*		*20.4*			*12.5*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*20.4*			*12.5*		
Approach LOS	--	--	*C*			*B*		

HCS+™ Version 5.3

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Keystone and King's Row*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *King's Row* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*130*	*200*			*420*	*10*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*1.00*	*1.00*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*151*	*232*	*0*	*0*	*488*	*11*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*0*	*390*			
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*11*	*0*	*453*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*3*	*3*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*0*	*0*
Configuration	*L*		*TR*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*TR*
v (veh/h)	*151*					*11*		*453*
C (m) (veh/h)	*1054*					*232*		*784*
v/c	*0.14*					*0.05*		*0.58*
95% queue length	*0.50*					*0.15*		*3.76*
Control Delay (s/veh)	*9.0*					*21.3*		*15.7*
LOS	*A*					*C*		*C*
Approach Delay (s/veh)	--	--				*15.8*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Keystone and University*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *University* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*40*	*310*	*20*	*30*	*770*	*10*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*46*	*360*	*23*	*34*	*895*	*11*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*5*	*60*	*10*	*5*	*10*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*11*	*5*	*69*	*11*	*5*	*11*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*			*LTR*	
v (veh/h)	*46*	*34*		*27*			*85*	
C (m) (veh/h)	*739*	*1165*		*217*			*334*	
v/c	*0.06*	*0.03*		*0.12*			*0.25*	
95% queue length	*0.20*	*0.09*		*0.42*			*0.99*	
Control Delay (s/veh)	*10.2*	*8.2*		*23.9*			*19.4*	
LOS	*B*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*23.9*			*19.4*		
Approach LOS	--	--	*C*			*C*		

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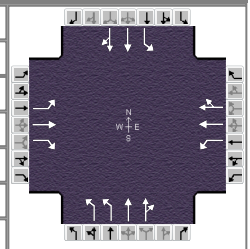
Generated: 12/24/2013 3:15 PM

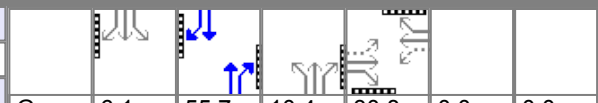
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at W 7th Stre	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				

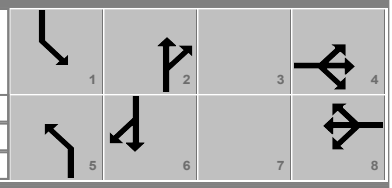


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	160	410	90	60	30	180	310	100	60	720	60

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	6.1	55.7	10.4	30.8	0.0	0.0
Yellow	3.5	4.0	3.5	4.0	0.0	0.0
Red	0.5	0.5	0.5	0.5	0.0	0.0



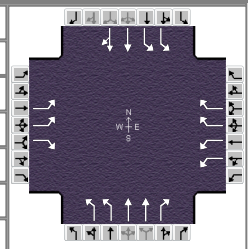
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		35.3		35.3	14.4	74.6	10.1	70.3
Change Period, (Y+R_c), s		4.5		4.5	4.5	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		29.2		21.7	9.0		6.7	
Green Extension Time (g_e), s		1.7		1.8	0.9	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.90	
Max Out Probability		0.02		0.00	0.31		0.04	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	35	186	358	105	49	48	209	230	218	70	451	439
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1280	1845	1533	1180	1845	1668	1706	1845	1713	1757	1845	1795
Queue Service Time (g_s), s	2.6	10.0	27.2	9.7	2.4	2.6	7.0	10.8	9.4	4.7	17.5	17.5
Cycle Queue Clearance Time (g_c), s	5.2	10.0	27.2	19.7	2.4	2.6	7.0	10.8	9.4	4.7	17.5	17.5
Green Ratio (*g*/*C*)	0.26	0.26	0.26	0.26	0.26	0.26	0.08	0.58	0.58	0.05	0.55	0.55
Capacity (*c*), veh/h	361	474	394	265	474	428	280	1077	1001	89	1012	984
Volume-to-Capacity Ratio (*X*)	0.097	0.393	0.909	0.395	0.103	0.111	0.746	0.213	0.218	0.783	0.446	0.446
Available Capacity (c_a), veh/h	496	669	556	389	669	605	412	1077	1001	176	1012	984
Back of Queue (*Q*), veh/ln (95th percentile)	1.5	8.1	17.1	5.1	2.0	1.9	5.2	8.7	7.0	4.0	12.2	11.9
Queue Storage Ratio (*RQ*) (95th percentile)	0.25	0.00	0.00	1.10	0.00	0.00	1.01	0.00	0.00	0.68	0.00	0.00
Uniform Delay (d_1), s/veh	36.1	36.9	43.2	45.0	34.0	34.1	49.0	20.4	16.4	56.3	16.2	16.2
Incremental Delay (d_2), s/veh	0.0	0.2	12.2	0.4	0.0	0.0	1.5	0.4	0.4	5.5	1.4	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	36.1	37.0	55.4	45.3	34.1	34.2	50.6	20.8	16.9	61.8	17.6	17.7
Level of Service (LOS)	D	D	E	D	C	C	D	C	B	E	B	B
Approach Delay, s/veh / LOS	48.4	D		39.9	D		29.0	C		20.8	C	
Intersection Delay, s/veh / LOS	31.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.1	C	2.6	B	3.1	C
Bicycle LOS Score / LOS	3.7	D	2.9	C	3.0	C	3.4	C

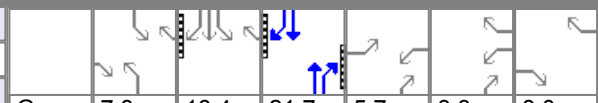
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at I-80 SPUI	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				

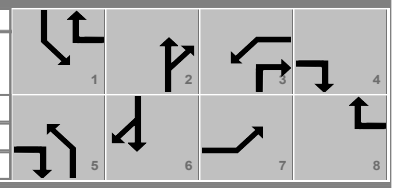


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80		300	430		310	130	200	570	800	340	80

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	46	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	7.8	18.4	21.7	5.7	3.3	8.0
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red	4.0	4.0	8.0	7.0	7.0	1.0



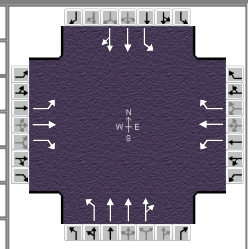
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	16.7	13.0	31.1	27.3	15.8	33.7	42.2	60.1
Change Period, ($Y+R_c$), s	11.0	5.0	11.0	5.0	8.0	12.0	8.0	12.0
Max Allow Headway (*MAH*), s	3.2	3.4	3.2	3.4	4.2	0.0	4.2	0.0
Queue Clearance Time (g_s), s	5.4	10.0	19.4	11.9	7.6		31.5	
Green Extension Time (g_e), s	0.1	0.0	0.6	0.0	0.3	0.0	2.8	0.0
Phase Call Probability	0.95	1.00	1.00	1.00	0.99		1.00	
Max Out Probability	0.00	1.00	0.41	1.00	0.15		0.48	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3		18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	93		262	500		360	151	233	498	930	238	227
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1610		1527	1682		1335	1620	1671	1577	1766	1788	1674
Queue Service Time (g_s), s	3.4		8.0	17.4		9.9	5.6	7.5	21.7	29.5	12.1	11.4
Cycle Queue Clearance Time (g_c), s	3.4		8.0	17.4		9.9	5.6	7.5	21.7	29.5	12.1	11.4
Green Ratio (*g/C*)	0.05		0.13	0.17		0.47	0.07	0.18	0.35	0.29	0.40	0.40
Capacity (*c*), veh/h	154		201	563		1259	211	604	549	1008	717	671
Volume-to-Capacity Ratio (*X*)	0.605		1.300	0.888		0.286	0.717	0.385	0.906	0.923	0.332	0.338
Available Capacity (c_a), veh/h	537		201	673		1259	378	604	549	1148	717	671
Back of Queue (*Q*), veh/ln (95th percentile)	2.5		23.7	12.9		5.5	4.5	5.9	22.9	16.6	9.0	7.9
Queue Storage Ratio (*RQ*) (95th percentile)	0.00		1.73	0.00		0.24	0.78	0.00	0.00	1.70	0.00	0.00
Uniform Delay (d_1), s/veh	56.0		52.1	48.9		19.4	58.9	44.7	37.1	29.6	28.3	25.2
Incremental Delay (d_2), s/veh	1.4		166.5	11.0		0.0	4.1	1.7	19.6	9.4	1.0	1.1
Initial Queue Delay (d_3), s/veh	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	57.5		218.6	59.9		19.4	63.0	46.4	56.7	39.0	29.3	26.3
Level of Service (LOS)	E		F	E		B	E	D	E	D	C	C
Approach Delay, s/veh / LOS	176.3		F	42.9		D	55.1		E	35.3		D
Intersection Delay, s/veh / LOS	56.5						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	D	3.3	C	3.3	C	3.3	C
Bicycle LOS Score / LOS		F		F	4.6	E	4.7	E

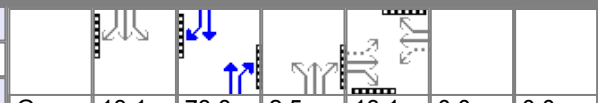
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at W 5th Stre	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				

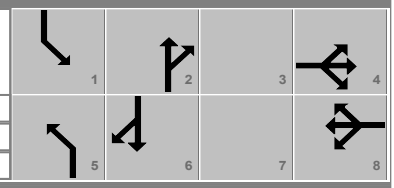


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	10	10	10	90	10	780	40	140	890	40

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	64	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	13.1	73.8	2.5	13.1	0.0	0.0
Yellow	3.0	4.0	3.0	3.5	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



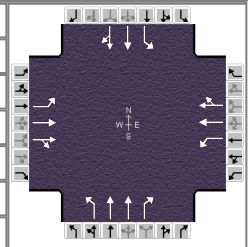
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		17.6		17.6	6.5	85.3	17.1	96.0
Change Period, (Y+R_c), s		4.5		4.5	5.0	5.0	4.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		5.5		7.7	2.8		13.0	
Green Extension Time (g_e), s		0.3		0.3	1.8	0.0	0.2	0.0
Phase Call Probability		0.99		0.99	0.32		1.00	
Max Out Probability		0.00		0.00	0.15		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	35	12	9	12	12	79	12	632	309	163	539	531
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1372	1845	1500	1351	1845	1550	1757	1845	1800	1757	1845	1815
Queue Service Time (g_s), s	2.8	0.7	0.7	0.9	0.7	5.7	0.8	7.2	7.3	11.0	18.4	18.1
Cycle Queue Clearance Time (g_c), s	3.5	0.7	0.7	1.6	0.7	5.7	0.8	7.2	7.3	11.0	18.4	18.1
Green Ratio (*g*/*C*)	0.11	0.11	0.11	0.11	0.11	0.11	0.01	0.67	0.67	0.11	0.76	0.76
Capacity (*c*), veh/h	202	201	163	199	201	169	21	2469	1205	192	1399	1376
Volume-to-Capacity Ratio (*X*)	0.173	0.058	0.057	0.058	0.058	0.469	0.542	0.256	0.257	0.846	0.386	0.386
Available Capacity (c_a), veh/h	504	607	494	497	607	510	161	2469	1205	307	1399	1376
Back of Queue (*Q*), veh/ln (95th percentile)	1.8	0.6	0.5	0.6	0.6	4.1	0.7	4.8	4.9	8.4	11.8	11.4
Queue Storage Ratio (*RQ*) (95th percentile)	0.75	0.00	0.19	0.08	0.00	0.00	0.23	0.00	0.00	0.80	0.00	0.00
Uniform Delay (d_1), s/veh	49.5	48.0	48.0	48.7	48.0	50.2	59.1	6.7	6.8	55.8	9.5	9.3
Incremental Delay (d_2), s/veh	0.1	0.0	0.1	0.0	0.0	0.8	7.2	0.2	0.5	4.2	0.5	0.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.7	48.0	48.0	48.7	48.0	51.0	66.4	6.9	7.3	59.9	10.1	9.9
Level of Service (LOS)	D	D	D	D	D	D	E	A	A	E	B	A
Approach Delay, s/veh / LOS	49.0	D		50.4	D		7.8	A		16.6	B	
Intersection Delay, s/veh / LOS	15.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.4	C	2.6	B	2.5	B
Bicycle LOS Score / LOS	3.0	C	3.1	C	3.2	C	3.6	D

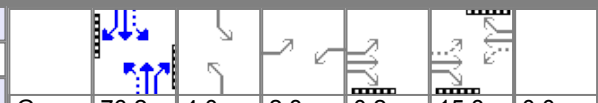
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at W 4th Stre	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				

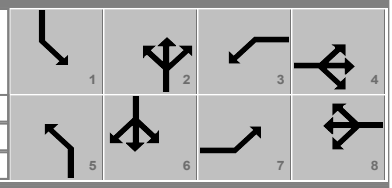


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	210	240	30	90	50	100	700	10	140	710	60

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	84	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	76.2	4.0	2.8	0.2	15.8	0.0
Yellow	4.0	3.5	3.5	3.5	4.0	0.0
Red	0.5	0.5	0.5	0.5	0.5	0.0



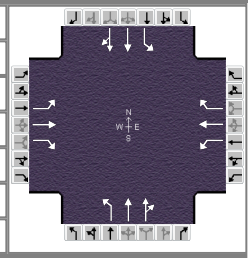
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.4	3.0	1.4	4.0
Phase Duration, s	11.0	24.6	6.8	20.3	7.9	80.7	8.0	80.7
Change Period, ($Y+R_c$), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s	3.2	3.3	3.2	3.2	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s	7.3	18.2	4.1	6.8	2.0		2.0	
Green Extension Time (g_e), s	0.0	0.8	0.0	0.3	0.2	0.0	0.2	0.0
Phase Call Probability	0.95	1.00	0.69	0.99	0.98		1.00	
Max Out Probability	1.00	0.00	0.04	0.00	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	93	244	210	35	76	73	116	814	9	163	445	433
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	1845	1506	1757	1845	1645	1757	1756	1537	1757	1845	1798
Queue Service Time (g_s), s	5.3	15.2	16.2	2.1	4.5	4.8	0.0	11.6	0.3	0.0	19.5	19.4
Cycle Queue Clearance Time (g_c), s	5.3	15.2	16.2	2.1	4.5	4.8	0.0	11.6	0.3	0.0	19.5	19.4
Green Ratio (*g/C*)	0.21	0.17	0.17	0.16	0.13	0.13	0.67	0.63	0.63	0.67	0.64	0.64
Capacity (*c*), veh/h	275	308	252	115	244	217	412	2229	976	474	1172	1142
Volume-to-Capacity Ratio (*X*)	0.339	0.790	0.833	0.302	0.312	0.336	0.282	0.365	0.010	0.343	0.379	0.379
Available Capacity (c_a), veh/h	304	469	383	206	469	418	735	2229	976	562	1172	1142
Back of Queue (*Q*), veh/ln (95th percentile)	4.2	11.6	10.6	1.6	3.7	3.6	3.6	7.4	0.2	4.7	14.0	13.7
Queue Storage Ratio (*RQ*) (95th percentile)	0.83	0.00	0.00	0.23	0.00	0.00	0.83	0.00	0.04	0.92	0.00	0.00
Uniform Delay (d_1), s/veh	40.0	48.0	48.4	44.5	47.1	47.3	18.3	8.6	12.0	15.3	17.7	17.7
Incremental Delay (d_2), s/veh	0.3	2.5	5.6	0.5	0.3	0.3	0.1	0.4	0.0	0.1	0.9	0.9
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.3	50.5	53.9	45.1	47.4	47.6	18.4	9.1	12.0	15.4	18.6	18.6
Level of Service (LOS)	D	D	D	D	D	D	B	A	B	B	B	B
Approach Delay, s/veh / LOS	50.1	D		47.1	D		10.3	B		18.1	B	
Intersection Delay, s/veh / LOS	23.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.1	C	3.0	C	3.1	C
Bicycle LOS Score / LOS	3.4	C	3.2	C	3.6	D	3.6	D

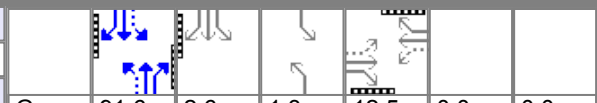
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at W 2nd Str	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				

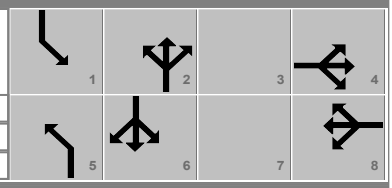


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	20	20	20	10	50	10	680	30	90	840	50

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	22	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	91.6	2.6	1.3	12.5	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



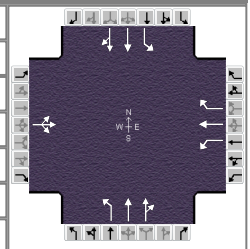
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	1.4	4.0	1.4	4.0
Phase Duration, s		16.5		16.5	5.3	95.6	7.9	98.2
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s		3.2		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		10.6		5.3	2.0		2.0	
Green Extension Time (g_e), s		0.2		0.1	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.32		0.97	
Max Out Probability		0.00		0.00	0.15		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	93	23	17	23	12	44	12	412	406	105	516	505
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1368	1845	1525	1358	1845	1518	1757	1845	1816	1757	1845	1804
Queue Service Time (g_s), s	7.9	1.4	1.2	1.9	0.7	3.2	0.0	8.2	8.2	0.0	20.3	20.7
Cycle Queue Clearance Time (g_c), s	8.6	1.4	1.2	3.3	0.7	3.2	0.0	8.2	8.2	0.0	20.3	20.7
Green Ratio (*g/C*)	0.10	0.10	0.10	0.10	0.10	0.10	0.77	0.76	0.76	0.79	0.78	0.78
Capacity (*c*), veh/h	195	193	159	186	193	159	401	1408	1386	572	1448	1416
Volume-to-Capacity Ratio (*X*)	0.477	0.121	0.109	0.125	0.060	0.279	0.029	0.293	0.293	0.183	0.356	0.357
Available Capacity (c_a), veh/h	394	461	381	384	461	379	470	1408	1386	676	1448	1416
Back of Queue (*Q*), veh/ln (95th percentile)	4.9	1.2	0.9	1.2	0.6	2.2	0.2	5.1	5.0	1.4	14.3	14.3
Queue Storage Ratio (*RQ*) (95th percentile)	2.53	0.00	0.15	0.20	0.00	0.00	0.06	0.00	0.00	0.14	0.00	0.00
Uniform Delay (d_1), s/veh	52.3	48.7	48.7	50.2	48.4	49.6	9.7	4.3	4.3	5.2	11.5	11.8
Incremental Delay (d_2), s/veh	0.7	0.1	0.1	0.1	0.0	0.4	0.0	0.4	0.4	0.0	0.6	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	53.0	48.8	48.8	50.3	48.5	49.9	9.7	4.8	4.8	5.2	12.1	12.4
Level of Service (LOS)	D	D	D	D	D	D	A	A	A	A	B	B
Approach Delay, s/veh / LOS	51.7	D		49.8	D		4.8	A		11.6	B	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.1	C	3.2	C	2.6	B	2.5	B
Bicycle LOS Score / LOS	2.9	C	2.8	C	3.3	C	3.4	C

HCS 2010 Signalized Intersection Results Summary

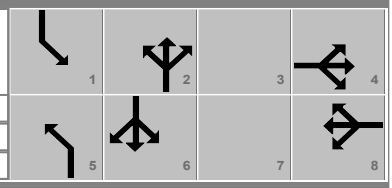
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	Existing - AM	PHF	0.86
Intersection	Keystone Ave at W 1st Stre	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	Existing AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	10	10	10	70	10	630	20	140	730	10

Signal Information			
Cycle, s	28.0	Reference Phase	2
Offset, s	24	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	0.3	2.4	9.7	3.1	0.0	0.0
Yellow	3.5	0.0	4.0	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		7.1		7.1	4.3	14.2	6.6	16.6
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.7		3.9	3.2	4.1	3.2	4.1
Queue Clearance Time (g_s), s		2.7		3.0	2.1	6.7	3.6	6.8
Green Extension Time (g_e), s		0.1		0.1	0.0	2.7	0.1	3.2
Phase Call Probability		0.63		0.63	0.09	1.00	0.72	1.00
Max Out Probability		0.00		0.00	0.00	0.02	0.26	0.04

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		44		12	12	62	12	377	373	163	431	427
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1539		1362	1845	1553	1757	1845	1821	1757	1845	1829
Queue Service Time (g_s), s		0.4		0.2	0.2	1.0	0.1	4.7	4.7	1.6	4.8	4.8
Cycle Queue Clearance Time (g_c), s		0.7		0.9	0.2	1.0	0.1	4.7	4.7	1.6	4.8	4.8
Green Ratio (*g/C*)		0.11		0.11	0.11	0.11	0.36	0.35	0.35	0.46	0.43	0.43
Capacity (*c*), veh/h		368		377	206	173	394	642	634	550	799	792
Volume-to-Capacity Ratio (*X*)		0.120		0.031	0.056	0.355	0.030	0.588	0.588	0.296	0.539	0.539
Available Capacity (c_a), veh/h		1116		1051	1119	942	879	1646	1625	885	1646	1632
Back of Queue (*Q*), veh/ln (95th percentile)		0.3		0.1	0.1	0.5	0.0	2.1	2.1	0.4	1.7	1.7
Queue Storage Ratio (*RQ*) (95th percentile)		0.00		0.05	0.00	0.00	0.01	0.00	0.00	0.11	0.00	0.00
Uniform Delay (d_1), s/veh		11.4		11.8	11.1	11.5	6.2	7.5	7.5	5.2	5.9	5.9
Incremental Delay (d_2), s/veh		0.1		0.0	0.1	0.9	0.0	0.9	0.9	0.1	0.5	0.5
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		11.5		11.8	11.2	12.4	6.2	8.3	8.4	5.3	6.4	6.4
Level of Service (LOS)		B		B	B	B	A	A	A	A	A	A
Approach Delay, s/veh / LOS	11.5	B		12.2	B		8.3	A		6.2	A	
Intersection Delay, s/veh / LOS	7.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.0	C	3.0	C	2.5	B	2.1	B
Bicycle LOS Score / LOS	2.9	C	2.9	C	3.4	C	3.3	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Keystone and Jones*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Jones* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*10*	*560*	*20*	*20*	*690*	*40*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*11*	*651*	*23*	*23*	*802*	*46*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*30*	*5*	*10*	*10*	*0*	*70*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*34*	*5*	*11*	*11*	*0*	*81*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*11*	*23*		*92*			*50*	
C (m) (veh/h)	*775*	*906*		*478*			*138*	
v/c	*0.01*	*0.03*		*0.19*			*0.36*	
95% queue length	*0.04*	*0.08*		*0.70*			*1.50*	
Control Delay (s/veh)	*9.7*	*9.1*		*14.3*			*45.2*	
LOS	*A*	*A*		*B*			*E*	
Approach Delay (s/veh)	--	--	*14.3*			*45.2*		
Approach LOS	--	--	*B*			*E*		

HCS+™ Version 5.3

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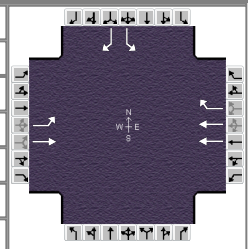
HCS 2010 Signalized Intersection Results Summary

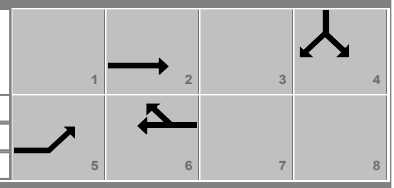
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	California and Keystone	Analysis Year	2013	Analysis Period	1> 7:00
File Name	California - AM.xus				
Project Description	Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	190	490			320	160				220		110

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off

Green	13.5	37.9	15.6	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	1.0	0.0	0.0	0.0



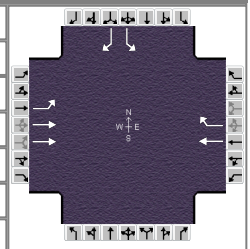
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	17.5	59.4		41.9				20.6
Change Period, (Y+R_c), s	4.0	4.0		4.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	13.4							14.8
Green Extension Time (g_e), s	0.2	0.0		0.0				0.7
Phase Call Probability	1.00							1.00
Max Out Probability	0.72							0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	257	662			432	162				297		149
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1900			1791	1572				1792		1594
Queue Service Time (g_s), s	11.4	12.5			5.8	4.8				12.8		6.6
Cycle Queue Clearance Time (g_c), s	11.4	12.5			5.8	4.8				12.8		6.6
Green Ratio (*g*/*C*)	0.17	0.69			0.47	0.47				0.19		0.19
Capacity (*c*), veh/h	302	1317			1698	745				349		310
Volume-to-Capacity Ratio (*X*)	0.849	0.503			0.255	0.218				0.853		0.479
Available Capacity (c_a), veh/h	381	1317			1698	745				537		478
Back of Queue (*Q*), veh/ln (95th percentile)	10.1	7.4			4.1	3.2				9.9		4.6
Queue Storage Ratio (*RQ*) (95th percentile)	0.00	0.00			0.00	0.19				0.00		0.64
Uniform Delay (d_1), s/veh	36.5	5.3			12.6	12.3				31.1		28.6
Incremental Delay (d_2), s/veh	10.3	1.2			0.4	0.7				5.0		0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	46.8	6.5			12.9	13.0				36.1		29.0
Level of Service (LOS)	D	A			B	B				D		C
Approach Delay, s/veh / LOS	17.8	B		13.0	B		0.0			33.7	C	
Intersection Delay, s/veh / LOS	20.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.6	B	2.7	B	2.9	C
Bicycle LOS Score / LOS	4.5	E	3.4	C				F

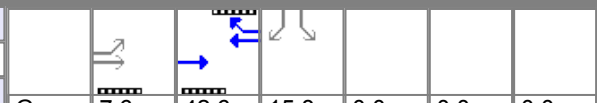
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	California and Booth	Analysis Year	2013	Analysis Period	1> 7:00
File Name	California - AM.xus				
Project Description	Existing				

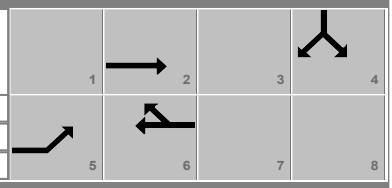


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	450			210	220				230		70

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	7.6	42.6	15.8	0.0	0.0	0.0
Yellow	3.5	4.0	4.0	0.0	0.0	0.0
Red	0.5	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	11.6	59.2		47.6				20.8
Change Period, (*Y*+*Rc*), s	4.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	7.9							15.5
Green Extension Time (g_e), s	0.1	0.0		0.0				0.4
Phase Call Probability	0.95							1.00
Max Out Probability	0.12							0.87

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	135	608			284	223				311		95
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1791			1881	1588				1792		1588
Queue Service Time (g_s), s	5.9	5.3			9.6	6.4				13.5		4.1
Cycle Queue Clearance Time (g_c), s	5.9	5.3			9.6	6.4				13.5		4.1
Green Ratio (*g*/*C*)	0.10	0.68			0.53	0.53				0.20		0.20
Capacity (*c*), veh/h	170	2425			1001	845				354		314
Volume-to-Capacity Ratio (*X*)	0.793	0.251			0.284	0.264				0.877		0.301
Available Capacity (c_a), veh/h	291	2425			1001	845				426		377
Back of Queue (*Q*), veh/ln (95th percentile)	4.9	3.1			8.2	4.1				11.5		2.8
Queue Storage Ratio (*RQ*) (95th percentile)	0.41	0.00			0.00	0.00				2.63		0.00
Uniform Delay (d_1), s/veh	35.4	5.0			17.2	10.8				31.1		27.4
Incremental Delay (d_2), s/veh	3.1	0.2			0.7	0.7				14.5		0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	38.6	5.3			17.9	11.5				45.6		27.6
Level of Service (LOS)	D	A			B	B				D		C
Approach Delay, s/veh / LOS	11.3	B		15.1	B		0.0			41.4	D	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.6	B	3.0	C	2.6	B
Bicycle LOS Score / LOS	4.0	D	4.2	D				F

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Booth and Westfield*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Westfield* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*10*	*310*			*280*	*10*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*13*	*418*	*0*	*0*	*378*	*13*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*40*	*0*	*20*			
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*54*	*0*	*27*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LTR*	
v (veh/h)	*13*						*81*	
C (m) (veh/h)	*1159*						*470*	
v/c	*0.01*						*0.17*	
95% queue length	*0.03*						*0.62*	
Control Delay (s/veh)	*8.1*						*14.2*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*14.2*	
Approach LOS	--	--					*B*	

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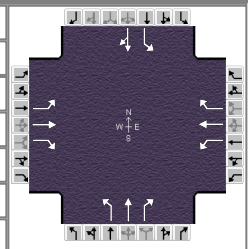
HCS 2010 Signalized Intersection Results Summary

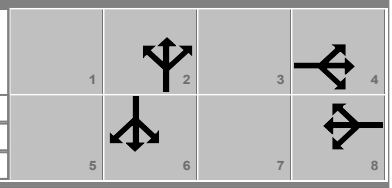
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	11/1/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	Booth and Foster	Analysis Year	2013	Analysis Period	1> 7:00
File Name	Booth and Foster - AM.xus				
Project Description	Existing AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	170	100	10	160	20	160	120	70	100	180	40

Signal Information			
Cycle, s	27.7	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	12.4	7.3	0.0	0.0	0.0	0.0	
Yellow	3.5	3.5	0.0	0.0	0.0	0.0	
Red	0.5	0.5	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		5.0		5.0		5.0		6.0
Phase Duration, s		11.3		11.3		16.4		16.4
Change Period, ($Y+R_c$), s		4.0		4.0		4.0		4.0
Max Allow Headway (*MAH*), s		3.3		3.2		3.6		3.4
Queue Clearance Time (g_s), s		4.9		5.1		9.4		5.6
Green Extension Time (g_e), s		0.7		0.5		1.2		0.9
Phase Call Probability		0.99		0.99		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	14	230	101	14	216	20	216	162	72	135	284	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1161	1881	1533	1132	1881	1564	1080	1881	1560	1211	1809	
Queue Service Time (g_s), s	0.3	2.8	1.4	0.3	2.6	0.3	4.5	1.4	0.7	2.1	2.8	
Cycle Queue Clearance Time (g_c), s	2.9	2.8	1.4	3.1	2.6	0.3	7.4	1.4	0.7	3.6	2.8	
Green Ratio (*g/C*)	0.26	0.26	0.26	0.26	0.26	0.26	0.45	0.45	0.45	0.45	0.45	
Capacity (*c*), veh/h	454	494	402	441	494	410	633	843	699	739	811	
Volume-to-Capacity Ratio (*X*)	0.030	0.465	0.252	0.031	0.438	0.049	0.342	0.192	0.102	0.183	0.350	
Available Capacity (c_a), veh/h	1200	1702	1387	1168	1702	1414	1517	2382	1976	1731	2291	
Back of Queue (*Q*), veh/ln (95th percentile)	0.1	1.5	0.6	0.1	1.4	0.1	1.2	0.5	0.2	0.6	1.0	
Queue Storage Ratio (*RQ*) (95th percentile)	0.01	0.00	0.05	0.02	0.00	0.03	0.33	0.15	0.06	0.05	0.00	
Uniform Delay (d_1), s/veh	9.7	8.6	8.0	9.9	8.5	7.6	7.4	4.6	4.4	5.7	5.0	
Incremental Delay (d_2), s/veh	0.0	0.3	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	9.7	8.8	8.2	9.9	8.7	7.6	7.5	4.6	4.4	5.7	5.1	
Level of Service (LOS)	A	A	A	A	A	A	A	A	A	A	A	
Approach Delay, s/veh / LOS	8.7	A		8.7	A		6.0	A		5.3	A	
Intersection Delay, s/veh / LOS	6.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.4	B	2.6	B	2.8	C
Bicycle LOS Score / LOS	3.0	C	2.7	B	3.4	C	3.3	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Booth & Idlewild*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Idlewild* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*30*	*120*			*210*	*60*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*40*	*162*	*0*	*0*	*283*	*81*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*130*		*110*			
Peak-Hour Factor, PHF	*0.74*	*1.00*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*175*	*0*	*148*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*					*L*		*R*
v (veh/h)	*40*					*175*		*148*
C (m) (veh/h)	*1188*					*464*		*710*
v/c	*0.03*					*0.38*		*0.21*
95% queue length	*0.10*					*1.73*		*0.78*
Control Delay (s/veh)	*8.1*					*17.4*		*11.4*
LOS	*A*					*C*		*B*
Approach Delay (s/veh)	--	--				*14.6*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Booth and Riverside*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Riverside* | North/South Street: *Booth*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*5*	*10*	*250*	*5*	*0*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*0*	*6*	*13*	*337*	*6*	*0*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*0*	*240*	*5*	*10*	*0*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*13*	*0*	*324*	*6*	*13*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*0*	*337*		*337*			*19*	
C (m) (veh/h)	*1605*	*1586*		*952*			*225*	
v/c	*0.00*	*0.21*		*0.35*			*0.08*	
95% queue length	*0.00*	*0.81*		*1.61*			*0.27*	
Control Delay (s/veh)	*7.2*	*7.9*		*10.8*			*22.5*	
LOS	*A*	*A*		*B*			*C*	
Approach Delay (s/veh)	--	--	*10.8*			*22.5*		
Approach LOS	--	--	*B*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*California and Cherry*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *California* | North/South Street: *Cherry*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*5*	*540*			*270*	*10*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*6*	*729*	*0*	*0*	*364*	*13*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*10*		*5*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.74*	*1.00*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*13*	*0*	*6*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*6*						*19*	
C (m) (veh/h)	*1175*						*288*	
v/c	*0.01*						*0.07*	
95% queue length	*0.02*						*0.21*	
Control Delay (s/veh)	*8.1*						*18.4*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*18.4*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*California and Newlands*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *California* | North/South Street: *Newlands*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*590*	*120*	*10*	*480*	
Peak-Hour Factor, PHF	*1.00*	*0.74*	*0.74*	*0.74*	*0.74*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*797*	*162*	*13*	*648*	*0*
Percent Heavy Vehicles	*0*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*0.74*	*1.00*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*13*						
C (m) (veh/h)		*717*						
v/c		*0.02*						
95% queue length		*0.06*						
Control Delay (s/veh)		*10.1*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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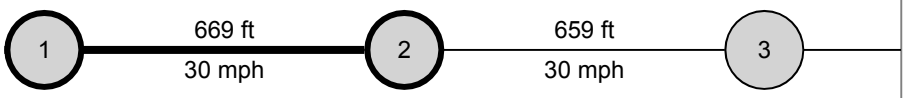
Generated: 12/24/2013 3:13 PM

HCS 2010 Urban Street Segment Report

General Information				Streets Information	
Agency	Jacobs			Number of Intersections	6
Analyst	SD	Analysis Date	Oct 17, 2013	Number of Segments	5
Jurisdiction	RTC Washoe	Time Period	Existing - AM	Number of Iterations	15
File Name	Keystone - AM.xus	Analysis Year	2013	System Cycle Length, s	120
Intersections	Keystone Ave at W 7th Street	Keystone Ave at I-80 SPUI Interchange		Analysis Period	1> 7:00
Project Description	Existing AM				



Basic Segment Information

Segment	Speed Limit		Through Lanes		Segment Length		Intersection Wid		Length of RM		Percent Curb		Other Delay	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
1	30	30	2	2	669	669	50	50	0	0	70	70	0.0	0.0

		Southbound			Northbound		
Segment Output Data		SBL	SBT	SBR	NBL	NBT	NBR
Segment	Movement	1	6	16	5	2	12
1	Bay/Lane Spillback Time, h		never			never	
1	Shared Lane Spillback Time, h	never			never		
1	Base Free-Flow Speed, mph	39.37			39.37		
1	Running Time, s	16.16			15.84		
1	Running Speed, mph	28.23			28.80		
1	Through Delay, s/veh	28.11			19.34		
1	Travel Speed, mph	10.30			12.97		
1	Stop Rate, stops/veh	0.67			0.63		
1	Spatial Stop Rate, stops/mi	5.30			4.98		
1	Through vol/cap Ratio	0.33			0.21		
1	Percent of Base FFS	26.17			32.93		
1	Level of Service	F			E		
1	Auto Traveler Perception Score	3.02			2.96		

Multimodal Results (Segment)					
1	Pedestrian Segment LOS Score / LOS	4.11	D	3.64	D
1	Bicycle Segment LOS Score / LOS	5.02	F	3.71	D
1	Transit Segment LOS Score / LOS	6.51	F	6.41	F

Facility Output Data	**Southbound**	**Northbound**
Facility Travel Time, s	158.34	168.84
Facility Travel Speed, mph	15.07	14.13
Facility Base Free Flow Speed, mph	39.37	39.37
Facility Percent of Base FFS	38.28	35.90
Facility Level of Service	E	E
Facility Auto Traveler Perception Score	2.83	2.65

Multimodal Results (Facility)				
Pedestrian Facility LOS Score / LOS	3.98	D	3.89	D
Bicycle Facility LOS Score / LOS	4.74	E	4.58	E
Transit Facility LOS Score / LOS	6.02	F	6.03	F

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*Keystone and Coleman/12th*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description *Keystone Avenue Corridor Study*

East/West Street: *Coleman/12th* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*40*	*290*	*160*	*10*	*210*	*10*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*43*	*311*	*172*	*10*	*225*	*10*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*1*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration	*LT*		*R*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*40*	*100*	*20*	*20*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*10*	*10*	*43*	*107*	*21*	*21*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*43*	*10*		*149*			*63*	
C (m) (veh/h)	*1330*	*1255*		*361*			*545*	
v/c	*0.03*	*0.01*		*0.41*			*0.12*	
95% queue length	*0.10*	*0.02*		*1.96*			*0.39*	
Control Delay (s/veh)	*7.8*	*7.9*		*21.8*			*12.5*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*21.8*			*12.5*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*Keystone and King's Row*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *King's Row* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*450*	*470*			*330*	*20*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*1.00*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*483*	*505*	*0*	*0*	*354*	*21*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*0*	*250*			
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*21*	*0*	*268*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*0*	*0*
Configuration	*L*		*TR*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*TR*
v (veh/h)	*483*					*21*		*268*
C (m) (veh/h)	*1183*					*59*		*853*
v/c	*0.41*					*0.36*		*0.31*
95% queue length	*2.02*					*1.30*		*1.35*
Control Delay (s/veh)	*10.1*					*96.5*		*11.1*
LOS	*B*					*F*		*B*
Approach Delay (s/veh)	--	--				*17.3*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*Keystone and University*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *University* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*80*	*880*	*50*	*20*	*550*	*10*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*86*	*946*	*53*	*21*	*591*	*10*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

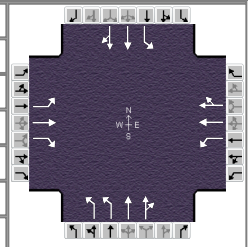
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*10*	*40*	*20*	*5*	*30*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*10*	*10*	*43*	*21*	*5*	*32*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*			*LTR*	
v (veh/h)	*86*	*21*		*58*			*63*	
C (m) (veh/h)	*975*	*692*		*129*			*206*	
v/c	*0.09*	*0.03*		*0.45*			*0.31*	
95% queue length	*0.29*	*0.09*		*2.00*			*1.24*	
Control Delay (s/veh)	*9.0*	*10.4*		*53.9*			*30.0*	
LOS	*A*	*B*		*F*			*D*	
Approach Delay (s/veh)	--	--	*53.9*			*30.0*		
Approach LOS	--	--	*F*			*D*		

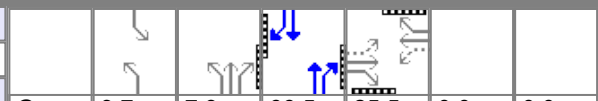
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 7th Stre	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				

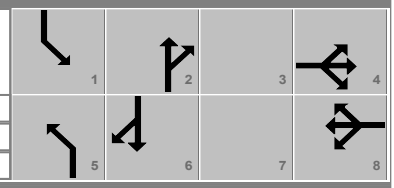


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	120	260	150	240	40	480	870	100	40	520	50

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	108	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	3.7	7.3	66.5	25.5	0.0	0.0
Yellow	3.5	3.5	4.0	4.0	0.0	0.0
Red	0.5	0.5	0.5	0.5	0.0	0.0



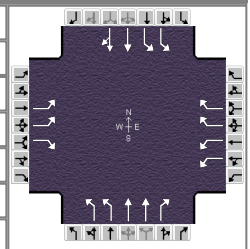
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		30.0		30.0	19.1	82.3	7.7	71.0
Change Period, (Y+R_c), s		4.5		4.5	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		21.4		23.8	14.2		4.9	
Green Extension Time (g_e), s		1.8		1.7	0.9	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.76	
Max Out Probability		0.05		0.11	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	108	129	210	161	147	143	354	354	342	43	304	296
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1090	1881	1554	1261	1881	1791	1740	1881	1813	1792	1881	1824
Queue Service Time (g_s), s	11.2	7.0	14.7	14.9	8.0	8.2	12.2	13.3	12.2	2.9	10.3	10.4
Cycle Queue Clearance Time (g_c), s	19.4	7.0	14.7	21.8	8.0	8.2	12.2	13.3	12.2	2.9	10.3	10.4
Green Ratio (*g*/*C*)	0.21	0.21	0.21	0.21	0.21	0.21	0.13	0.65	0.65	0.03	0.55	0.55
Capacity (*c*), veh/h	217	399	330	255	399	380	437	1220	1175	55	1042	1010
Volume-to-Capacity Ratio (*X*)	0.495	0.323	0.636	0.632	0.368	0.377	0.809	0.290	0.291	0.775	0.292	0.293
Available Capacity (c_a), veh/h	290	525	434	339	525	500	1218	1220	1175	164	1042	1010
Back of Queue (*Q*), veh/ln (95th percentile)	5.6	5.9	9.7	8.3	6.8	6.6	7.1	7.3	6.3	2.6	8.1	7.9
Queue Storage Ratio (*RQ*) (95th percentile)	0.94	0.00	0.00	1.75	0.00	0.00	1.38	0.00	0.00	0.43	0.00	0.00
Uniform Delay (d_1), s/veh	48.7	40.0	43.0	49.2	40.4	40.5	58.5	14.0	12.3	57.7	14.2	14.3
Incremental Delay (d_2), s/veh	0.6	0.2	0.8	1.0	0.2	0.2	0.1	0.1	0.1	8.3	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.4	40.1	43.8	50.1	40.6	40.7	58.7	14.1	12.4	66.0	15.0	15.0
Level of Service (LOS)	D	D	D	D	D	D	E	B	B	E	B	B
Approach Delay, s/veh / LOS	44.1	D		44.0	D		28.5	C		18.4	B	
Intersection Delay, s/veh / LOS	31.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.2	C	2.6	B	3.1	C
Bicycle LOS Score / LOS	3.5	D	3.2	C	3.7	D	3.2	C

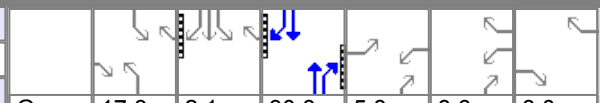
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at I-80 SPUI	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				

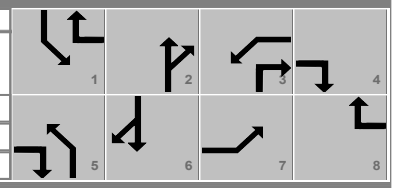


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90		200	640		890	390	470	630	460	340	130

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	59	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	17.8	2.1	30.8	5.8	8.6	8.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	4.0	0.0	8.0	7.0	7.0	1.0



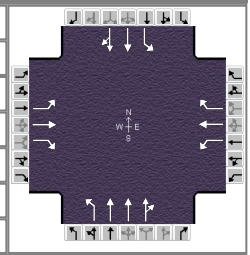
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	16.8	13.0	36.4	32.6	25.8	42.8	27.9	44.9
Change Period, ($Y+R_c$), s	11.0	5.0	11.0	5.0	8.0	12.0	8.0	12.0
Max Allow Headway (*MAH*), s	3.2	3.4	3.2	3.4	4.2	0.0	4.2	0.0
Queue Clearance Time (g_s), s	5.5	10.0	25.1	29.6	16.3		18.8	
Green Extension Time (g_e), s	0.2	0.0	0.2	0.0	1.4	0.0	1.1	0.0
Phase Call Probability	0.96	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	1.00	1.00	1.00	0.03		0.66	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3		18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	97		161	688		957	419	505	509	495	244	227
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1642		1533	1752		1427	1700	1740	1607	1714	1826	1655
Queue Service Time (g_s), s	3.5		8.0	23.1		27.6	14.3	16.5	28.4	16.8	14.7	15.2
Cycle Queue Clearance Time (g_c), s	3.5		8.0	23.1		27.6	14.3	16.5	28.4	16.8	14.7	15.2
Green Ratio (*g/C*)	0.05		0.21	0.21		0.40	0.15	0.26	0.47	0.17	0.27	0.27
Capacity (*c*), veh/h	158		329	741		1129	504	893	753	567	500	453
Volume-to-Capacity Ratio (*X*)	0.613		0.490	0.929		0.848	0.833	0.566	0.675	0.872	0.488	0.501
Available Capacity (c_a), veh/h	712		329	759		1129	793	893	753	686	500	453
Back of Queue (*Q*), veh/ln (95th percentile)	2.6		7.6	17.4		19.3	10.2	12.4	19.6	12.1	11.7	11.2
Queue Storage Ratio (*RQ*) (95th percentile)	0.00		0.55	0.00		0.81	1.72	0.00	0.00	1.22	0.00	0.00
Uniform Delay (d_1), s/veh	56.0		41.3	46.4		33.0	49.0	47.0	27.9	47.3	43.0	43.9
Incremental Delay (d_2), s/veh	1.4		0.4	17.2		5.9	4.0	2.4	4.4	9.5	3.1	3.6
Initial Queue Delay (d_3), s/veh	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	57.5		41.8	63.6		38.9	53.0	49.4	32.3	56.8	46.1	47.4
Level of Service (LOS)	E		D	E		D	D	D	C	E	D	D
Approach Delay, s/veh / LOS	47.7	D		49.2	D		44.4	D		51.9	D	
Intersection Delay, s/veh / LOS	48.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.6	D	3.3	C	3.3	C	3.3	C
Bicycle LOS Score / LOS		F		F	5.0	F	4.3	E

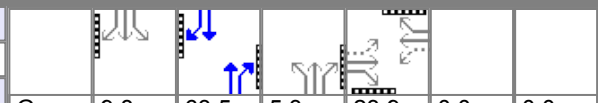
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 5th Stre	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				

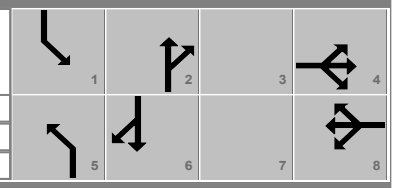


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	50	60	50	50	290	30	1090	40	110	980	90

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	42	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	9.8	63.5	5.3	23.9	0.0	0.0
Yellow	3.0	4.0	3.0	3.5	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



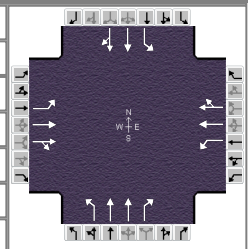
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		28.4		28.4	9.3	77.7	13.8	82.3
Change Period, (Y+R_c), s		4.5		4.5	5.0	5.0	4.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		14.3		19.0	4.2		9.9	
Green Extension Time (g_e), s		1.2		1.2	2.3	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.66		0.98	
Max Out Probability		0.00		0.00	0.27		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	118	54	48	54	54	234	32	808	397	118	572	555
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1349	1881	1533	1328	1881	1560	1792	1881	1846	1792	1881	1822
Queue Service Time (g_s), s	9.5	2.8	3.1	4.2	2.8	17.0	2.2	17.2	17.2	7.9	15.2	16.4
Cycle Queue Clearance Time (g_c), s	12.3	2.8	3.1	7.0	2.8	17.0	2.2	17.2	17.2	7.9	15.2	16.4
Green Ratio (*g*/*C*)	0.20	0.20	0.20	0.20	0.20	0.20	0.04	0.61	0.61	0.08	0.64	0.64
Capacity (*c*), veh/h	297	375	306	293	375	311	64	2281	1119	147	1212	1174
Volume-to-Capacity Ratio (*X*)	0.398	0.143	0.158	0.183	0.143	0.754	0.507	0.354	0.354	0.804	0.472	0.472
Available Capacity (c_a), veh/h	472	619	505	466	619	513	179	2281	1119	299	1212	1174
Back of Queue (*Q*), veh/ln (95th percentile)	5.8	2.4	2.1	2.5	2.4	10.9	1.8	12.4	12.4	6.5	8.4	9.2
Queue Storage Ratio (*RQ*) (95th percentile)	2.43	0.00	0.90	0.35	0.00	0.00	0.58	0.00	0.00	0.61	0.00	0.00
Uniform Delay (d_1), s/veh	44.7	39.6	39.7	42.5	39.6	45.3	58.4	18.1	18.1	58.8	7.9	8.9
Incremental Delay (d_2), s/veh	0.3	0.1	0.1	0.1	0.1	1.4	2.0	0.4	0.8	2.4	0.8	0.9
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.0	39.7	39.8	42.6	39.7	46.7	60.4	18.5	18.9	61.3	8.7	9.8
Level of Service (LOS)	D	D	D	D	D	D	E	B	B	E	A	A
Approach Delay, s/veh / LOS	42.6	D		44.9	D		19.7	B		14.2	B	
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.6	D	2.7	B	2.5	B
Bicycle LOS Score / LOS	3.3	C	3.5	D	3.3	C	3.7	D

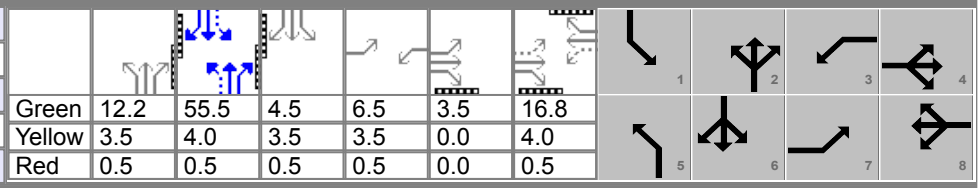
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 4th Stre	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	210	170	80	320	140	270	870	10	170	770	150

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	4	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	12.2	55.5	4.5	6.5	3.5	16.8
Yellow	3.5	4.0	3.5	3.5	0.0	4.0
Red	0.5	0.5	0.5	0.5	0.0	0.5

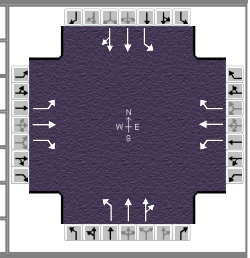
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.2	3.0	1.3	4.0
Phase Duration, s	14.0	24.8	10.5	21.3	16.2	76.2	8.5	68.5
Change Period, ($Y+R_c$), s	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.2	3.3	3.2	3.1	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s	11.1	14.4	6.9	15.2	11.7		2.0	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	0.5	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	0.94	1.00	1.00		1.00	
Max Out Probability	1.00	0.00	1.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	161	194	170	86	209	199	290	935	9	183	488	461
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1534	1792	1881	1757	1792	1791	1547	1792	1881	1779
Queue Service Time (g_s), s	9.1	11.4	12.4	4.9	12.9	13.2	9.7	18.3	0.3	0.0	16.9	16.7
Cycle Queue Clearance Time (g_c), s	9.1	11.4	12.4	4.9	12.9	13.2	9.7	18.3	0.3	0.0	16.9	16.7
Green Ratio (*g/C*)	0.24	0.17	0.17	0.19	0.14	0.14	0.58	0.60	0.60	0.48	0.53	0.53
Capacity (*c*), veh/h	239	318	259	207	263	246	434	2141	925	378	1003	948
Volume-to-Capacity Ratio (*X*)	0.676	0.609	0.656	0.415	0.795	0.811	0.669	0.437	0.009	0.484	0.487	0.487
Available Capacity (c_a), veh/h	239	415	339	259	415	388	714	2141	925	505	1003	948
Back of Queue (*Q*), veh/ln (95th percentile)	7.8	9.2	8.4	3.9	10.3	10.0	7.0	12.0	0.3	7.1	10.9	10.4
Queue Storage Ratio (*RQ*) (95th percentile)	1.52	0.00	0.00	0.55	0.00	0.00	1.61	0.00	0.08	1.38	0.00	0.00
Uniform Delay (d_1), s/veh	39.6	46.2	46.6	41.5	49.9	50.1	15.5	14.7	12.8	25.2	13.8	13.6
Incremental Delay (d_2), s/veh	6.1	0.7	1.1	0.5	2.3	3.2	0.6	0.6	0.0	0.3	1.5	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.7	46.9	47.7	42.0	52.2	53.3	16.1	15.3	12.8	25.5	15.3	15.2
Level of Service (LOS)	D	D	D	D	D	D	B	B	B	C	B	B
Approach Delay, s/veh / LOS	46.8	D		50.8	D		15.5	B		16.9	B	
Intersection Delay, s/veh / LOS	26.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.2	C	3.1	C	3.2	C
Bicycle LOS Score / LOS	3.4	C	3.5	C	3.8	D	3.7	D

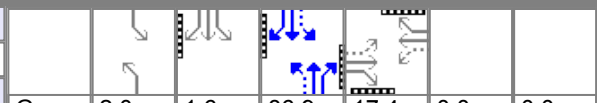
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 2nd Str	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				

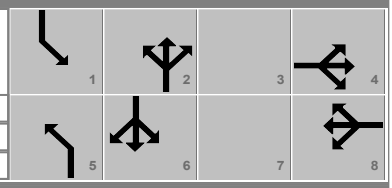


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	30	40	50	40	130	20	910	20	70	850	100

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	86	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	2.0	1.6	86.9	17.4	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



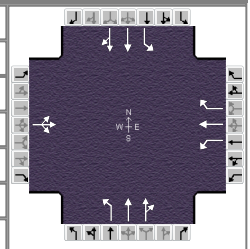
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		21.4		21.4	6.0	90.9	7.7	92.6
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		14.5		9.6	2.4		3.3	
Green Extension Time (g_e), s		0.3		0.4	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.51		0.92	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	118	32	32	54	43	105	22	500	495	75	507	487
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1342	1881	1547	1372	1881	1526	1792	1881	1862	1792	1881	1807
Queue Service Time (g_s), s	10.2	1.8	2.2	4.3	2.4	7.6	0.4	12.0	12.0	1.3	19.6	20.1
Cycle Queue Clearance Time (g_c), s	12.5	1.8	2.2	6.0	2.4	7.6	0.4	12.0	12.0	1.3	19.6	20.1
Green Ratio (*g/C*)	0.14	0.14	0.14	0.14	0.14	0.14	0.74	0.72	0.72	0.75	0.74	0.74
Capacity (*c*), veh/h	228	273	224	239	273	221	406	1363	1349	471	1388	1334
Volume-to-Capacity Ratio (*X*)	0.519	0.118	0.144	0.225	0.158	0.476	0.053	0.367	0.367	0.160	0.365	0.365
Available Capacity (c_a), veh/h	391	502	413	405	502	407	525	1363	1349	625	1388	1334
Back of Queue (*Q*), veh/ln (95th percentile)	6.2	1.5	1.5	2.7	2.0	5.3	0.2	7.6	7.5	0.7	13.9	13.8
Queue Storage Ratio (*RQ*) (95th percentile)	3.13	0.00	0.26	0.45	0.00	0.00	0.06	0.00	0.00	0.08	0.00	0.00
Uniform Delay (d_1), s/veh	50.4	44.6	44.8	47.3	44.9	47.1	5.9	6.2	6.2	4.4	12.6	13.1
Incremental Delay (d_2), s/veh	0.7	0.1	0.1	0.2	0.1	0.6	0.0	0.6	0.6	0.1	0.6	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	51.1	44.7	44.9	47.4	45.0	47.7	5.9	6.8	6.8	4.5	13.2	13.8
Level of Service (LOS)	D	D	D	D	D	D	A	A	A	A	B	B
Approach Delay, s/veh / LOS	48.8	D		47.1	D		6.8	A		12.9	B	
Intersection Delay, s/veh / LOS	15.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.3	C	2.6	B	2.5	B
Bicycle LOS Score / LOS	2.9	C	3.0	C	3.5	C	3.4	C

HCS 2010 Signalized Intersection Results Summary

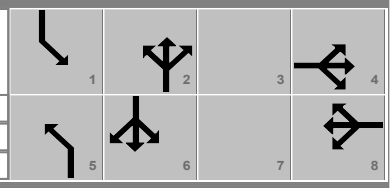
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 1st Stre	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	Existing PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	10	30	10	210	20	710	20	100	820	20

Signal Information			
Cycle, s	29.9	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	0.5	1.4	10.4	5.1	0.0	0.0
Yellow	3.5	0.0	4.0	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		9.1		9.1	4.5	14.9	5.9	16.3
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.7		3.9	3.2	4.1	3.2	4.1
Queue Clearance Time (g_s), s		2.7		5.0	2.2	7.1	3.1	7.7
Green Extension Time (g_e), s		0.1		0.5	0.0	3.0	0.1	3.6
Phase Call Probability		0.89		0.89	0.16	1.00	0.59	1.00
Max Out Probability		0.00		0.00	0.01	0.01	0.01	0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		52		32	11	170	22	392	387	108	452	446
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1584		1399	1881	1568	1792	1881	1858	1792	1881	1859
Queue Service Time (g_s), s		0.0		0.6	0.1	3.0	0.2	5.1	5.1	1.1	5.7	5.7
Cycle Queue Clearance Time (g_c), s		0.7		1.3	0.1	3.0	0.2	5.1	5.1	1.1	5.7	5.7
Green Ratio (*g/C*)		0.17		0.17	0.17	0.17	0.36	0.35	0.35	0.41	0.39	0.39
Capacity (*c*), veh/h		467		448	322	269	356	653	645	477	742	733
Volume-to-Capacity Ratio (*X*)		0.111		0.072	0.033	0.632	0.060	0.601	0.601	0.225	0.609	0.609
Available Capacity (c_a), veh/h		1221		1143	1257	1048	805	1886	1862	962	2012	1988
Back of Queue (*Q*), veh/ln (95th percentile)		0.4		0.3	0.1	1.6	0.1	2.6	2.5	0.4	2.6	2.6
Queue Storage Ratio (*RQ*) (95th percentile)		0.00		0.13	0.00	0.00	0.02	0.00	0.00	0.11	0.00	0.00
Uniform Delay (d_1), s/veh		10.6		11.1	10.3	11.5	6.8	8.1	8.1	6.0	7.2	7.2
Incremental Delay (d_2), s/veh		0.1		0.0	0.0	1.8	0.0	0.9	0.9	0.1	0.8	0.8
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		10.6		11.2	10.4	13.3	6.8	8.9	9.0	6.1	8.0	8.0
Level of Service (LOS)		B		B	B	B	A	A	A	A	A	A
Approach Delay, s/veh / LOS	10.6	B		12.9	B		8.9	A		7.8	A	
Intersection Delay, s/veh / LOS	8.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.0	C	3.0	C	2.6	B	2.1	B
Bicycle LOS Score / LOS	2.9	C	3.1	C	3.4	C	3.3	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Keystone and Jones*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Jones* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*20*	*640*	*20*	*10*	*810*	*40*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*21*	*688*	*21*	*10*	*870*	*43*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*30*	*0*	*10*	*10*	*10*	*80*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*32*	*0*	*10*	*10*	*10*	*86*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*21*	*10*		*106*			*42*	
C (m) (veh/h)	*737*	*893*		*342*			*113*	
v/c	*0.03*	*0.01*		*0.31*			*0.37*	
95% queue length	*0.09*	*0.03*		*1.29*			*1.52*	
Control Delay (s/veh)	*10.0*	*9.1*		*20.2*			*54.6*	
LOS	*B*	*A*		*C*			*F*	
Approach Delay (s/veh)	--	--	*20.2*			*54.6*		
Approach LOS	--	--	*C*			*F*		

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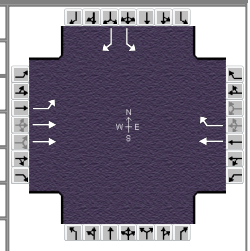
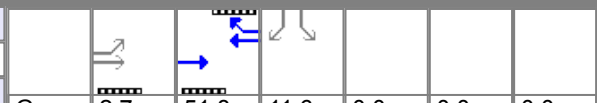
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	California and Booth	Analysis Year	2013	Analysis Period	1> 4:45
File Name	California - PM.xus				
Project Description	Existing				

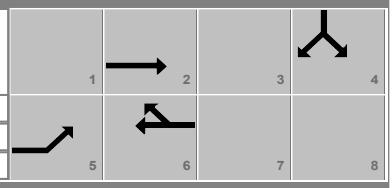


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	340			600	180				180		80

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	2.7	51.8	11.6	0.0	0.0	0.0
Yellow	3.5	4.0	4.0	0.0	0.0	0.0
Red	0.5	1.0	1.0	0.0	0.0	0.0



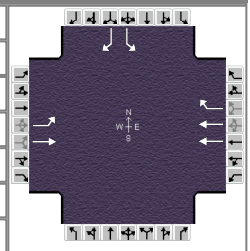
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	6.7	63.4		56.8				16.6
Change Period, ($Y+R_c$), s	4.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	4.1							11.2
Green Extension Time (g_e), s	0.0	0.0		0.0				0.4
Phase Call Probability	0.65							1.00
Max Out Probability	0.34							0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	47	400			706	159				212		94
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1791			1881	1554				1792		1588
Queue Service Time (g_s), s	2.1	2.7			22.2	3.5				9.2		4.3
Cycle Queue Clearance Time (g_c), s	2.1	2.7			22.2	3.5				9.2		4.3
Green Ratio (*g/C*)	0.03	0.73			0.65	0.65				0.14		0.14
Capacity (*c*), veh/h	60	2615			1217	1006				259		230
Volume-to-Capacity Ratio (*X*)	0.790	0.153			0.580	0.158				0.816		0.409
Available Capacity (c_a), veh/h	179	2615			1217	1006				426		377
Back of Queue (*Q*), veh/ln (95th percentile)	1.9	1.4			15.5	2.0				7.4		3.0
Queue Storage Ratio (*RQ*) (95th percentile)	0.16	0.00			0.00	0.00				1.69		0.00
Uniform Delay (d_1), s/veh	38.4	3.3			13.7	6.2				33.2		31.1
Incremental Delay (d_2), s/veh	8.4	0.1			1.9	0.3				2.4		0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	46.8	3.4			15.6	6.5				35.6		31.5
Level of Service (LOS)	D	A			B	A				D		C
Approach Delay, s/veh / LOS	8.0	A		13.9	B		0.0			34.3	C	
Intersection Delay, s/veh / LOS	16.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.5	B	3.0	C	2.6	B
Bicycle LOS Score / LOS	3.8	D	4.8	E				F

HCS 2010 Signalized Intersection Results Summary

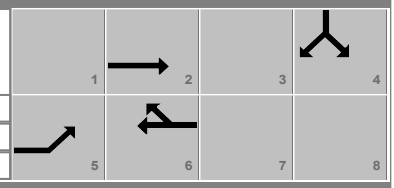
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	California and Keystone	Analysis Year	2013	Analysis Period	1> 4:45
File Name	California - PM.xus				
Project Description	Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	380			590	410				240		190

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off

Green	9.2	42.7	15.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	13.2	59.9		46.7				20.1
Change Period, (*Y*+*Rc*), s	4.0	4.0		4.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.4
Queue Clearance Time (g_s), s	9.3							14.1
Green Extension Time (g_e), s	0.2	0.0		0.0				0.9
Phase Call Probability	0.97							1.00
Max Out Probability	0.01							0.03

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	165	447			694	362				282		224
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1900			1791	1559				1792		1594
Queue Service Time (g_s), s	7.3	8.3			9.0	11.3				12.1		10.6
Cycle Queue Clearance Time (g_c), s	7.3	8.3			9.0	11.3				12.1		10.6
Green Ratio (*g*/*C*)	0.12	0.70			0.53	0.53				0.19		0.19
Capacity (*c*), veh/h	206	1329			1913	833				337		300
Volume-to-Capacity Ratio (*X*)	0.799	0.336			0.363	0.435				0.837		0.745
Available Capacity (c_a), veh/h	381	1329			1913	833				537		478
Back of Queue (*Q*), veh/ln (95th percentile)	6.2	5.4			6.2	7.2				9.3		7.4
Queue Storage Ratio (*RQ*) (95th percentile)	0.00	0.00			0.00	0.42				0.00		1.04
Uniform Delay (d_1), s/veh	36.9	5.5			10.8	11.3				31.3		30.7
Incremental Delay (d_2), s/veh	2.5	0.6			0.5	1.7				3.3		1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	39.4	6.2			11.3	13.0				34.6		32.0
Level of Service (LOS)	D	A			B	B				C		C
Approach Delay, s/veh / LOS	15.1	B		11.9	B		0.0			33.5	C	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.5	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	3.9	D	3.8	D				F

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Booth and Westfield*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Westfield* North/South Street: *Booth*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*30*	*190*			*230*	*50*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*35*	*223*	*0*	*0*	*270*	*58*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*50*	*0*	*30*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*58*	*0*	*35*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LTR*	
v (veh/h)	*35*						*93*	
C (m) (veh/h)	*1236*						*572*	
v/c	*0.03*						*0.16*	
95% queue length	*0.09*						*0.58*	
Control Delay (s/veh)	*8.0*						*12.5*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*12.5*	
Approach LOS	--	--					*B*	

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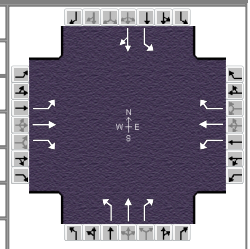
HCS 2010 Signalized Intersection Results Summary

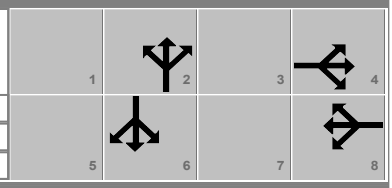
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	11/1/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	Booth and Foster	Analysis Year	2013	Analysis Period	1> 4:45
File Name	Booth and Foster - PM.xus				
Project Description	Existing PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	70	60	70	120	10	120	60	60	10	150	30

Signal Information			
Cycle, s	18.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	6.5	3.8	0.0	0.0	0.0	0.0	
Yellow	3.5	3.5	0.0	0.0	0.0	0.0	
Red	0.5	0.5	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		5.0		5.0		5.0		6.0
Phase Duration, s		7.8		7.8		10.5		10.5
Change Period, ($Y+R_c$), s		4.0		4.0		4.0		4.0
Max Allow Headway (*MAH*), s		3.4		3.3		3.5		3.2
Queue Clearance Time (g_s), s		3.6		3.7		5.4		3.5
Green Extension Time (g_e), s		0.3		0.4		0.6		0.4
Phase Call Probability		0.87		0.87		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	35	82	53	82	141	9	141	71	53	12	204	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1255	1881	1545	1313	1881	1588	1176	1881	1588	1333	1819	
Queue Service Time (g_s), s	0.5	0.7	0.5	1.0	1.2	0.1	1.8	0.5	0.4	0.1	1.5	
Cycle Queue Clearance Time (g_c), s	1.6	0.7	0.5	1.7	1.2	0.1	3.4	0.5	0.4	0.6	1.5	
Green Ratio (*g/C*)	0.21	0.21	0.21	0.21	0.21	0.21	0.36	0.36	0.36	0.36	0.36	
Capacity (*c*), veh/h	569	383	315	614	383	324	716	673	568	833	651	
Volume-to-Capacity Ratio (*X*)	0.062	0.215	0.168	0.134	0.368	0.029	0.197	0.105	0.093	0.014	0.313	
Available Capacity (c_a), veh/h	2032	2577	2117	2144	2577	2175	2549	3607	3044	2911	3489	
Back of Queue (*Q*), veh/ln (95th percentile)	0.1	0.2	0.1	0.3	0.4	0.0	0.3	0.1	0.1	0.0	0.3	
Queue Storage Ratio (*RQ*) (95th percentile)	0.01	0.00	0.01	0.05	0.00	0.01	0.09	0.02	0.02	0.00	0.00	
Uniform Delay (d_1), s/veh	7.0	6.1	6.0	6.8	6.3	5.8	5.5	3.9	3.9	4.1	4.2	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	7.0	6.2	6.1	6.8	6.5	5.8	5.5	3.9	3.9	4.1	4.3	
Level of Service (LOS)	A	A	A	A	A	A	A	A	A	A	A	
Approach Delay, s/veh / LOS	6.3	A		6.6	A		4.8	A		4.3	A	
Intersection Delay, s/veh / LOS	5.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.4	B	2.6	B
Bicycle LOS Score / LOS	2.8	C	2.7	B	3.1	C	3.0	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*Booth & Idlewild*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Idlewild* North/South Street: *Booth*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*50*	*50*			*150*	*190*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*58*	*58*	*0*	*0*	*176*	*223*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*120*		*40*			
Peak-Hour Factor, PHF	*0.85*	*1.00*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*141*	*0*	*47*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*					*L*		*R*
v (veh/h)	*58*					*141*		*47*
C (m) (veh/h)	*1157*					*525*		*748*
v/c	*0.05*					*0.27*		*0.06*
95% queue length	*0.16*					*1.08*		*0.20*
Control Delay (s/veh)	*8.3*					*14.4*		*10.1*
LOS	*A*					*B*		*B*
Approach Delay (s/veh)	--	--				*13.3*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*Booth and Riverside*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *Riverside* | North/South Street: *Booth*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*5*	*10*	*330*	*10*	*5*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*5*	*11*	*388*	*11*	*5*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*0*	*160*	*5*	*0*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*11*	*0*	*188*	*5*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*0*	*388*		*199*			*5*	
C (m) (veh/h)	*1602*	*1592*		*889*			*172*	
v/c	*0.00*	*0.24*		*0.22*			*0.03*	
95% queue length	*0.00*	*0.96*		*0.86*			*0.09*	
Control Delay (s/veh)	*7.2*	*8.0*		*10.2*			*26.6*	
LOS	*A*	*A*		*B*			*D*	
Approach Delay (s/veh)	--	--	*10.2*			*26.6*		
Approach LOS	--	--	*B*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing AM*

Site Information

Intersection	*California and Cherry*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *California* | North/South Street: *Cherry*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*5*	*370*			*670*	*10*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*5*	*435*	*0*	*0*	*788*	*11*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*10*		*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.85*	*1.00*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*11*	*0*	*11*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*5*						*22*	
C (m) (veh/h)	*826*						*258*	
v/c	*0.01*						*0.09*	
95% queue length	*0.02*						*0.28*	
Control Delay (s/veh)	*9.4*						*20.3*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*20.3*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*California and Newlands*
Jurisdiction	*RTC*
Analysis Year	*2013*

Project Description

East/West Street: *California* | North/South Street: *Newlands*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*460*	*160*	*20*	*1000*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.85*	*0.85*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*541*	*188*	*23*	*1176*	*0*
Percent Heavy Vehicles	*0*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*0.85*	*1.00*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*23*						
C (m) (veh/h)		*879*						
v/c		*0.03*						
95% queue length		*0.08*						
Control Delay (s/veh)		*9.2*						
LOS		*A*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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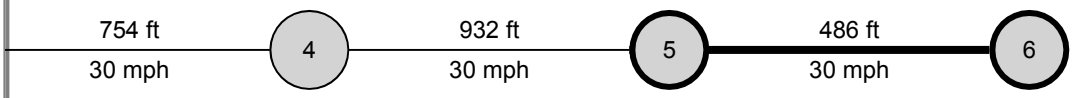
HCS 2010 Urban Street Segment Report

General Information				Streets Information	
Agency	Jacobs			Number of Intersections	6
Analyst	SD	Analysis Date	Oct 17, 2013	Number of Segments	5
Jurisdiction	RTC Washoe	Time Period	PM	Number of Iterations	15
File Name	Keystone - PM.xus	Analysis Year	2013	System Cycle Length, s	120
Intersections	Keystone Ave at W 2nd Street	Keystone Ave at W 1st Street		Analysis Period	1> 4:45
Project Description	Existing PM				



Basic Segment Information

Segment	Speed Limit		Through Lanes		Segment Length		Intersection Wid		Length of RM		Percent Curb		Other Delay	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
5	30	30	2	2	486	486	50	50	0	0	70	70	0.0	0.0

		Southbound			Northbound		
Segment Output Data		SBL	SBT	SBR	NBL	NBT	NBR
Segment	Movement	1	6	16	5	2	12
5	Bay/Lane Spillback Time, h	never	never	never	never	never	never
5	Shared Lane Spillback Time, h	never			never		
5	Base Free-Flow Speed, mph	39.37			39.37		
5	Running Time, s	13.83			13.81		
5	Running Speed, mph	23.97			23.99		
5	Through Delay, s/veh	7.99			6.81		
5	Travel Speed, mph	15.19			16.07		
5	Stop Rate, stops/veh	0.60			0.27		
5	Spatial Stop Rate, stops/mi	6.48			2.95		
5	Through vol/cap Ratio	0.61			0.37		
5	Percent of Base FFS	38.57			40.82		
5	Level of Service	E			D		
5	Auto Traveler Perception Score	3.25			2.60		

Multimodal Results (Segment)					
5	Pedestrian Segment LOS Score / LOS	3.62	D	3.73	D
5	Bicycle Segment LOS Score / LOS	5.25	F	5.30	F
5	Transit Segment LOS Score / LOS	5.35	F	5.38	F

Facility Output Data	**Southbound**	**Northbound**
Facility Travel Time, s	175.34	186.38
Facility Travel Speed, mph	13.61	12.80
Facility Base Free Flow Speed, mph	39.37	39.37
Facility Percent of Base FFS	34.57	32.52
Facility Level of Service	E	E
Facility Auto Traveler Perception Score	2.80	2.80

Multimodal Results (Facility)				
Pedestrian Facility LOS Score / LOS	3.86	D	3.91	D
Bicycle Facility LOS Score / LOS	4.62	E	4.76	E
Transit Facility LOS Score / LOS	6.06	F	6.08	F

Turn Lane Storage Length at Intersections

Intersection (Traffic Control)	Movement/ Approach/ Intersection	Available Storage Length	AM Peak Hour		PM Peak Hour	
			95th % Q Length (veh/ln)	95th % Q Length (ft/ln)	95th % Q Length (veh/ln)	95th % Q Length (ft/ln)
Keystone Avenue and King's Row (Unsignalized)	EBL	160	0.15	25	1.3	50
	NBL	120	0.5	25	2.02	75
Keystone Avenue and University Terrace (Unsignalized)	NBL	120	0.2	25	0.29	25
Keystone Avenue and West 7th Street (Signalized)	EBL	150	1.5	50	5.6	150
	WBL	120	5.1	150	8.3	225
	WBT/WBR	110	1.9	50	6.6	175
	NBL	130	5.2	150	7.1	200
	SBL	150	4	100	2.6	75
Keystone Avenue and I-80 SPUI Interchange (Signalized)	EBR	350	23.7	600	7.6	200
	WBR	600	5.5	150	19.3	500
	NBL	150	4.5	125	10.2	275
	SBL	250	16.6	425	12.1	325
Keystone Avenue and West 5th Street (Signalized)	EBL	60	1.8	50	5.8	150
	EBR	60	0.5	25	2.1	75
	WBL	180	0.6	25	2.5	75
	NBL	80	0.7	25	1.8	50
	SBL	270	8.4	225	6.5	175
Keystone Avenue and West 4th Street (Signalized)	EBL	130	4.2	125	7.8	200
	WBL	180	1.6	50	3.9	100
	NBL	110	3.6	100	7	175
	NBR	110	0.2	25	0.3	25
	SBL	130	4.7	125	7.1	200
	EBL	50	4.9	125	6.2	175

Turn Lane Storage Length at Intersections

Intersection (Traffic Control)	Movement/ Approach/ Intersection	Available Storage Length	AM Peak Hour		PM Peak Hour	
			95th % Q Length (veh/ln)	95th % Q Length (ft/ln)	95th % Q Length (veh/ln)	95th % Q Length (ft/ln)
Keystone Avenue and West 2nd Street (Signalized)	EBR	150	0.9	25	1.5	50
	WBL	150	1.2	50	2.7	75
	NBL	90	0.2	25	0.2	25
	SBL	250	1.4	50	0.7	25
Keystone Avenue and West 1st Street (Signalized)	WBL	50	0.1	25	0.3	25
	NBL	120	0	0	0.1	25
	SBL	100	0.4	25	0.4	25
Keystone Avenue and California Avenue (Signalized)	WBR	430	3.2	100	7.2	200
	SBR	180	4.6	125	7.4	200
Booth Street and California Avenue (Signalized)	EBL	300	4.9	125	1.9	50
	SBL	110	11.5	300	7.4	200
Booth Street and Westfield Avenue (Unsignalized)	NBL	80	0.03	25	0.09	25
Booth Street and Foster Drive (Signalized)	EBL	300	0.1	25	0.1	25
	EBR	300	0.6	25	0.1	25
	WBL	120	0.1	25	0.3	25
	WBR	100	0.1	25	0	0
	NBL	90	1.2	50	0.3	25
	NBT	90	0.5	25	0.1	25
	NBR	90	0.2	25	0.1	25
	SBL	300	0.6	25	0	0
Booth Street and Idlewild Drive (Unsignalized)	EBL	180	1.73	50	1.08	50
California and Newlands Circle (Unsignalized)	WBL	140	0.06	25	0.08	25

California and Keystone - AM

EBT is a free movement, but HCS reports delay for this movement as well.

HCS does not have the capability to model free movements. The correct delay was manually calculated.

Results reported from HCS:

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	287	742			484	188				332		166
Movement Control Delay	48.6	7.5			15	15.3				38.4		28
Approach Delay	18.9			15.1			0.0			34.9		
Intersection Delay	21.4											

Results for High-T intersection (EBT free):

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	287	742			484	188				332		166
Movement Control Delay	48.6	0			15	15.3				38.4		28
Approach Delay	**13.6**			**15.1**			**0.0**			**34.9**		
Intersection Delay	**18.9**											

California and Keystone - PM

EBT is a free movement, but HCS reports delay for this movement as well.

HCS does not have the capability to model free movements. The correct delay was manually calculated.

Results reported from HCS:

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	184	500			776	420				316		251
Movement Control Delay	38.8	7.8			13.3	16.1				36.8		31.9
Approach Delay	16.2			14.3			0.0			34.6		
Intersection Delay	19.5											

Results for High-T intersection (EBT free):

Approach	EB			WB			NB			SB		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Adjusted Flow Rate	184	500			776	420				316		251
Movement Control Delay	38.8	0			13.3	16.1				36.8		31.9
Approach Delay	**10.4**			**14.3**			**0.0**			**34.6**		
Intersection Delay	**17.9**											

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Keystone and Coleman/12th*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description *Keystone Avenue Corridor Study*

East/West Street: *Coleman/12th* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*22*	*157*	*56*	*11*	*302*	*11*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*25*	*182*	*65*	*12*	*351*	*12*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*1*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration	*LT*		*R*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*11*	*22*	*157*	*11*	*11*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*12*	*12*	*25*	*182*	*12*	*12*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*25*	*12*		*206*			*49*	
C (m) (veh/h)	*1188*	*1385*		*371*			*483*	
v/c	*0.02*	*0.01*		*0.56*			*0.10*	
95% queue length	*0.06*	*0.03*		*3.24*			*0.34*	
Control Delay (s/veh)	*8.1*	*7.6*		*26.2*			*13.3*	
LOS	*A*	*A*		*D*			*B*	
Approach Delay (s/veh)	--	--	*26.2*			*13.3*		
Approach LOS	--	--	*D*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Keystone and King's Row*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *King's Row* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*146*	*224*			*470*	*11*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*1.00*	*1.00*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*169*	*260*	*0*	*0*	*546*	*12*
Percent Heavy Vehicles	*3*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*0*	*437*			
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*508*	*0*	*0*	*0*
Percent Heavy Vehicles	*3*	*3*	*3*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*0*	*0*
Configuration	*L*		*TR*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*TR*
v (veh/h)	*169*					*12*		*508*
C (m) (veh/h)	*1002*					*192*		*755*
v/c	*0.17*					*0.06*		*0.67*
95% queue length	*0.61*					*0.20*		*5.27*
Control Delay (s/veh)	*9.3*					*25.0*		*19.0*
LOS	*A*					*C*		*C*
Approach Delay (s/veh)	--	--				*19.1*		
Approach LOS	--	--				*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Keystone and University*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *University* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*104*	*347*	*52*	*34*	*862*	*11*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*120*	*403*	*60*	*39*	*1002*	*12*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*6*	*67*	*11*	*6*	*11*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*12*	*6*	*77*	*12*	*6*	*12*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

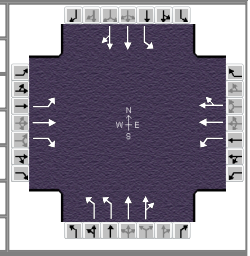
Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*			*LTR*	
v (veh/h)	*120*	*39*		*30*			*95*	
C (m) (veh/h)	*672*	*1088*		*120*			*220*	
v/c	*0.18*	*0.04*		*0.25*			*0.43*	
95% queue length	*0.65*	*0.11*		*0.92*			*2.02*	
Control Delay (s/veh)	*11.5*	*8.4*		*44.7*			*33.2*	
LOS	*B*	*A*		*E*			*D*	
Approach Delay (s/veh)	--	--	*44.7*			*33.2*		
Approach LOS	--	--	*E*			*D*		

HCS+™ Version 5.3 Generated: 4/8/2014 7:41 AM

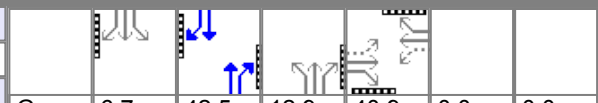
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at W 7th Stre	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				

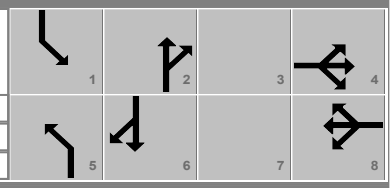


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	179	528	116	67	33	254	436	140	67	806	67

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	6.7	42.5	12.9	40.9	0.0	0.0
Yellow	3.5	4.0	3.5	4.0	0.0	0.0
Red	0.5	0.5	0.5	0.5	0.0	0.0



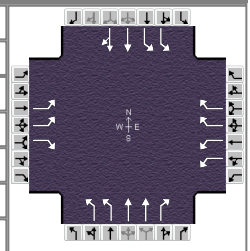
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		45.4		45.4	16.9	63.9	10.7	57.7
Change Period, (Y+R_c), s		4.5		4.5	4.5	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		39.7		23.8	11.6		7.3	
Green Extension Time (g_e), s		1.1		2.4	0.8	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.93	
Max Out Probability		0.89		0.01	1.00		0.11	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	38	208	495	135	55	53	295	332	309	78	506	492
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1267	1845	1535	1157	1845	1666	1706	1845	1704	1757	1845	1793
Queue Service Time (g_s), s	2.6	10.1	37.7	11.8	2.4	2.6	9.6	18.8	17.7	5.3	25.2	25.2
Cycle Queue Clearance Time (g_c), s	5.2	10.1	37.7	21.8	2.4	2.6	9.6	18.8	17.7	5.3	25.2	25.2
Green Ratio (*g*/*C*)	0.34	0.34	0.34	0.34	0.34	0.34	0.10	0.49	0.49	0.06	0.44	0.44
Capacity (*c*), veh/h	464	628	522	357	628	567	354	913	843	99	818	795
Volume-to-Capacity Ratio (*X*)	0.083	0.331	0.948	0.378	0.087	0.094	0.835	0.363	0.367	0.788	0.619	0.619
Available Capacity (c_a), veh/h	492	669	556	382	669	604	412	913	843	176	818	795
Back of Queue (*Q*), veh/ln (95th percentile)	1.4	8.0	24.4	6.1	1.9	1.9	5.8	13.1	11.4	4.4	17.3	16.9
Queue Storage Ratio (*RQ*) (95th percentile)	0.24	0.00	0.00	1.29	0.00	0.00	1.14	0.00	0.00	0.76	0.00	0.00
Uniform Delay (d_1), s/veh	28.7	29.4	38.5	37.5	26.9	27.0	39.4	32.2	28.6	55.9	25.6	25.6
Incremental Delay (d_2), s/veh	0.0	0.1	24.5	0.2	0.0	0.0	6.2	0.6	0.7	5.2	3.5	3.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	28.8	29.5	63.1	37.8	26.9	27.0	45.6	32.8	29.3	61.1	29.1	29.2
Level of Service (LOS)	C	C	E	D	C	C	D	C	C	E	C	C
Approach Delay, s/veh / LOS	51.9	D		33.0	C		35.7	D		31.5	C	
Intersection Delay, s/veh / LOS	38.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.1	C	2.6	B	3.1	C
Bicycle LOS Score / LOS	4.0	D	3.0	C	3.2	C	3.5	D

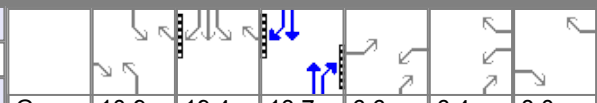
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at I-80 SPUI	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				

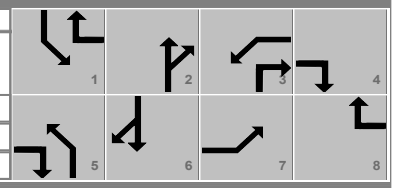


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107		405	580		414	201	309	880	950	405	95

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	46	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	10.9	19.4	13.7	6.6	6.4	8.0
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red	4.0	4.0	8.0	7.0	7.0	1.0



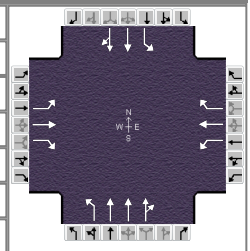
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	17.6	13.0	35.0	30.4	18.9	25.7	46.3	53.1
Change Period, ($Y+R_c$), s	11.0	5.0	11.0	5.0	8.0	12.0	8.0	12.0
Max Allow Headway (*MAH*), s	3.2	3.4	3.2	3.4	4.2	0.0	4.2	0.0
Queue Clearance Time (g_s), s	6.5	10.0	25.5	14.3	10.6		37.3	
Green Extension Time (g_e), s	0.2	0.0	0.0	0.0	0.3	0.0	1.0	0.0
Phase Call Probability	0.98	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	1.00	1.00	1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3		18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	124		384	674		481	234	360	859	1105	287	271
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1615		1557	1715		1347	1634	1687	1675	1803	1802	1679
Queue Service Time (g_s), s	4.5		8.0	23.5		12.3	8.6	12.7	13.7	35.3	14.9	13.8
Cycle Queue Clearance Time (g_c), s	4.5		8.0	23.5		12.3	8.6	12.7	13.7	35.3	14.9	13.8
Green Ratio (*g/C*)	0.06		0.16	0.20		0.53	0.09	0.11	0.31	0.32	0.34	0.34
Capacity (*c*), veh/h	179		245	686		1429	296	386	527	1150	618	576
Volume-to-Capacity Ratio (*X*)	0.697		1.568	0.983		0.337	0.791	0.932	1.629	0.961	0.464	0.471
Available Capacity (c_a), veh/h	538		245	686		1429	381	386	527	1172	618	576
Back of Queue (*Q*), veh/ln (95th percentile)	3.4		39.2	18.7		6.7	7.3	11.3	83.0	19.7	10.1	8.5
Queue Storage Ratio (*RQ*) (95th percentile)	0.00		2.87	0.00		0.29	1.24	0.00	0.00	2.02	0.00	0.00
Uniform Delay (d_1), s/veh	55.7		50.6	47.8		16.1	58.4	54.1	40.6	28.3	30.6	26.2
Incremental Delay (d_2), s/veh	1.8		274.3	29.9		0.1	7.6	29.6	290.8	13.0	1.6	1.8
Initial Queue Delay (d_3), s/veh	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	57.5		324.9	77.7		16.2	66.0	83.7	331.3	41.3	32.2	27.9
Level of Service (LOS)	E		F	E		B	E	F	F	D	C	C
Approach Delay, s/veh / LOS	259.4		F	52.1		D	227.3		F	37.6		D
Intersection Delay, s/veh / LOS	122.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.6	D	3.3	C	3.2	C	3.3	C
Bicycle LOS Score / LOS		F		F	5.1	F	4.9	E

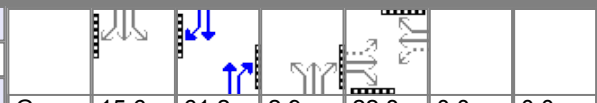
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at W 5th Stre	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				

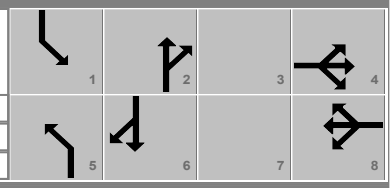


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	11	11	11	11	230	11	1083	44	182	1156	52

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	64	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	15.6	61.2	2.9	22.8	0.0	0.0
Yellow	3.0	4.0	3.0	3.5	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



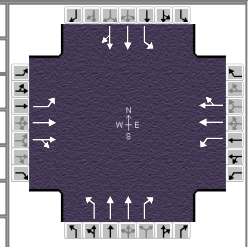
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		27.3		27.3	6.9	73.0	19.6	85.8
Change Period, ($Y+R_c$), s		4.5		4.5	5.0	5.0	4.0	5.0
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		9.6		19.9	2.9		15.5	
Green Extension Time (g_e), s		0.8		0.8	2.5	0.0	0.2	0.0
Phase Call Probability		1.00		1.00	0.35		1.00	
Max Out Probability		0.00		0.00	0.28		0.10	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	91	13	10	13	13	242	13	872	427	199	659	649
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1376	1845	1519	1363	1845	1556	1757	1845	1806	1757	1845	1813
Queue Service Time (g_s), s	6.9	0.7	0.7	0.9	0.7	17.9	0.9	11.1	11.3	13.5	31.1	30.8
Cycle Queue Clearance Time (g_c), s	7.6	0.7	0.7	1.6	0.7	17.9	0.9	11.1	11.3	13.5	31.1	30.8
Green Ratio (*g/C*)	0.19	0.19	0.19	0.19	0.19	0.19	0.02	0.57	0.57	0.13	0.67	0.67
Capacity (*c*), veh/h	314	351	289	312	351	296	27	2092	1024	229	1242	1221
Volume-to-Capacity Ratio (*X*)	0.289	0.036	0.036	0.041	0.036	0.818	0.466	0.417	0.417	0.868	0.531	0.532
Available Capacity (c_a), veh/h	505	607	500	501	607	512	161	2092	1024	307	1242	1221
Back of Queue (*Q*), veh/ln (95th percentile)	4.3	0.6	0.5	0.6	0.6	11.4	0.7	6.8	7.0	8.9	17.8	17.3
Queue Storage Ratio (*RQ*) (95th percentile)	1.82	0.00	0.20	0.08	0.00	0.00	0.24	0.00	0.00	0.85	0.00	0.00
Uniform Delay (d_1), s/veh	42.7	39.6	39.6	40.3	39.6	46.6	58.5	8.6	8.8	56.1	19.5	19.0
Incremental Delay (d_2), s/veh	0.2	0.0	0.0	0.0	0.0	2.1	3.8	0.5	1.0	4.8	0.5	0.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	42.9	39.6	39.6	40.3	39.6	48.7	62.3	9.1	9.8	60.9	19.9	19.5
Level of Service (LOS)	D	D	D	D	D	D	E	A	A	E	B	B
Approach Delay, s/veh / LOS	42.2	D		47.9	D		9.9	A		25.2	C	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.5	D	2.6	B	2.5	B
Bicycle LOS Score / LOS	3.1	C	3.4	C	3.4	C	4.0	D

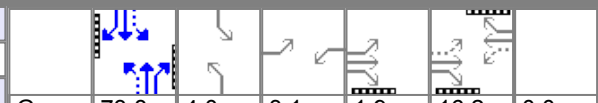
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at W 4th Stre	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				

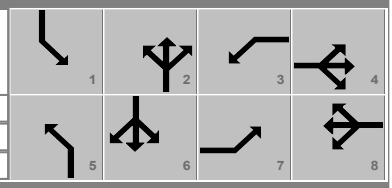


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	197	235	268	33	100	121	117	821	12	269	795	114

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	84	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	73.8	4.0	3.1	1.9	16.2	0.0
Yellow	4.0	3.5	3.5	3.5	4.0	0.0
Red	0.5	0.5	0.5	0.5	0.5	0.0



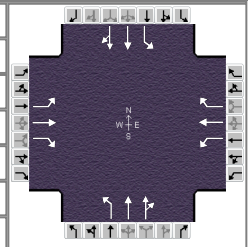
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.4	3.0	1.4	4.0
Phase Duration, s	13.0	26.7	7.1	20.7	8.0	78.3	8.0	78.3
Change Period, ($Y+R_c$), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s	3.2	3.3	3.2	3.3	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s	11.0	20.7	4.2	11.3	2.0		2.0	
Green Extension Time (g_e), s	0.0	0.9	0.0	0.4	0.2	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	0.72	1.00	0.99		1.00	
Max Out Probability	1.00	0.03	0.06	0.00	0.00		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	229	273	242	38	116	127	136	954	12	294	499	478
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	1845	1509	1757	1845	1544	1757	1756	1537	1757	1845	1765
Queue Service Time (g_s), s	9.0	17.0	18.7	2.2	7.0	9.3	0.0	15.4	0.4	0.0	17.6	17.5
Cycle Queue Clearance Time (g_c), s	9.0	17.0	18.7	2.2	7.0	9.3	0.0	15.4	0.4	0.0	17.6	17.5
Green Ratio (*g/C*)	0.23	0.18	0.18	0.16	0.14	0.14	0.65	0.61	0.61	0.65	0.61	0.61
Capacity (*c*), veh/h	257	341	279	116	250	209	384	2159	945	401	1134	1085
Volume-to-Capacity Ratio (*X*)	0.892	0.802	0.868	0.331	0.466	0.606	0.354	0.442	0.012	0.734	0.440	0.440
Available Capacity (c_a), veh/h	257	469	383	203	469	392	706	2159	945	488	1134	1085
Back of Queue (*Q*), veh/ln (95th percentile)	8.2	13.0	12.5	1.8	5.9	6.6	4.4	9.4	0.2	13.1	11.5	11.1
Queue Storage Ratio (*RQ*) (95th percentile)	1.61	0.00	0.00	0.26	0.00	0.00	1.03	0.00	0.05	2.58	0.00	0.00
Uniform Delay (d_1), s/veh	45.9	46.8	47.5	44.1	47.9	48.9	19.6	10.3	12.7	29.9	12.7	12.6
Incremental Delay (d_2), s/veh	29.0	4.7	11.4	0.6	0.5	1.1	0.2	0.6	0.0	2.7	1.0	1.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	74.9	51.5	58.9	44.7	48.4	49.9	19.8	10.9	12.8	32.7	13.7	13.7
Level of Service (LOS)	E	D	E	D	D	D	B	B	B	C	B	B
Approach Delay, s/veh / LOS	61.1	E		48.6	D		12.0	B		18.1	B	
Intersection Delay, s/veh / LOS	28.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.2	C	3.0	C	3.1	C
Bicycle LOS Score / LOS	3.6	D	3.3	C	3.7	D	3.9	D

HCS 2010 Signalized Intersection Results Summary

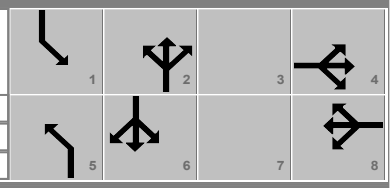
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at W 2nd Str	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	116	22	22	22	11	72	11	761	33	100	940	56

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	22	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off

Green	88.4	2.5	1.4	15.7	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



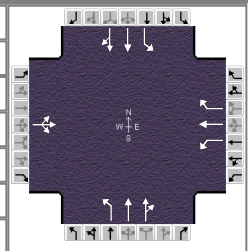
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	1.4	4.0	1.4	4.0
Phase Duration, s		19.7		19.7	5.4	92.4	7.9	94.9
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s		3.2		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		14.2		7.0	2.0		2.0	
Green Extension Time (g_e), s		0.3		0.2	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.35		0.98	
Max Out Probability		0.00		0.00	0.15		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	135	26	20	26	13	70	13	461	454	111	553	541
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1370	1845	1529	1358	1845	1522	1757	1845	1815	1757	1845	1803
Queue Service Time (g_s), s	11.5	1.5	1.4	2.0	0.7	5.0	0.0	10.5	10.5	0.0	20.7	21.0
Cycle Queue Clearance Time (g_c), s	12.2	1.5	1.4	3.5	0.7	5.0	0.0	10.5	10.5	0.0	20.7	21.0
Green Ratio (*g/C*)	0.13	0.13	0.13	0.13	0.13	0.13	0.75	0.74	0.74	0.76	0.76	0.76
Capacity (*c*), veh/h	231	242	200	221	242	199	366	1359	1337	505	1397	1366
Volume-to-Capacity Ratio (*X*)	0.584	0.106	0.099	0.116	0.053	0.350	0.035	0.339	0.340	0.220	0.396	0.396
Available Capacity (c_a), veh/h	394	461	382	383	461	380	433	1359	1337	609	1397	1366
Back of Queue (*Q*), veh/ln (95th percentile)	7.2	1.2	0.9	1.3	0.6	3.5	0.3	6.7	6.6	1.9	14.0	14.0
Queue Storage Ratio (*RQ*) (95th percentile)	3.68	0.00	0.16	0.21	0.00	0.00	0.08	0.00	0.00	0.20	0.00	0.00
Uniform Delay (d_1), s/veh	51.0	45.9	45.9	47.5	45.6	47.5	11.2	5.6	5.6	7.6	11.2	11.5
Incremental Delay (d_2), s/veh	0.9	0.1	0.1	0.1	0.0	0.4	0.0	0.5	0.5	0.1	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	51.8	46.0	46.0	47.6	45.7	47.9	11.2	6.1	6.1	7.7	11.9	12.2
Level of Service (LOS)	D	D	D	D	D	D	B	A	A	A	B	B
Approach Delay, s/veh / LOS	50.4	D		47.5	D		6.2	A		11.6	B	
Intersection Delay, s/veh / LOS	14.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.1	C	3.3	C	2.6	B	2.5	B
Bicycle LOS Score / LOS	2.9	C	2.8	C	3.4	C	3.5	D

HCS 2010 Signalized Intersection Results Summary

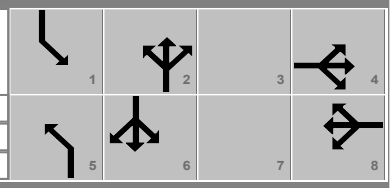
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	AM	PHF	0.86
Intersection	Keystone Ave at W 1st Stre	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Keystone - AM.xus				
Project Description	2035 No-Action AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	22	11	11	11	11	78	11	705	22	156	817	11

Signal Information			
Cycle, s	29.8	Reference Phase	2
Offset, s	24	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	0.3	2.6	11.0	3.4	0.0	0.0
Yellow	3.5	0.0	4.0	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		7.4		7.4	4.3	15.5	6.9	18.1
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.7		3.9	3.2	4.1	3.2	4.1
Queue Clearance Time (g_s), s		2.8		3.3	2.1	7.6	3.7	7.4
Green Extension Time (g_e), s		0.1		0.2	0.0	3.1	0.1	3.4
Phase Call Probability		0.70		0.70	0.10	1.00	0.76	1.00
Max Out Probability		0.00		0.00	0.00	0.04	0.31	0.06

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		49		13	13	71	13	422	417	174	462	458
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1547		1360	1845	1553	1757	1845	1821	1757	1845	1829
Queue Service Time (g_s), s		0.3		0.3	0.2	1.3	0.1	5.6	5.6	1.7	5.4	5.4
Cycle Queue Clearance Time (g_c), s		0.8		1.0	0.2	1.3	0.1	5.6	5.6	1.7	5.4	5.4
Green Ratio (*g/C*)		0.11		0.11	0.11	0.11	0.38	0.37	0.37	0.49	0.46	0.46
Capacity (*c*), veh/h		361		362	212	178	384	680	671	530	841	834
Volume-to-Capacity Ratio (*X*)		0.135		0.035	0.060	0.398	0.033	0.621	0.621	0.328	0.549	0.549
Available Capacity (c_a), veh/h		1049		981	1052	885	837	1546	1527	830	1546	1533
Back of Queue (*Q*), veh/ln (95th percentile)		0.4		0.1	0.1	0.7	0.1	2.6	2.6	0.5	2.0	2.0
Queue Storage Ratio (*RQ*) (95th percentile)		0.00		0.06	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.00
Uniform Delay (d_1), s/veh		12.0		12.5	11.8	12.2	6.2	7.7	7.7	5.2	5.9	5.9
Incremental Delay (d_2), s/veh		0.1		0.0	0.1	1.1	0.0	0.9	0.9	0.1	0.5	0.5
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		12.1		12.5	11.9	13.3	6.2	8.6	8.7	5.4	6.4	6.4
Level of Service (LOS)		B		B	B	B	A	A	A	A	A	A
Approach Delay, s/veh / LOS	12.1	B		13.0	B		8.6	A		6.2	A	
Intersection Delay, s/veh / LOS	7.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.0	C	3.0	C	2.5	B	2.1	B
Bicycle LOS Score / LOS	2.9	C	2.9	C	3.5	C	3.4	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Keystone and Jones*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Jones* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*627*	*22*	*22*	*773*	*45*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*12*	*729*	*25*	*25*	*898*	*52*
Percent Heavy Vehicles	*3*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*34*	*6*	*11*	*11*	*0*	*78*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*39*	*6*	*12*	*12*	*0*	*90*
Percent Heavy Vehicles	*3*	*3*	*3*	*3*	*3*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*12*	*25*		*102*			*57*	
C (m) (veh/h)	*709*	*845*		*417*			*105*	
v/c	*0.02*	*0.03*		*0.24*			*0.54*	
95% queue length	*0.05*	*0.09*		*0.95*			*2.51*	
Control Delay (s/veh)	*10.2*	*9.4*		*16.4*			*74.1*	
LOS	*B*	*A*		*C*			*F*	
Approach Delay (s/veh)	--	--	*16.4*			*74.1*		
Approach LOS	--	--	*C*			*F*		

HCS+™ Version 5.6

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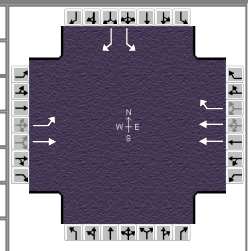
HCS 2010 Signalized Intersection Results Summary

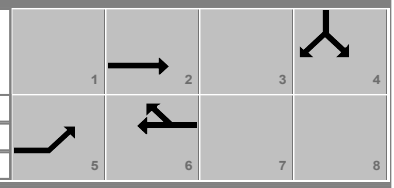
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	California and Keystone	Analysis Year	2035	Analysis Period	1> 7:00
File Name	California - AM.xus				
Project Description	2035 No-Action AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	212	548			358	179				246		123

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off

Green	14.7	35.1	17.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	1.0	0.0	0.0	0.0



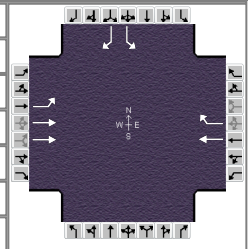
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	18.7	57.9		39.1				22.1
Change Period, ($Y+R_c$), s	4.0	4.0		4.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	14.6							16.3
Green Extension Time (g_e), s	0.2	0.0		0.0				0.8
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							0.09

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	287	742			484	188				332		166
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1900			1791	1571				1792		1594
Queue Service Time (g_s), s	12.6	15.1			7.0	6.1				14.3		7.3
Cycle Queue Clearance Time (g_c), s	12.6	15.1			7.0	6.1				14.3		7.3
Green Ratio (*g/C*)	0.18	0.67			0.44	0.44				0.21		0.21
Capacity (*c*), veh/h	330	1280			1573	690				383		341
Volume-to-Capacity Ratio (*X*)	0.869	0.579			0.307	0.272				0.867		0.487
Available Capacity (c_a), veh/h	381	1280			1573	690				537		478
Back of Queue (*Q*), veh/ln (95th percentile)	11.1	8.5			5.1	4.1				11.2		5.0
Queue Storage Ratio (*RQ*) (95th percentile)	0.00	0.00			0.00	0.24				0.00		0.70
Uniform Delay (d_1), s/veh	34.8	5.8			14.5	14.3				30.3		27.6
Incremental Delay (d_2), s/veh	13.8	1.7			0.5	1.0				8.1		0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	48.6	7.5			15.0	15.3				38.4		28.0
Level of Service (LOS)	D	A			B	B				D		C
Approach Delay, s/veh / LOS	18.9	B		15.1	B		0.0			34.9	C	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.6	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	4.6	E	3.5	C				F

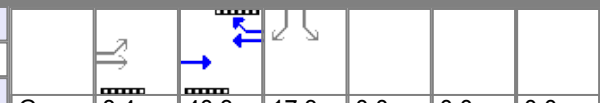
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	California and Booth	Analysis Year	2035	Analysis Period	1> 7:00
File Name	California - AM.xus				
Project Description	2035 No-Action AM				

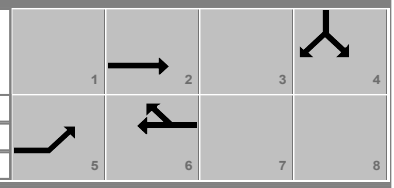


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	112	504			235	246				257		78

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	8.4	40.3	17.3	0.0	0.0	0.0
Yellow	3.5	4.0	4.0	0.0	0.0	0.0
Red	0.5	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	12.4	57.7		45.3				22.3
Change Period, (*Y*+*Rc*), s	4.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	8.6							17.1
Green Extension Time (g_e), s	0.1	0.0		0.0				0.3
Phase Call Probability	0.97							1.00
Max Out Probability	0.29							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	151	681			318	258				347		105
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1791			1881	1588				1792		1588
Queue Service Time (g_s), s	6.6	6.4			11.0	8.0				15.1		4.5
Cycle Queue Clearance Time (g_c), s	6.6	6.4			11.0	8.0				15.1		4.5
Green Ratio (*g*/*C*)	0.11	0.66			0.50	0.50				0.22		0.22
Capacity (*c*), veh/h	188	2358			947	799				388		344
Volume-to-Capacity Ratio (*X*)	0.804	0.289			0.335	0.323				0.895		0.307
Available Capacity (c_a), veh/h	291	2358			947	799				426		377
Back of Queue (*Q*), veh/ln (95th percentile)	5.5	3.9			9.3	5.3				13.1		3.0
Queue Storage Ratio (*RQ*) (95th percentile)	0.46	0.00			0.00	0.00				3.00		0.00
Uniform Delay (d_1), s/veh	35.0	5.8			19.0	12.4				30.5		26.3
Incremental Delay (d_2), s/veh	4.4	0.3			0.9	1.0				18.7		0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	39.3	6.1			19.9	13.4				49.2		26.5
Level of Service (LOS)	D	A			B	B				D		C
Approach Delay, s/veh / LOS	12.1		B	17.0		B	0.0			43.9		D
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.6	B	3.0	C	2.6	B
Bicycle LOS Score / LOS	4.1	D	4.3	E				F

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*California and Cherry*
Agency/Co.	*Jacobs*	Jurisdiction	*RTC*
Date Performed	*10/21/2013*	Analysis Year	*2035*
Analysis Time Period	*2035 No-Action AM*		

Project Description

East/West Street: *California* | North/South Street: *Cherry*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*6*	*605*			*302*	*11*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*8*	*817*	*0*	*0*	*408*	*14*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*11*		*6*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.74*	*1.00*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*14*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*8*						*22*	
C (m) (veh/h)	*1131*						*254*	
v/c	*0.01*						*0.09*	
95% queue length	*0.02*						*0.28*	
Control Delay (s/veh)	*8.2*						*20.5*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*20.5*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*California and Newlands*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *California* | North/South Street: *Newlands*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*661*	*134*	*11*	*538*	
Peak-Hour Factor, PHF	*1.00*	*0.74*	*0.74*	*0.74*	*0.74*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*893*	*181*	*14*	*727*	*0*
Percent Heavy Vehicles	*0*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*0.74*	*1.00*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*14*						
C (m) (veh/h)		*649*						
v/c		*0.02*						
95% queue length		*0.07*						
Control Delay (s/veh)		*10.7*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Booth and Westfield*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Westfield* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*14*	*431*			*389*	*14*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*18*	*582*	*0*	*0*	*525*	*18*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*56*	*0*	*28*			
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*75*	*0*	*37*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LTR*	
v (veh/h)	*18*						*112*	
C (m) (veh/h)	*1019*						*340*	
v/c	*0.02*						*0.33*	
95% queue length	*0.05*						*1.40*	
Control Delay (s/veh)	*8.6*						*20.7*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*20.7*	
Approach LOS	--	--					*C*	

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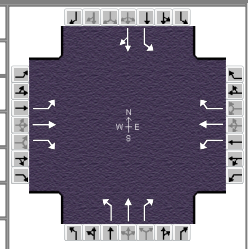
HCS 2010 Signalized Intersection Results Summary

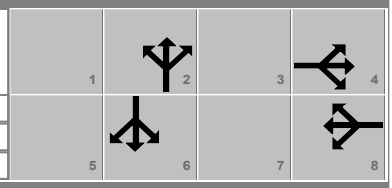
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	11/1/2013	Area Type	Other
Jurisdiction	RTC	Time Period	AM	PHF	0.74
Intersection	Booth and Foster	Analysis Year	2035	Analysis Period	1> 7:00
File Name	Booth and Foster - AM.xus				
Project Description	2035 No-Action AM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	236	139	13	222	27	222	166	97	139	250	55

Signal Information			
Cycle, s	38.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	19.6	10.6	0.0	0.0	0.0	0.0	
Yellow	3.5	3.5	0.0	0.0	0.0	0.0	
Red	0.5	0.5	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		5.0		5.0		5.0		6.0
Phase Duration, s		14.6		14.6		23.6		23.6
Change Period, ($Y+R_c$), s		4.0		4.0		4.0		4.0
Max Allow Headway (*MAH*), s		3.3		3.2		3.8		3.4
Queue Clearance Time (g_s), s		7.8		8.2		17.8		8.7
Green Extension Time (g_e), s		1.0		0.7		1.8		1.4
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.00		0.01		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	18	319	154	18	300	30	300	224	108	188	399	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1078	1881	1537	1049	1881	1565	978	1881	1565	1149	1807	
Queue Service Time (g_s), s	0.5	5.6	3.1	0.6	5.2	0.5	10.5	2.5	1.4	4.1	5.2	
Cycle Queue Clearance Time (g_c), s	5.8	5.6	3.1	6.2	5.2	0.5	15.8	2.5	1.4	6.7	5.2	
Green Ratio (*g/C*)	0.28	0.28	0.28	0.28	0.28	0.28	0.51	0.51	0.51	0.51	0.51	
Capacity (*c*), veh/h	339	520	424	324	520	432	556	967	804	702	928	
Volume-to-Capacity Ratio (*X*)	0.052	0.614	0.363	0.054	0.577	0.069	0.540	0.232	0.134	0.268	0.429	
Available Capacity (c_a), veh/h	748	1234	1008	722	1234	1026	951	1727	1437	1166	1659	
Back of Queue (*Q*), veh/ln (95th percentile)	0.2	3.6	1.6	0.2	3.3	0.3	3.2	1.2	0.5	1.3	2.3	
Queue Storage Ratio (*RQ*) (95th percentile)	0.02	0.00	0.13	0.05	0.00	0.07	0.89	0.33	0.15	0.11	0.00	
Uniform Delay (d_1), s/veh	14.4	12.0	11.1	14.7	11.9	10.2	10.7	5.1	4.8	7.0	5.8	
Incremental Delay (d_2), s/veh	0.0	0.4	0.2	0.0	0.4	0.0	0.3	0.0	0.0	0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	14.4	12.5	11.3	14.7	12.3	10.2	11.0	5.2	4.9	7.0	5.9	
Level of Service (LOS)	B	B	B	B	B	B	B	A	A	A	A	
Approach Delay, s/veh / LOS	12.2	B		12.2	B		7.9	A		6.3	A	
Intersection Delay, s/veh / LOS	9.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.6	B	2.4	B	2.7	B	2.8	C
Bicycle LOS Score / LOS	3.3	C	2.9	C	3.7	D	3.6	D

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Booth & Idlewild*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Idlewild* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*42*	*167*			*292*	*83*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*1.00*	*1.00*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*56*	*225*	*0*	*0*	*394*	*112*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*181*		*153*			
Peak-Hour Factor, PHF	*0.74*	*1.00*	*0.74*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*244*	*0*	*206*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*					*L*		*R*
v (veh/h)	*56*					*244*		*206*
C (m) (veh/h)	*1053*					*338*		*603*
v/c	*0.05*					*0.72*		*0.34*
95% queue length	*0.17*					*5.35*		*1.51*
Control Delay (s/veh)	*8.6*					*39.0*		*14.0*
LOS	*A*					*E*		*B*
Approach Delay (s/veh)	--	--				*27.5*		
Approach LOS	--	--				*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action AM*

Site Information

Intersection	*Booth and Riverside*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Riverside* | North/South Street: *Booth*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*7*	*14*	*348*	*7*	*0*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*0*	*9*	*18*	*470*	*9*	*0*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

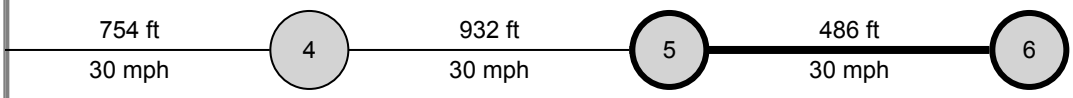
Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*14*	*0*	*334*	*7*	*14*	*0*
Peak-Hour Factor, PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Hourly Flow Rate, HFR (veh/h)	*18*	*0*	*451*	*9*	*18*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*0*	*470*		*469*			*27*	
C (m) (veh/h)	*1601*	*1575*		*862*			*116*	
v/c	*0.00*	*0.30*		*0.54*			*0.23*	
95% queue length	*0.00*	*1.26*		*3.35*			*0.85*	
Control Delay (s/veh)	*7.2*	*8.3*		*14.0*			*45.2*	
LOS	*A*	*A*		*B*			*E*	
Approach Delay (s/veh)	--	--	*14.0*			*45.2*		
Approach LOS	--	--	*B*			*E*		

HCS 2010 Urban Street Segment Report

General Information				Streets Information	
Agency	Jacobs			Number of Intersections	6
Analyst	SD	Analysis Date	Oct 17, 2013	Number of Segments	5
Jurisdiction	RTC Washoe	Time Period	AM	Number of Iterations	15
File Name	Keystone - AM.xus	Analysis Year	2035	System Cycle Length, s	120
Intersections	Keystone Ave at W 2nd Street	Keystone Ave at W 1st Street		Analysis Period	1> 7:00
Project Description	2035 No-Action AM				



Basic Segment Information

Segment	Speed Limit		Through Lanes		Segment Length		Intersection Wid		Length of RM		Percent Curb		Other Delay	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
5	30	30	2	2	486	486	50	50	0	0	70	70	0.0	0.0

		Southbound			Northbound		
Segment Output Data		SBL	SBT	SBR	NBL	NBT	NBR
Segment	Movement	1	6	16	5	2	12
5	Bay/Lane Spillback Time, h		never			never	
5	Shared Lane Spillback Time, h	never			never		
5	Base Free-Flow Speed, mph	39.37			39.37		
5	Running Time, s	13.87			13.79		
5	Running Speed, mph	23.90			24.03		
5	Through Delay, s/veh	6.41			6.09		
5	Travel Speed, mph	16.34			16.67		
5	Stop Rate, stops/veh	0.54			0.25		
5	Spatial Stop Rate, stops/mi	5.82			2.71		
5	Through vol/cap Ratio	0.55			0.34		
5	Percent of Base FFS	41.51			42.34		
5	Level of Service	D			D		
5	Auto Traveler Perception Score	3.12			2.56		

Multimodal Results (Segment)					
5	Pedestrian Segment LOS Score / LOS	3.65	D	3.70	D
5	Bicycle Segment LOS Score / LOS	5.33	F	5.31	F
5	Transit Segment LOS Score / LOS	5.36	F	5.12	F

Facility Output Data	**Southbound**	**Northbound**
Facility Travel Time, s	166.00	224.62
Facility Travel Speed, mph	14.38	10.62
Facility Base Free Flow Speed, mph	39.37	39.37
Facility Percent of Base FFS	36.51	26.98
Facility Level of Service	E	F
Facility Auto Traveler Perception Score	2.82	2.78

Multimodal Results (Facility)				
Pedestrian Facility LOS Score / LOS	4.05	D	4.00	D
Bicycle Facility LOS Score / LOS	4.88	E	4.76	E
Transit Facility LOS Score / LOS	5.47	F	5.68	F

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Keystone and Coleman/12th*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description *Keystone Avenue Corridor Study*

East/West Street: *Coleman/12th* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*45*	*325*	*179*	*11*	*235*	*11*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*48*	*349*	*192*	*11*	*252*	*11*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*1*			*0*
Lanes	*0*	*1*	*1*	*0*	*1*	*0*
Configuration	*LT*		*R*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*11*	*45*	*112*	*22*	*22*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*11*	*11*	*48*	*120*	*23*	*23*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*48*	*11*		*166*			*70*	
C (m) (veh/h)	*1299*	*1215*		*316*			*499*	
v/c	*0.04*	*0.01*		*0.53*			*0.14*	
95% queue length	*0.12*	*0.03*		*2.88*			*0.49*	
Control Delay (s/veh)	*7.9*	*8.0*		*28.3*			*13.4*	
LOS	*A*	*A*		*D*			*B*	
Approach Delay (s/veh)	--	--	*28.3*			*13.4*		
Approach LOS	--	--	*D*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Keystone and King's Row*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *King's Row* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*504*	*526*			*370*	*22*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*1.00*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*541*	*565*	*0*	*0*	*397*	*23*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*			*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*22*	*0*	*280*			
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*23*	*0*	*301*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*0*	*0*
Configuration	*L*		*TR*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*					*L*		*TR*
v (veh/h)	*541*					*23*		*301*
C (m) (veh/h)	*1139*					*39*		*829*
v/c	*0.47*					*0.59*		*0.36*
95% queue length	*2.62*					*2.10*		*1.67*
Control Delay (s/veh)	*11.0*					*186.7*		*11.8*
LOS	*B*					*F*		*B*
Approach Delay (s/veh)	--	--				*24.2*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Keystone and University*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *University* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*90*	*986*	*56*	*22*	*616*	*11*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*96*	*1060*	*60*	*23*	*662*	*11*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

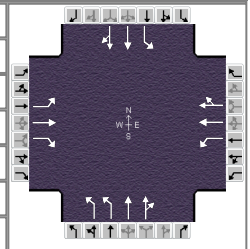
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*11*	*45*	*22*	*6*	*34*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*11*	*11*	*48*	*23*	*6*	*36*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*		*LTR*			*LTR*	
v (veh/h)	*96*	*23*		*65*			*70*	
C (m) (veh/h)	*916*	*623*		*90*			*156*	
v/c	*0.10*	*0.04*		*0.72*			*0.45*	
95% queue length	*0.35*	*0.11*		*3.62*			*2.05*	
Control Delay (s/veh)	*9.4*	*11.0*		*112.5*			*45.6*	
LOS	*A*	*B*		*F*			*E*	
Approach Delay (s/veh)	--	--	*112.5*			*45.6*		
Approach LOS	--	--	*F*			*E*		

HCS 2010 Signalized Intersection Results Summary

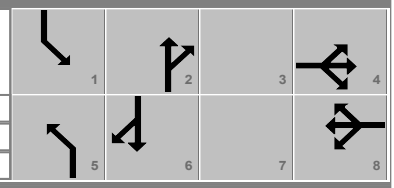
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 7th Stre	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	112	134	366	212	268	44	537	974	112	44	582	56

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	108	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	4.1	7.9	59.3	31.7	0.0	0.0
Yellow	3.5	3.5	4.0	4.0	0.0	0.0
Red	0.5	0.5	0.5	0.5	0.0	0.0



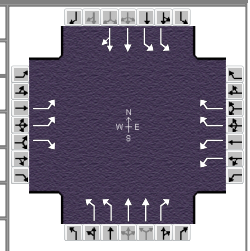
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		6.0	2.0	4.0	2.0	4.0
Phase Duration, s		36.2		36.2	20.0	75.7	8.1	63.8
Change Period, (*Y*+*Rc*), s		4.5		4.5	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		25.2		30.7	15.0		5.1	
Green Extension Time (g_e), s		2.1		1.0	0.9	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.79	
Max Out Probability		0.28		1.00	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	120	144	324	228	165	160	378	380	366	47	341	332
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1058	1881	1557	1246	1881	1790	1740	1881	1810	1792	1881	1822
Queue Service Time (g_s), s	12.4	7.3	23.2	21.4	8.5	8.7	13.0	14.4	13.1	3.1	13.5	13.5
Cycle Queue Clearance Time (g_c), s	21.1	7.3	23.2	28.7	8.5	8.7	13.0	14.4	13.1	3.1	13.5	13.5
Green Ratio (*g*/*C*)	0.26	0.26	0.26	0.26	0.26	0.26	0.13	0.59	0.59	0.03	0.49	0.49
Capacity (*c*), veh/h	264	498	412	314	498	474	463	1116	1074	61	930	900
Volume-to-Capacity Ratio (*X*)	0.457	0.290	0.786	0.727	0.331	0.338	0.816	0.340	0.341	0.773	0.367	0.368
Available Capacity (c_a), veh/h	279	525	435	332	525	500	1218	1116	1074	164	930	900
Back of Queue (*Q*), veh/ln (95th percentile)	5.9	6.1	14.9	11.5	7.1	6.9	7.5	7.6	6.5	2.8	10.2	9.9
Queue Storage Ratio (*RQ*) (95th percentile)	1.00	0.00	0.00	2.42	0.00	0.00	1.46	0.00	0.00	0.47	0.00	0.00
Uniform Delay (d_1), s/veh	44.2	35.1	41.0	46.6	35.6	35.6	58.5	15.5	13.6	57.5	18.8	18.8
Incremental Delay (d_2), s/veh	0.5	0.1	7.9	6.2	0.1	0.2	0.1	0.1	0.1	7.5	1.1	1.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.6	35.3	48.8	52.8	35.7	35.8	58.7	15.5	13.6	65.0	19.9	19.9
Level of Service (LOS)	D	D	D	D	D	D	E	B	B	E	B	B
Approach Delay, s/veh / LOS	44.7	D		42.8	D		29.4	C		22.9	C	
Intersection Delay, s/veh / LOS	33.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	D	3.2	C	2.6	B	3.1	C
Bicycle LOS Score / LOS	3.8	D	3.2	C	3.9	D	3.2	C

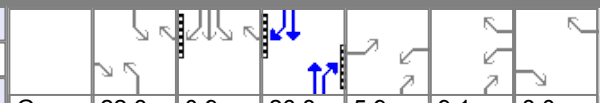
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at I-80 SPUI	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				

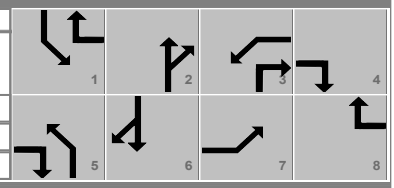


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100		247	789		996	545	526	879	574	424	162

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	59	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	22.3	0.9	26.8	5.9	9.1	8.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	4.0	0.0	8.0	7.0	7.0	1.0



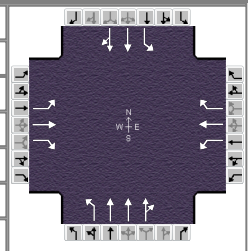
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration, s	16.9	13.0	37.0	33.1	30.3	38.8	31.2	39.7
Change Period, ($Y+R_c$), s	11.0	5.0	11.0	5.0	8.0	12.0	8.0	12.0
Max Allow Headway (*MAH*), s	3.2	3.4	3.2	3.4	4.2	0.0	4.2	0.0
Queue Clearance Time (g_s), s	5.9	10.0	28.0	30.1	20.7		22.9	
Green Extension Time (g_e), s	0.2	0.0	0.0	0.0	1.6	0.0	0.4	0.0
Phase Call Probability	0.97	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.00	1.00	1.00	1.00	0.32		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14	3		18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	108		212	848		1071	586	566	777	617	311	285
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1644		1545	1784		1441	1732	1749	1679	1738	1845	1659
Queue Service Time (g_s), s	3.9		8.0	26.0		28.1	18.7	19.0	26.8	20.9	19.3	19.9
Cycle Queue Clearance Time (g_c), s	3.9		8.0	26.0		28.1	18.7	19.0	26.8	20.9	19.3	19.9
Green Ratio (*g/C*)	0.05		0.25	0.22		0.43	0.19	0.22	0.44	0.19	0.23	0.23
Capacity (*c*), veh/h	161		390	773		1233	643	780	741	673	426	383
Volume-to-Capacity Ratio (*X*)	0.666		0.543	1.097		0.869	0.911	0.725	1.049	0.917	0.730	0.743
Available Capacity (c_a), veh/h	712		390	773		1233	808	780	741	695	426	383
Back of Queue (*Q*), veh/ln (95th percentile)	3.0		9.3	26.4		21.2	9.2	13.9	13.4	14.9	15.0	14.4
Queue Storage Ratio (*RQ*) (95th percentile)	0.00		0.67	0.00		0.89	1.55	0.00	0.00	1.51	0.00	0.00
Uniform Delay (d_1), s/veh	56.1		38.9	47.0		31.3	29.1	52.1	36.5	46.5	47.5	49.2
Incremental Delay (d_2), s/veh	1.8		0.9	62.3		6.6	10.1	4.5	42.7	14.4	8.7	10.2
Initial Queue Delay (d_3), s/veh	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	57.8		39.7	109.3		37.9	39.2	56.7	79.3	60.9	56.2	59.4
Level of Service (LOS)	E		D	F		D	D	E	F	E	E	E
Approach Delay, s/veh / LOS	45.8	D		69.4	E		60.5	E		59.3	E	
Intersection Delay, s/veh / LOS	62.5						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.7	D	3.4	C	3.2	C	3.3	C
Bicycle LOS Score / LOS		F		F	5.4	F	4.5	E

HCS 2010 Signalized Intersection Results Summary

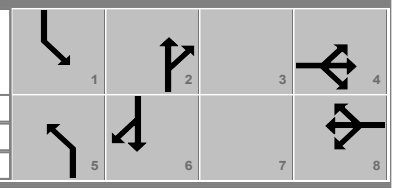
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 5th Stre	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	178	56	67	56	56	469	33	1303	44	136	1213	111

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	42	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	11.2	50.2	6.0	35.1	0.0	0.0
Yellow	3.0	4.0	3.0	3.5	0.0	0.0
Red	1.0	1.0	1.0	1.0	0.0	0.0



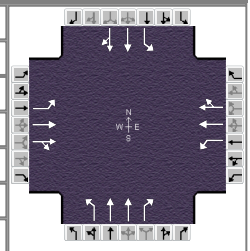
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	2.0	4.0
Phase Duration, s		39.6		39.6	10.0	65.2	15.2	70.5
Change Period, (*Y*+*Rc*), s		4.5		4.5	5.0	5.0	4.0	5.0
Max Allow Headway (*MAH*), s		3.4		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		19.4		33.9	4.4		11.2	
Green Extension Time (g_e), s		2.0		1.2	2.8	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.69		0.99	
Max Out Probability		0.00		0.45	0.38		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	191	60	56	60	60	427	36	965	474	139	676	656
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1344	1881	1547	1330	1881	1565	1792	1881	1847	1792	1881	1819
Queue Service Time (g_s), s	14.6	2.8	3.2	4.2	2.8	31.9	2.4	24.8	24.8	9.2	24.9	26.5
Cycle Queue Clearance Time (g_c), s	17.4	2.8	3.2	7.0	2.8	31.9	2.4	24.8	24.8	9.2	24.9	26.5
Green Ratio (*g*/*C*)	0.29	0.29	0.29	0.29	0.29	0.29	0.04	0.50	0.50	0.09	0.55	0.55
Capacity (*c*), veh/h	422	550	452	418	550	458	74	1887	927	167	1026	992
Volume-to-Capacity Ratio (*X*)	0.454	0.109	0.124	0.144	0.109	0.933	0.480	0.511	0.511	0.832	0.659	0.661
Available Capacity (c_a), veh/h	471	619	509	467	619	515	179	1887	927	299	1026	992
Back of Queue (*Q*), veh/ln (95th percentile)	8.4	2.3	2.2	2.5	2.3	21.2	2.0	17.1	17.1	6.1	11.6	12.6
Queue Storage Ratio (*RQ*) (95th percentile)	3.54	0.00	0.91	0.34	0.00	0.00	0.63	0.00	0.00	0.57	0.00	0.00
Uniform Delay (d_1), s/veh	37.4	31.0	31.2	33.6	31.0	41.3	58.1	28.3	28.3	53.7	12.7	14.1
Incremental Delay (d_2), s/veh	0.3	0.0	0.0	0.1	0.0	21.8	1.4	0.8	1.6	1.3	1.1	1.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.7	31.1	31.2	33.6	31.1	63.1	59.5	29.1	29.9	55.0	13.7	15.2
Level of Service (LOS)	D	C	C	C	C	E	E	C	C	D	B	B
Approach Delay, s/veh / LOS	35.2	D		56.3	E		30.1	C		18.3	B	
Intersection Delay, s/veh / LOS	29.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.4	C	3.7	D	2.7	B	2.5	B
Bicycle LOS Score / LOS	3.4	C	3.8	D	3.4	C	3.9	D

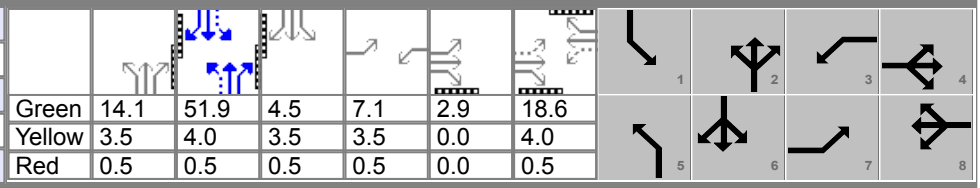
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 4th Stre	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	168	235	190	89	358	156	302	1056	11	252	862	222

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	4	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	14.1	51.9	4.5	7.1	2.9	18.6
Yellow	3.5	4.0	3.5	3.5	0.0	4.0
Red	0.5	0.5	0.5	0.5	0.0	0.5

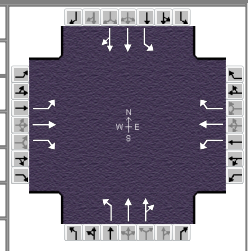
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.2	3.0	1.3	4.0
Phase Duration, s	14.0	26.0	11.1	23.1	18.1	74.4	8.5	64.9
Change Period, ($Y+R_c$), s	4.0	4.5	4.0	4.5	4.0	4.5	4.5	4.5
Max Allow Headway (*MAH*), s	3.2	3.3	3.2	3.2	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s	12.0	16.1	7.3	17.1	13.4		2.5	
Green Extension Time (g_e), s	0.0	0.7	0.0	0.7	0.6	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	0.96	1.00	1.00		1.00	
Max Out Probability	1.00	0.01	1.00	0.02	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	181	221	191	96	240	227	325	1136	10	259	558	517
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1531	1792	1881	1746	1792	1791	1547	1792	1881	1743
Queue Service Time (g_s), s	10.0	13.1	14.1	5.3	14.8	15.1	11.4	24.8	0.4	0.5	22.7	22.4
Cycle Queue Clearance Time (g_c), s	10.0	13.1	14.1	5.3	14.8	15.1	11.4	24.8	0.4	0.5	22.7	22.4
Green Ratio (*g/C*)	0.25	0.18	0.18	0.21	0.15	0.15	0.57	0.58	0.58	0.45	0.50	0.50
Capacity (*c*), veh/h	236	337	275	210	291	270	398	2087	901	298	946	877
Volume-to-Capacity Ratio (*X*)	0.765	0.654	0.696	0.456	0.824	0.839	0.817	0.544	0.011	0.867	0.589	0.590
Available Capacity (c_a), veh/h	236	415	338	254	415	385	651	2087	901	425	946	877
Back of Queue (*Q*), veh/ln (95th percentile)	9.1	10.3	9.4	4.3	11.9	11.5	8.2	15.4	0.4	12.1	14.0	12.9
Queue Storage Ratio (*RQ*) (95th percentile)	1.76	0.00	0.00	0.60	0.00	0.00	1.87	0.00	0.08	2.34	0.00	0.00
Uniform Delay (d_1), s/veh	39.5	45.8	46.2	40.0	49.1	49.3	20.5	17.3	12.7	40.1	17.3	16.9
Incremental Delay (d_2), s/veh	12.6	1.4	3.0	0.6	6.0	7.6	1.4	0.9	0.0	7.4	2.0	2.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	52.1	47.2	49.1	40.6	55.1	56.9	21.8	18.2	12.7	47.4	19.3	19.1
Level of Service (LOS)	D	D	D	D	E	E	C	B	B	D	B	B
Approach Delay, s/veh / LOS	49.3	D		53.4	D		18.9	B		24.7	C	
Intersection Delay, s/veh / LOS	30.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.3	C	3.3	C	3.2	C	3.2	C
Bicycle LOS Score / LOS	3.4	C	3.6	D	4.0	D	3.9	D

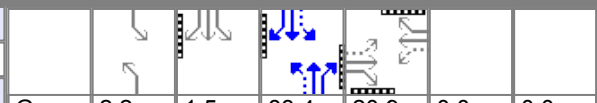
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 2nd Str	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				

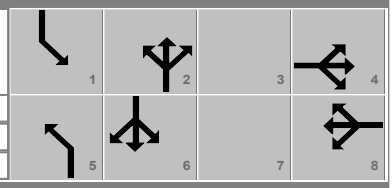


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	160	33	44	56	44	191	22	1019	22	78	952	112

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	86	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	2.2	1.5	83.4	20.9	0.0	0.0
Yellow	3.5	0.0	3.5	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



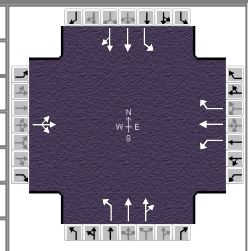
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		24.9		24.9	6.2	87.4	7.7	89.0
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s		3.3		3.4	3.2	0.0	3.2	0.0
Queue Clearance Time (g_s), s		19.5		14.4	2.5		3.6	
Green Extension Time (g_e), s		0.4		0.5	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.55		0.93	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	172	35	37	60	47	171	24	560	554	81	550	528
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1341	1881	1552	1370	1881	1533	1792	1881	1862	1792	1881	1805
Queue Service Time (g_s), s	15.0	1.9	2.4	4.6	2.6	12.4	0.5	15.5	15.5	1.6	22.8	23.4
Cycle Queue Clearance Time (g_c), s	17.5	1.9	2.4	6.5	2.6	12.4	0.5	15.5	15.5	1.6	22.8	23.4
Green Ratio (*g/C*)	0.17	0.17	0.17	0.17	0.17	0.17	0.71	0.70	0.70	0.73	0.71	0.71
Capacity (*c*), veh/h	265	327	270	277	327	267	354	1307	1294	403	1332	1278
Volume-to-Capacity Ratio (*X*)	0.649	0.108	0.135	0.218	0.145	0.641	0.067	0.428	0.428	0.200	0.413	0.413
Available Capacity (c_a), veh/h	389	502	414	404	502	409	471	1307	1294	557	1332	1278
Back of Queue (*Q*), veh/ln (95th percentile)	8.8	1.6	1.7	2.9	2.2	8.4	0.3	9.6	9.5	0.9	15.6	15.5
Queue Storage Ratio (*RQ*) (95th percentile)	4.42	0.00	0.28	0.48	0.00	0.00	0.08	0.00	0.00	0.10	0.00	0.00
Uniform Delay (d_1), s/veh	49.4	41.7	41.9	44.5	42.0	46.1	7.5	8.0	8.0	5.8	15.1	15.8
Incremental Delay (d_2), s/veh	1.0	0.1	0.1	0.1	0.1	1.0	0.0	0.8	0.8	0.1	0.7	0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	50.4	41.8	42.0	44.6	42.1	47.0	7.5	8.7	8.7	5.9	15.8	16.6
Level of Service (LOS)	D	D	D	D	D	D	A	A	A	A	B	B
Approach Delay, s/veh / LOS	47.9	D		45.7	D		8.7	A		15.5	B	
Intersection Delay, s/veh / LOS	18.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.2	C	3.3	C	2.6	B	2.6	B
Bicycle LOS Score / LOS	3.0	C	3.1	C	3.6	D	3.5	C

HCS 2010 Signalized Intersection Results Summary

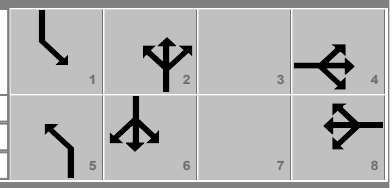
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	Oct 17, 2013	Area Type	Other
Jurisdiction	RTC Washoe	Time Period	PM	PHF	0.93
Intersection	Keystone Ave at W 1st Stre	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Keystone - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	11	11	33	11	235	22	795	22	112	918	22

Signal Information			
Cycle, s	32.9	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off

Green	0.6	1.6	11.9	6.2	0.0	0.0
Yellow	3.5	0.0	4.0	3.5	0.0	0.0
Red	0.5	0.0	0.5	0.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		5.0	1.1	4.0	1.1	4.0
Phase Duration, s		10.2		10.2	4.6	16.4	6.2	18.1
Change Period, ($Y+R_c$), s		4.0		4.0	4.0	4.5	4.0	4.5
Max Allow Headway (*MAH*), s		3.7		3.9	3.2	4.1	3.2	4.1
Queue Clearance Time (g_s), s		2.9		5.8	2.3	8.4	3.3	8.8
Green Extension Time (g_e), s		0.1		0.6	0.0	3.4	0.1	4.0
Phase Call Probability		0.94		0.94	0.19	1.00	0.66	1.00
Max Out Probability		0.00		0.00	0.01	0.02	0.01	0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		57		35	12	197	24	439	434	116	489	483
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1574		1396	1881	1569	1792	1881	1857	1792	1881	1859
Queue Service Time (g_s), s		0.0		0.7	0.2	3.8	0.3	6.4	6.4	1.3	6.8	6.8
Cycle Queue Clearance Time (g_c), s		0.9		1.5	0.2	3.8	0.3	6.4	6.4	1.3	6.8	6.8
Green Ratio (*g/C*)		0.19		0.19	0.19	0.19	0.38	0.36	0.36	0.43	0.41	0.41
Capacity (*c*), veh/h		476		449	357	297	336	683	674	449	777	768
Volume-to-Capacity Ratio (*X*)		0.120		0.079	0.033	0.661	0.070	0.644	0.644	0.260	0.630	0.630
Available Capacity (c_a), veh/h		1109		1032	1142	953	739	1713	1692	871	1828	1806
Back of Queue (*Q*), veh/ln (95th percentile)		0.5		0.3	0.1	2.1	0.1	3.4	3.3	0.5	3.3	3.2
Queue Storage Ratio (*RQ*) (95th percentile)		0.00		0.16	0.00	0.00	0.03	0.00	0.00	0.13	0.00	0.00
Uniform Delay (d_1), s/veh		11.2		11.8	10.9	12.4	7.2	8.7	8.7	6.5	7.7	7.7
Incremental Delay (d_2), s/veh		0.1		0.1	0.0	1.9	0.0	1.0	1.0	0.1	0.8	0.8
Initial Queue Delay (d_3), s/veh		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		11.2		11.8	10.9	14.2	7.2	9.7	9.8	6.6	8.5	8.5
Level of Service (LOS)		B		B	B	B	A	A	A	A	A	A
Approach Delay, s/veh / LOS	11.2	B		13.7	B		9.7	A		8.3	A	
Intersection Delay, s/veh / LOS	9.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.0	C	3.1	C	2.6	B	2.1	B
Bicycle LOS Score / LOS	2.9	C	3.2	C	3.5	D	3.4	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Keystone and Jones*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Jones* | North/South Street: *Keystone*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*22*	*717*	*22*	*11*	*907*	*45*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*23*	*770*	*23*	*11*	*975*	*48*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*0*			*0*	

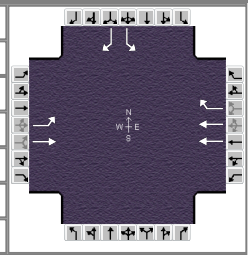
Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*34*	*0*	*11*	*11*	*11*	*90*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Hourly Flow Rate, HFR (veh/h)	*36*	*0*	*11*	*11*	*11*	*96*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*23*	*11*		*118*			*47*	
C (m) (veh/h)	*670*	*830*		*284*			*81*	
v/c	*0.03*	*0.01*		*0.42*			*0.58*	
95% queue length	*0.11*	*0.04*		*1.95*			*2.58*	
Control Delay (s/veh)	*10.6*	*9.4*		*26.4*			*98.3*	
LOS	*B*	*A*		*D*			*F*	
Approach Delay (s/veh)	--	--	*26.4*			*98.3*		
Approach LOS	--	--	*D*			*F*		

HCS 2010 Signalized Intersection Results Summary

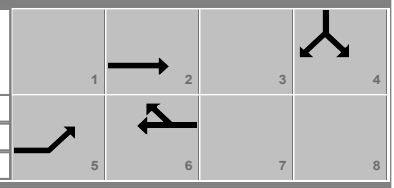
General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	California and Keystone	Analysis Year	2035	Analysis Period	1> 4:45
File Name	California - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	156	425			660	459				269		213

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off

Green	10.1	40.3	16.6	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	1.0	0.0	0.0	0.0



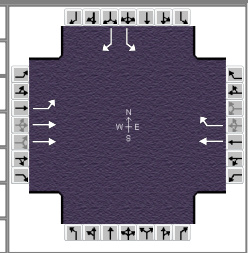
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	14.1	58.4		44.3				21.6
Change Period, (*Y*+*Rc*), s	4.0	4.0		4.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.4
Queue Clearance Time (g_s), s	10.1							15.6
Green Extension Time (g_e), s	0.2	0.0		0.0				1.0
Phase Call Probability	0.98							1.00
Max Out Probability	0.03							0.08

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	184	500			776	420				316		251
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1900			1791	1559				1792		1594
Queue Service Time (g_s), s	8.1	10.7			11.0	14.6				13.6		11.8
Cycle Queue Clearance Time (g_c), s	8.1	10.7			11.0	14.6				13.6		11.8
Green Ratio (*g*/*C*)	0.13	0.68			0.50	0.50				0.21		0.21
Capacity (*c*), veh/h	226	1293			1805	786				371		330
Volume-to-Capacity Ratio (*X*)	0.811	0.387			0.430	0.535				0.852		0.759
Available Capacity (c_a), veh/h	381	1293			1805	786				537		478
Back of Queue (*Q*), veh/ln (95th percentile)	6.9	7.5			7.7	9.2				10.5		8.2
Queue Storage Ratio (*RQ*) (95th percentile)	0.00	0.00			0.00	0.54				0.00		1.14
Uniform Delay (d_1), s/veh	36.4	7.0			12.6	13.5				30.5		29.8
Incremental Delay (d_2), s/veh	2.5	0.8			0.8	2.6				6.2		2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	38.8	7.8			13.3	16.1				36.8		31.9
Level of Service (LOS)	D	A			B	B				D		C
Approach Delay, s/veh / LOS	16.2	B		14.3	B		0.0			34.6	C	
Intersection Delay, s/veh / LOS	19.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.5	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	4.1	D	3.9	D				F

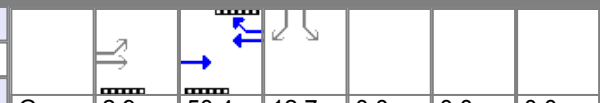
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	10/21/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	California and Booth	Analysis Year	2035	Analysis Period	1> 4:45
File Name	California - PM.xus				
Project Description	2035 No-Action PM				

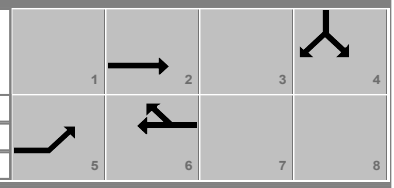


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	44	380			672	201				201		89

Signal Information			
Cycle, s	80.0	Reference Phase	6
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	Off
Force Mode	Float	Simult. Gap N/S	Off



Green	2.9	50.4	12.7	0.0	0.0	0.0
Yellow	3.5	4.0	4.0	0.0	0.0	0.0
Red	0.5	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	6.9	62.3		55.4				17.7
Change Period, ($Y+R_c$), s	4.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.3	0.0		0.0				3.3
Queue Clearance Time (g_s), s	4.3							12.2
Green Extension Time (g_e), s	0.0	0.0		0.0				0.5
Phase Call Probability	0.68							1.00
Max Out Probability	0.49							0.09

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	52	447			791	184				236		105
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1791			1881	1554				1792		1588
Queue Service Time (g_s), s	2.3	3.2			27.2	4.4				10.2		4.8
Cycle Queue Clearance Time (g_c), s	2.3	3.2			27.2	4.4				10.2		4.8
Green Ratio (*g/C*)	0.04	0.72			0.63	0.63				0.16		0.16
Capacity (*c*), veh/h	66	2566			1185	979				284		252
Volume-to-Capacity Ratio (*X*)	0.785	0.174			0.667	0.188				0.833		0.416
Available Capacity (c_a), veh/h	179	2566			1185	979				426		377
Back of Queue (*Q*), veh/ln (95th percentile)	2.0	1.8			18.8	2.6				8.4		3.3
Queue Storage Ratio (*RQ*) (95th percentile)	0.17	0.00			0.00	0.00				1.92		0.00
Uniform Delay (d_1), s/veh	38.2	3.7			16.6	7.1				32.6		30.3
Incremental Delay (d_2), s/veh	7.4	0.1			2.7	0.4				5.4		0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	45.6	3.8			19.3	7.5				38.0		30.7
Level of Service (LOS)	D	A			B	A				D		C
Approach Delay, s/veh / LOS	8.2	A		17.0	B		0.0			35.8	D	
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.8	A	2.5	B	3.0	C	2.6	B
Bicycle LOS Score / LOS	3.8	D	5.0	F				F

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*California and Cherry*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *California* | North/South Street: *Cherry*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*6*	*414*			*750*	*11*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*7*	*487*	*0*	*0*	*882*	*12*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*11*		*11*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.85*	*1.00*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*12*	*0*	*12*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (veh/h)	*7*						*24*	
C (m) (veh/h)	*761*						*213*	
v/c	*0.01*						*0.11*	
95% queue length	*0.03*						*0.38*	
Control Delay (s/veh)	*9.8*						*24.0*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*24.0*	
Approach LOS	--	--					*C*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*SD*
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*California and Newlands*
Jurisdiction	*RTC*
Analysis Year	

Project Description

East/West Street: *California* | North/South Street: *Newlands*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*515*	*179*	*22*	*1120*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.85*	*0.85*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*605*	*210*	*25*	*1317*	*0*
Percent Heavy Vehicles	*0*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*0.85*	*1.00*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*25*						
C (m) (veh/h)		*817*						
v/c		*0.03*						
95% queue length		*0.09*						
Control Delay (s/veh)		*9.5*						
LOS		*A*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Booth and Westfield*
Jurisdiction	*RTC*
Analysis Year	

Project Description

East/West Street: *Westfield* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*42*	*264*			*320*	*70*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*49*	*310*	*0*	*0*	*376*	*82*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*70*	*0*	*42*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*82*	*0*	*49*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LTR*	
v (veh/h)	*49*						*131*	
C (m) (veh/h)	*1106*						*444*	
v/c	*0.04*						*0.30*	
95% queue length	*0.14*						*1.22*	
Control Delay (s/veh)	*8.4*						*16.5*	
LOS	*A*						*C*	
Approach Delay (s/veh)	--	--					*16.5*	
Approach LOS	--	--					*C*	

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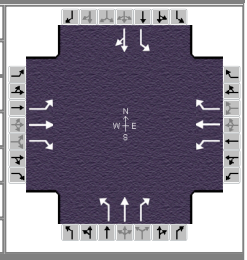
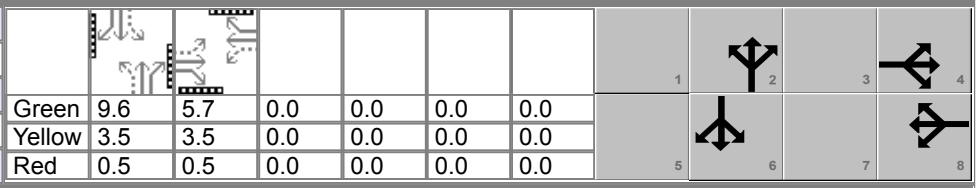
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Jacobs			Duration, h	0.25
Analyst	SD	Analysis Date	11/1/2013	Area Type	Other
Jurisdiction	RTC	Time Period	PM	PHF	0.85
Intersection	Booth and Foster	Analysis Year	2035	Analysis Period	1> 4:45
File Name	Booth and Foster - PM.xus				
Project Description	2035 No-Action PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	41	97	83	97	166	13	166	83	83	13	208	41

Signal Information			
Cycle, s	23.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	Off
Force Mode	Fixed	Simult. Gap N/S	Off



Green	9.6	5.7	0.0	0.0	0.0	0.0						
Yellow	3.5	3.5	0.0	0.0	0.0	0.0						
Red	0.5	0.5	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		5.0		5.0		5.0		6.0
Phase Duration, s		9.7		9.7		13.6		13.6
Change Period, ($Y+R_c$), s		4.0		4.0		4.0		4.0
Max Allow Headway (*MAH*), s		3.4		3.3		3.6		3.2
Queue Clearance Time (g_s), s		5.0		5.1		8.2		4.5
Green Extension Time (g_e), s		0.5		0.6		1.0		0.6
Phase Call Probability		0.97		0.97		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	48	114	80	114	195	13	195	98	80	15	285	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1194	1881	1547	1278	1881	1588	1094	1881	1588	1301	1817	
Queue Service Time (g_s), s	0.8	1.1	1.0	1.8	2.0	0.1	3.5	0.8	0.7	0.2	2.5	
Cycle Queue Clearance Time (g_c), s	3.0	1.1	1.0	3.1	2.0	0.1	6.2	0.8	0.7	1.0	2.5	
Green Ratio (*g/C*)	0.25	0.25	0.25	0.25	0.25	0.25	0.41	0.41	0.41	0.41	0.41	
Capacity (*c*), veh/h	493	461	379	554	461	389	636	773	653	796	746	
Volume-to-Capacity Ratio (*X*)	0.098	0.247	0.211	0.206	0.423	0.033	0.307	0.126	0.123	0.019	0.381	
Available Capacity (c_a), veh/h	1484	2022	1663	1615	2022	1707	1833	2831	2391	2220	2735	
Back of Queue (*Q*), veh/ln (95th percentile)	0.3	0.5	0.4	0.6	0.9	0.1	0.8	0.2	0.2	0.0	0.7	
Queue Storage Ratio (*RQ*) (95th percentile)	0.02	0.00	0.03	0.13	0.00	0.01	0.23	0.06	0.05	0.00	0.00	
Uniform Delay (d_1), s/veh	8.7	7.1	7.0	8.3	7.4	6.7	7.0	4.3	4.3	4.6	4.8	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	8.7	7.2	7.1	8.4	7.6	6.7	7.1	4.3	4.3	4.6	4.9	
Level of Service (LOS)	A	A	A	A	A	A	A	A	A	A	A	
Approach Delay, s/veh / LOS	7.4	A		7.9	A		5.7	A		4.9	A	
Intersection Delay, s/veh / LOS	6.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.6	B	2.3	B	2.4	B	2.6	B
Bicycle LOS Score / LOS	2.9	C	2.9	C	3.2	C	3.1	C

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Booth & Idlewild*
Jurisdiction	*RTC*
Analysis Year	

Project Description

East/West Street: *Idlewild* | North/South Street: *Booth*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*70*	*70*			*208*	*264*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*1.00*	*1.00*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*82*	*82*	*0*	*0*	*244*	*310*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*167*		*56*			
Peak-Hour Factor, PHF	*0.85*	*1.00*	*0.85*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*196*	*0*	*65*	*0*	*0*	*0*
Percent Heavy Vehicles	*1*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*1*	*0*	*0*	*0*
Configuration	*L*		*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*					*L*		*R*
v (veh/h)	*82*					*196*		*65*
C (m) (veh/h)	*1015*					*398*		*648*
v/c	*0.08*					*0.49*		*0.10*
95% queue length	*0.26*					*2.64*		*0.33*
Control Delay (s/veh)	*8.9*					*22.5*		*11.2*
LOS	*A*					*C*		*B*
Approach Delay (s/veh)	--	--				*19.7*		
Approach LOS	--	--				*C*		

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Generated: 1/23/2014 1:22 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Jacobs*
Date Performed	*10/21/2013*
Analysis Time Period	*2035 No-Action PM*

Site Information

Intersection	*Booth and Riverside*
Jurisdiction	*RTC*
Analysis Year	*2035*

Project Description

East/West Street: *Riverside* | North/South Street: *Booth*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*7*	*14*	*459*	*14*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*8*	*16*	*539*	*16*	*8*
Percent Heavy Vehicles	*1*	--	--	*1*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

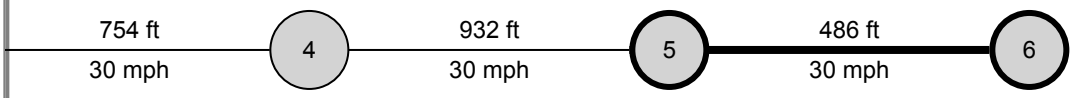
Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*14*	*0*	*222*	*7*	*0*	*0*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*16*	*0*	*261*	*8*	*0*	*0*
Percent Heavy Vehicles	*1*	*1*	*1*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*0*	*539*		*277*			*8*	
C (m) (veh/h)	*1592*	*1581*		*748*			*82*	
v/c	*0.00*	*0.34*		*0.37*			*0.10*	
95% queue length	*0.00*	*1.53*		*1.71*			*0.31*	
Control Delay (s/veh)	*7.3*	*8.5*		*12.6*			*53.6*	
LOS	*A*	*A*		*B*			*F*	
Approach Delay (s/veh)	--	--	*12.6*			*53.6*		
Approach LOS	--	--	*B*			*F*		

HCS 2010 Urban Street Segment Report

General Information				Streets Information	
Agency	Jacobs			Number of Intersections	6
Analyst	SD	Analysis Date	Oct 17, 2013	Number of Segments	5
Jurisdiction	RTC Washoe	Time Period	PM	Number of Iterations	15
File Name	Keystone - PM.xus	Analysis Year	2035	System Cycle Length, s	120
Intersections	Keystone Ave at W 2nd Street	Keystone Ave at W 1st Street		Analysis Period	1> 4:45
Project Description	2035 No-Action PM				



Basic Segment Information

Segment	Speed Limit		Through Lanes		Segment Length		Intersection Wid		Length of RM		Percent Curb		Other Delay	
	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
5	30	30	2	2	486	486	50	50	0	0	70	70	0.0	0.0

		Southbound			Northbound		
Segment Output Data		SBL	SBT	SBR	NBL	NBT	NBR
Segment	Movement	1	6	16	5	2	12
5	Bay/Lane Spillback Time, h		never			never	
5	Shared Lane Spillback Time, h	never			never		
5	Base Free-Flow Speed, mph	39.37			39.37		
5	Running Time, s	13.86			13.86		
5	Running Speed, mph	23.90			23.90		
5	Through Delay, s/veh	8.46			8.71		
5	Travel Speed, mph	14.85			14.68		
5	Stop Rate, stops/veh	0.58			0.33		
5	Spatial Stop Rate, stops/mi	6.33			3.55		
5	Through vol/cap Ratio	0.63			0.43		
5	Percent of Base FFS	37.71			37.28		
5	Level of Service	E			E		
5	Auto Traveler Perception Score	3.22			2.71		

Multimodal Results (Segment)					
5	Pedestrian Segment LOS Score / LOS	3.65	D	3.79	D
5	Bicycle Segment LOS Score / LOS	5.29	F	5.35	F
5	Transit Segment LOS Score / LOS	5.37	F	5.41	F

Facility Output Data	**Southbound**	**Northbound**
Facility Travel Time, s	198.77	211.26
Facility Travel Speed, mph	12.01	11.30
Facility Base Free Flow Speed, mph	39.37	39.37
Facility Percent of Base FFS	30.49	28.69
Facility Level of Service	E	F
Facility Auto Traveler Perception Score	2.89	2.89

Multimodal Results (Facility)				
Pedestrian Facility LOS Score / LOS	3.94	D	4.01	D
Bicycle Facility LOS Score / LOS	4.73	E	4.99	E
Transit Facility LOS Score / LOS	5.55	F	5.67	F

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	250	120	210	590	400	180
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	294	141	247	694	471	159
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	366	327	518	1214	895	753
Arrive On Green	0.20	0.20	0.03	0.21	0.48	0.48
Sat Flow, veh/h	1792	1599	1792	1881	1881	1582
Grp Volume(v), veh/h	294	141	247	694	471	159
Grp Sat Flow(s),veh/h/ln	1792	1599	1792	1881	1881	1582
Q Serve(g_s), s	10.4	5.1	4.1	22.0	11.7	3.9
Cycle Q Clear(g_c), s	10.4	5.1	4.1	22.0	11.7	3.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	366	327	518	1214	895	753
V/C Ratio(X)	0.80	0.43	0.48	0.57	0.53	0.21
Avail Cap(c_a), veh/h	726	648	617	1214	895	753
HCM Platoon Ratio	1.00	1.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	25.2	23.1	8.8	18.0	12.2	10.2
Incr Delay (d2), s/veh	4.1	0.9	0.6	1.9	2.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.4	8.3	3.8	17.7	10.8	3.3
LnGrp Delay(d),s/veh	29.4	24.0	9.5	19.8	14.4	10.8
LnGrp LOS	C	C	A	B	B	B
Approach Vol, veh/h	435			941	630	
Approach Delay, s/veh	27.6			17.1	13.5	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				61.4		18.6	11.3	50.1
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				43.0		27.0	10.0	28.0
Max Q Clear Time (g_c+I1), s				24.0		12.4	6.1	13.7
Green Ext Time (p_c), s				8.5		1.2	0.3	7.2

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	300	120	150	500	230	290
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	353	141	176	588	271	255
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	540	248	601	2439	997	839
Arrive On Green	0.16	0.16	0.07	0.68	0.17	0.17
Sat Flow, veh/h	3476	1599	1792	3668	1881	1584
Grp Volume(v), veh/h	353	141	176	588	271	255
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1787	1881	1584
Q Serve(g_s), s	5.9	5.0	2.5	3.9	7.7	8.6
Cycle Q Clear(g_c), s	5.9	5.0	2.5	3.9	7.7	8.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	540	248	601	2439	997	839
V/C Ratio(X)	0.65	0.57	0.29	0.24	0.27	0.30
Avail Cap(c_a), veh/h	1581	727	706	2439	997	839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.85	0.85
Uniform Delay (d), s/veh	24.4	24.1	5.5	3.7	15.1	15.5
Incr Delay (d2), s/veh	1.3	2.0	0.3	0.2	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	8.1	2.2	3.5	7.3	7.0
LnGrp Delay(d),s/veh	25.8	26.1	5.8	4.0	15.7	16.3
LnGrp LOS	C	C	A	A	B	B
Approach Vol, veh/h	494			764	526	
Approach Delay, s/veh	25.9			4.4	16.0	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				65.4		14.6	9.4	56.1
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				42.0		28.0	8.0	29.0
Max Q Clear Time (g_c+I1), s				5.9		7.9	4.5	10.6
Green Ext Time (p_c), s				7.9		1.7	0.1	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	240	140	10	220	30	220	170	100	140	250	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	12	282	124	12	259	26	259	200	89	165	294	53
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	361	553	462	329	553	462	533	901	758	618	742	134
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	1090	1881	1572	977	1881	1572	1034	1881	1582	1089	1549	279
Grp Volume(v), veh/h	12	282	124	12	259	26	259	200	89	165	0	347
Grp Sat Flow(s),veh/h/ln	1090	1881	1572	977	1881	1572	1034	1881	1582	1089	0	1828
Q Serve(g_s), s	0.4	5.5	2.7	0.5	5.0	0.5	9.5	2.7	1.4	4.6	0.0	5.4
Cycle Q Clear(g_c), s	5.4	5.5	2.7	5.9	5.0	0.5	14.8	2.7	1.4	7.3	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	361	553	462	329	553	462	533	901	758	618	0	876
V/C Ratio(X)	0.03	0.51	0.27	0.04	0.47	0.06	0.49	0.22	0.12	0.27	0.00	0.40
Avail Cap(c_a), veh/h	635	1025	856	574	1025	856	648	1110	934	739	0	1079
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	12.9	11.9	15.4	12.7	11.2	12.2	6.7	6.3	8.8	0.0	7.4
Incr Delay (d2), s/veh	0.0	0.7	0.3	0.0	0.6	0.1	0.7	0.1	0.1	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	5.3	2.1	0.2	4.8	0.4	5.0	2.6	1.1	2.5	0.0	5.0
LnGrp Delay(d),s/veh	15.0	13.6	12.2	15.4	13.3	11.2	12.8	6.8	6.4	9.1	0.0	7.7
LnGrp LOS	B	B	B	B	B	B	B	A	A	A		A
Approach Vol, veh/h		418			297			548			512	
Approach Delay, s/veh		13.3			13.2			9.6			8.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		26.1		18.0		26.1		18.0
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		26.0		24.0		26.0		24.0
Max Q Clear Time (g_c+I1), s		16.8		7.5		9.3		7.9
Green Ext Time (p_c), s		3.9		3.6		5.3		3.5

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	60	30	10	430	390	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	71	35	12	506	459	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	741	465	471	0	-	0
Stage 1	465	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.11	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.209	-	-	-
Pot Cap-1 Maneuver	369	599	1096	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	365	599	1096	-	-	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	741	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1096	-	511	-	-
HCM Lane V/C Ratio	0.011	-	0.207	-	-
HCM Control Delay (s)	8.3	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	270	210	160	460	690	460
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	303	236	180	517	775	388
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	382	341	273	1200	952	801
Arrive On Green	0.21	0.21	0.06	0.64	0.51	0.51
Sat Flow, veh/h	1792	1599	1792	1881	1881	1583
Grp Volume(v), veh/h	303	236	180	517	775	388
Grp Sat Flow(s),veh/h/ln	1792	1599	1792	1881	1881	1583
Q Serve(g_s), s	10.8	9.2	0.0	9.2	23.2	10.8
Cycle Q Clear(g_c), s	10.8	9.2	0.0	9.2	23.2	10.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	382	341	273	1200	952	801
V/C Ratio(X)	0.79	0.69	0.66	0.43	0.81	0.48
Avail Cap(c_a), veh/h	720	643	277	1204	952	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	25.0	24.4	28.3	6.1	13.9	10.8
Incr Delay (d2), s/veh	3.8	2.5	5.4	0.2	7.6	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.6	12.8	6.4	8.4	19.9	8.8
LnGrp Delay(d),s/veh	28.8	26.9	33.7	6.3	21.5	12.9
LnGrp LOS	C	C	C	A	C	B
Approach Vol, veh/h	539			697	1163	
Approach Delay, s/veh	28.0			13.4	18.7	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				47.9		19.3	8.9	39.0
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				43.0		27.0	4.0	34.0
Max Q Clear Time (g_c+I1), s				11.2		12.8	2.0	25.2
Green Ext Time (p_c), s				4.2		1.6	0.8	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.2
HCM 2010 LOS	B

Movement	SBL	SBR	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	240	120	70	380	670	230
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	270	135	79	427	753	193
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	471	217	399	2495	1065	897
Arrive On Green	0.14	0.14	0.05	0.70	0.75	0.75
Sat Flow, veh/h	3476	1599	1792	3668	1881	1585
Grp Volume(v), veh/h	270	135	79	427	753	193
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1787	1881	1585
Q Serve(g_s), s	4.4	4.8	0.0	2.5	12.7	2.2
Cycle Q Clear(g_c), s	4.4	4.8	0.0	2.5	12.7	2.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	471	217	399	2495	1065	897
V/C Ratio(X)	0.57	0.62	0.20	0.17	0.71	0.22
Avail Cap(c_a), veh/h	1562	719	430	2559	1065	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.58	0.58
Uniform Delay (d), s/veh	24.3	24.5	13.7	3.1	4.8	3.5
Incr Delay (d2), s/veh	1.1	2.9	0.2	0.0	2.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	7.8	1.7	2.2	10.1	1.8
LnGrp Delay(d),s/veh	25.4	27.4	14.0	3.1	7.1	3.8
LnGrp LOS	C	C	B	A	A	A
Approach Vol, veh/h	405			506	946	
Approach Delay, s/veh	26.1			4.8	6.4	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				46.9		13.1	7.9	39.0
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				43.0		27.0	4.0	34.0
Max Q Clear Time (g_c+I1), s				4.5		6.8	2.0	14.7
Green Ext Time (p_c), s				3.3		1.3	0.6	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	40	100	80	100	170	10	170	80	80	10	210	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	45	112	68	112	191	9	191	90	68	11	236	34
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	460	551	460	507	551	460	559	782	657	683	668	96
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1176	1881	1572	1196	1881	1572	1108	1881	1580	1224	1606	231
Grp Volume(v), veh/h	45	112	68	112	191	9	191	90	68	11	0	270
Grp Sat Flow(s),veh/h/ln	1176	1881	1572	1196	1881	1572	1108	1881	1580	1224	0	1837
Q Serve(g_s), s	1.1	1.5	1.1	2.7	2.7	0.1	4.9	1.0	0.9	0.2	0.0	3.5
Cycle Q Clear(g_c), s	3.8	1.5	1.1	4.2	2.7	0.1	8.4	1.0	0.9	1.2	0.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	460	551	460	507	551	460	559	782	657	683	0	764
V/C Ratio(X)	0.10	0.20	0.15	0.22	0.35	0.02	0.34	0.12	0.10	0.02	0.00	0.35
Avail Cap(c_a), veh/h	939	1316	1100	993	1316	1100	938	1426	1197	1102	0	1392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	9.1	9.0	10.7	9.5	8.6	9.7	6.2	6.1	6.5	0.0	6.9
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.2	0.4	0.0	0.4	0.1	0.1	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	1.4	0.9	1.6	2.6	0.1	2.8	1.0	0.7	0.1	0.0	3.2
LnGrp Delay(d),s/veh	11.1	9.3	9.1	10.9	9.9	8.6	10.1	6.2	6.2	6.5	0.0	7.1
LnGrp LOS	B	A	A	B	A	A	B	A	A	A		A
Approach Vol, veh/h		225			312			349			281	
Approach Delay, s/veh		9.6			10.2			8.3			7.1	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		19.3		15.0		19.3		15.0
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		26.0		24.0		26.0		24.0
Max Q Clear Time (g_c+I1), s		10.4		5.8		5.5		6.2
Green Ext Time (p_c), s		2.9		2.4		3.2		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	70	40	40	260	320	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	79	45	45	292	360	79

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	635	399	438	0	-	0
Stage 1	399	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.615	6.215	4.11	-	-	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.209	-	-	-
Pot Cap-1 Maneuver	428	653	1127	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	411	653	1127	-	-	-
Mov Cap-2 Maneuver	512	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1127	-	556	-	-
HCM Lane V/C Ratio	0.04	-	0.222	-	-
HCM Control Delay (s)	8.3	-	13.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	550	240	360	290	110	470
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	647	282	424	341	129	277
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	987	454	555	925	546	456
Arrive On Green	0.28	0.28	0.09	0.49	0.29	0.29
Sat Flow, veh/h	3476	1599	1792	1881	1881	1571
Grp Volume(v), veh/h	647	282	424	341	129	277
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1881	1881	1571
Q Serve(g_s), s	7.3	6.8	4.0	5.0	2.3	6.8
Cycle Q Clear(g_c), s	7.3	6.8	4.0	5.0	2.3	6.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	987	454	555	925	546	456
V/C Ratio(X)	0.66	0.62	0.76	0.37	0.24	0.61
Avail Cap(c_a), veh/h	2103	968	555	1391	1012	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	13.9	13.0	7.0	12.1	13.6
Incr Delay (d2), s/veh	0.7	1.4	6.3	0.2	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.5	10.2	7.7	4.7	2.2	5.6
LnGrp Delay(d),s/veh	14.8	15.3	19.2	7.3	12.3	15.0
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	929			765	406	
Approach Delay, s/veh	14.9			13.9	14.1	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.9		17.7	9.0	17.9
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				33.0		27.0	4.0	24.0
Max Q Clear Time (g_c+I1), s				7.0		9.3	6.0	8.8
Green Ext Time (p_c), s				4.0		3.4	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	18.0
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	2	1	2
Conflicting Circle Lanes	2	1	1	2
Adj Approach Flow, veh/h	529	741	977	530
Demand Flow Rate, veh/h	535	748	987	536
Vehicles Circulating, veh/h	915	524	535	987
Vehicles Exiting, veh/h	608	452	915	285
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	10	0	10	10
Ped Cap Adj	1.000	1.000	0.999	1.000
Approach Delay, s/veh	42.5	15.0	8.6	15.1
Approach LOS	E	B	A	C

Lane	Left	Left	Right	Left	Bypass	Left	Right
Designated Moves	LTR	L	LTR	LT	R	LT	TR
Assumed Moves	LTR	L	LTR	LT	R	LT	TR
RT Channelized					Free		
Lane Util	1.000	0.529	0.471	1.000		0.470	0.530
Critical Headway, s	4.113	5.193	5.193	5.193		4.293	4.113
Entry Flow, veh/h	535	396	352	441	546	252	284
Cap Entry Lane, veh/h	596	669	669	662	1922	539	566
Entry HV Adj Factor	0.989	0.992	0.990	0.989	0.990	0.989	0.989
Flow Entry, veh/h	529	393	348	436	541	249	281
Cap Entry, veh/h	589	664	662	654	1900	533	560
V/C Ratio	0.898	0.592	0.526	0.667	0.285	0.468	0.502
Control Delay, s/veh	42.5	15.9	13.9	19.2	0.0	14.9	15.2
LOS	E	C	B	C	A	B	C
95th %tile Queue, veh	11	4	3	5	1	2	3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	30	0	830	760	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	35	0	976	894	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1388	453	906	0	-	0
Stage 1	900	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	135	557	753	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	557	753	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	586	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	753	-	557	-	-
HCM Lane V/C Ratio	-	-	0.063	-	-
HCM Control Delay (s)	0	-	11.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	510	330	230	220	460	690
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	573	371	258	247	517	382
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1051	483	328	976	672	563
Arrive On Green	0.30	0.30	0.07	0.52	0.36	0.36
Sat Flow, veh/h	3476	1599	1792	1881	1881	1577
Grp Volume(v), veh/h	573	371	258	247	517	382
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1881	1881	1577
Q Serve(g_s), s	7.7	11.8	4.0	4.1	13.6	11.5
Cycle Q Clear(g_c), s	7.7	11.8	4.0	4.1	13.6	11.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1051	483	328	976	672	563
V/C Ratio(X)	0.55	0.77	0.79	0.25	0.77	0.68
Avail Cap(c_a), veh/h	1681	774	328	1112	809	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	17.7	15.1	7.4	15.9	15.2
Incr Delay (d2), s/veh	0.4	2.6	11.9	0.1	3.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	15.2	6.1	3.8	12.3	9.1
LnGrp Delay(d),s/veh	16.7	20.3	27.1	7.6	19.6	17.3
LnGrp LOS	B	C	C	A	B	B
Approach Vol, veh/h	944			505	899	
Approach Delay, s/veh	18.1			17.5	18.6	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				33.9		21.9	9.0	24.9
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				33.0		27.0	4.0	24.0
Max Q Clear Time (g_c+I1), s				6.1		13.8	6.0	15.6
Green Ext Time (p_c), s				7.1		3.1	0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	1	2
Conflicting Circle Lanes	2	1	1	2
Adj Approach Flow, veh/h	326	854	1034	292
Demand Flow Rate, veh/h	329	863	1044	294
Vehicles Circulating, veh/h	908	454	249	1090
Vehicles Exiting, veh/h	476	124	988	227
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	10	0	10	10
Ped Cap Adj	1.000	1.000	0.999	1.000
Approach Delay, s/veh	16.0	15.6	2.7	11.3
Approach LOS	C	C	A	B

Lane	Left	Left	Right	Left	Bypass	Left	Right
Designated Moves	LTR	L	LTR	LT	R	LT	TR
Assumed Moves	LTR	L	LTR	LT	R	LT	TR
RT Channelized					Free		
Lane Util	1.000	0.530	0.470	1.000		0.469	0.531
Critical Headway, s	4.113	5.193	5.193	5.193		4.293	4.113
Entry Flow, veh/h	329	457	406	329	715	138	156
Cap Entry Lane, veh/h	598	718	718	881	1922	499	527
Entry HV Adj Factor	0.991	0.991	0.989	0.991	0.990	0.993	0.991
Flow Entry, veh/h	326	453	401	326	708	137	155
Cap Entry, veh/h	593	711	710	872	1900	496	522
V/C Ratio	0.550	0.637	0.566	0.374	0.373	0.277	0.296
Control Delay, s/veh	16.0	16.7	14.3	8.4	0.0	11.4	11.3
LOS	C	C	B	A	A	B	B
95th %tile Queue, veh	3	5	4	2	2	1	1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	40	0	920	800	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	45	0	1034	899	79

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1455	489	978	0	-	0
Stage 1	938	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	122	528	707	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	528	707	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	707	-	528	-	-
HCM Lane V/C Ratio	-	-	0.085	-	-
HCM Control Delay (s)	0	-	12.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	550	240	360	290	110	470
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	647	282	424	341	129	277
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	989	455	553	922	541	452
Arrive On Green	0.28	0.28	0.09	0.49	0.29	0.29
Sat Flow, veh/h	3476	1599	1792	1881	1881	1571
Grp Volume(v), veh/h	647	282	424	341	129	277
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1881	1881	1571
Q Serve(g_s), s	7.3	6.8	4.0	5.0	2.3	6.8
Cycle Q Clear(g_c), s	7.3	6.8	4.0	5.0	2.3	6.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	989	455	553	922	541	452
V/C Ratio(X)	0.65	0.62	0.77	0.37	0.24	0.61
Avail Cap(c_a), veh/h	2115	973	553	1399	1017	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	13.8	13.0	7.0	12.1	13.7
Incr Delay (d2), s/veh	0.7	1.4	6.4	0.2	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.3	10.2	7.7	4.7	2.2	5.6
LnGrp Delay(d),s/veh	14.7	15.2	19.4	7.3	12.3	15.0
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	929			765	406	
Approach Delay, s/veh	14.8			14.0	14.2	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.8		17.6	9.0	17.8
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				33.0		27.0	4.0	24.0
Max Q Clear Time (g_c+I1), s				7.0		9.3	6.0	8.8
Green Ext Time (p_c), s				4.0		3.4	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	240	140	380	220	30	230	140	460	140	250	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.99	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	82	282	124	447	259	27	271	165	365	165	294	53
Adj No. of Lanes	1	1	1	2	1	1	1	1	1	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	106	407	341	540	587	499	398	606	510	422	403	73
Arrive On Green	0.06	0.22	0.22	0.16	0.31	0.31	0.12	0.32	0.32	0.06	0.26	0.26
Sat Flow, veh/h	1792	1881	1577	3476	1881	1599	1792	1881	1584	1792	1547	279
Grp Volume(v), veh/h	82	282	124	447	259	27	271	165	365	165	0	347
Grp Sat Flow(s),veh/h/ln	1792	1881	1577	1738	1881	1599	1792	1881	1584	1792	0	1826
Q Serve(g_s), s	3.7	11.3	5.5	10.2	9.0	1.0	8.6	5.3	16.6	5.0	0.0	14.2
Cycle Q Clear(g_c), s	3.7	11.3	5.5	10.2	9.0	1.0	8.6	5.3	16.6	5.0	0.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	106	407	341	540	587	499	398	606	510	422	0	476
V/C Ratio(X)	0.77	0.69	0.36	0.83	0.44	0.05	0.68	0.27	0.72	0.39	0.00	0.73
Avail Cap(c_a), veh/h	220	623	522	639	738	627	398	761	641	422	0	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.8	29.5	27.2	33.4	22.4	19.6	19.0	20.6	24.4	20.7	0.0	27.5
Incr Delay (d2), s/veh	11.1	2.1	0.7	7.7	0.5	0.0	4.7	0.2	2.8	0.6	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	10.2	4.4	9.3	8.3	0.8	8.3	5.0	12.2	0.7	0.0	12.0
LnGrp Delay(d),s/veh	49.0	31.6	27.8	41.1	22.9	19.7	23.7	20.8	27.2	21.3	0.0	30.5
LnGrp LOS	D	C	C	D	C	B	C	C	C	C		C
Approach Vol, veh/h		488			733			801			512	
Approach Delay, s/veh		33.6			33.9			24.7			27.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	31.3	17.7	22.6	15.0	26.3	9.8	30.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	33.0	15.0	27.0	10.0	28.0	10.0	32.0
Max Q Clear Time (g_c+I1), s	7.0	18.6	12.2	13.3	10.6	16.2	5.7	11.0
Green Ext Time (p_c), s	0.0	4.0	0.5	3.2	0.0	3.6	0.1	3.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	30	0	830	760	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	35	0	976	894	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1388	453	906	0	-	0
Stage 1	900	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	135	557	753	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	557	753	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	360	-	-	-	-	-
Stage 2	586	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	753	-	557	-	-
HCM Lane V/C Ratio	-	-	0.063	-	-
HCM Control Delay (s)	0	-	11.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	510	330	230	220	460	690
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	573	371	258	247	517	387
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1052	484	327	973	668	560
Arrive On Green	0.30	0.30	0.07	0.52	0.36	0.36
Sat Flow, veh/h	3476	1599	1792	1881	1881	1576
Grp Volume(v), veh/h	573	371	258	247	517	387
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1881	1881	1576
Q Serve(g_s), s	7.6	11.7	4.0	4.1	13.6	11.7
Cycle Q Clear(g_c), s	7.6	11.7	4.0	4.1	13.6	11.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1052	484	327	973	668	560
V/C Ratio(X)	0.54	0.77	0.79	0.25	0.77	0.69
Avail Cap(c_a), veh/h	1690	778	327	1118	813	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	17.6	15.1	7.5	15.9	15.3
Incr Delay (d2), s/veh	0.4	2.6	12.2	0.1	3.8	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.7	15.2	6.2	3.8	12.3	9.2
LnGrp Delay(d),s/veh	16.6	20.1	27.2	7.6	19.7	17.6
LnGrp LOS	B	C	C	A	B	B
Approach Vol, veh/h	944			505	904	
Approach Delay, s/veh	18.0			17.6	18.8	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				33.7		21.8	9.0	24.7
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				33.0		27.0	4.0	24.0
Max Q Clear Time (g_c+I1), s				6.1		13.7	6.0	15.6
Green Ext Time (p_c), s				7.1		3.1	0.0	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	100	80	580	170	10	210	80	630	10	210	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	124	112	68	652	191	11	236	90	483	11	236	34
Adj No. of Lanes	1	1	1	2	1	1	1	1	1	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	160	258	215	700	469	398	447	682	575	353	438	63
Arrive On Green	0.09	0.14	0.14	0.20	0.25	0.25	0.10	0.36	0.36	0.01	0.27	0.27
Sat Flow, veh/h	1792	1881	1564	3476	1881	1599	1792	1881	1586	1792	1604	231
Grp Volume(v), veh/h	124	112	68	652	191	11	236	90	483	11	0	270
Grp Sat Flow(s),veh/h/ln	1792	1881	1564	1738	1881	1599	1792	1881	1586	1792	0	1835
Q Serve(g_s), s	4.7	3.8	2.7	12.8	5.9	0.4	6.3	2.2	19.4	0.3	0.0	8.7
Cycle Q Clear(g_c), s	4.7	3.8	2.7	12.8	5.9	0.4	6.3	2.2	19.4	0.3	0.0	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	160	258	215	700	469	398	447	682	575	353	0	501
V/C Ratio(X)	0.77	0.43	0.32	0.93	0.41	0.03	0.53	0.13	0.84	0.03	0.00	0.54
Avail Cap(c_a), veh/h	335	731	608	700	758	644	447	812	685	436	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.9	27.5	27.0	27.3	21.8	19.7	15.3	14.8	20.3	17.9	0.0	21.5
Incr Delay (d2), s/veh	7.7	1.1	0.8	19.2	0.6	0.0	1.2	0.1	8.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	3.7	2.2	12.7	5.6	0.3	5.7	2.1	14.7	0.3	0.0	8.0
LnGrp Delay(d),s/veh	38.6	28.6	27.9	46.4	22.4	19.8	16.5	14.9	28.3	18.0	0.0	22.5
LnGrp LOS	D	C	C	D	C	B	B	B	C	B		C
Approach Vol, veh/h		304			854			809			281	
Approach Delay, s/veh		32.6			40.7			23.4			22.3	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	30.2	19.0	14.5	12.0	24.0	11.2	22.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	4.0	30.0	14.0	27.0	7.0	27.0	13.0	28.0
Max Q Clear Time (g_c+I1), s	2.3	21.4	14.8	5.8	8.3	10.7	6.7	7.9
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	3.7	0.1	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	31.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	40	0	920	800	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	45	0	1034	899	79

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1455	489	978	0	-	0
Stage 1	938	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	122	528	707	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	528	707	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	707	-	528	-	-
HCM Lane V/C Ratio	-	-	0.085	-	-
HCM Control Delay (s)	0	-	12.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Approach	WB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	1	2
Adj Approach Flow, veh/h	683	1506	741
Demand Flow Rate, veh/h	690	1521	748
Vehicles Circulating, veh/h	820	297	476
Vehicles Exiting, veh/h	297	927	1034
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	15.8	5.9	10.8
Approach LOS	C	A	B

Lane	Left	Right	Left	Right	Bypass	Left	Right
Designated Moves	L	LTR	LT	TR	R	LT	TR
Assumed Moves	L	LTR	LT	TR	R	LT	TR
RT Channelized					Free		
Lane Util	0.530	0.470	0.470	0.530		0.471	0.529
Critical Headway, s	4.293	4.113	5.193	5.193		4.293	4.113
Entry Flow, veh/h	366	324	385	435	701	352	396
Cap Entry Lane, veh/h	611	636	840	840	1919	791	810
Entry HV Adj Factor	0.989	0.991	0.991	0.989	0.990	0.989	0.991
Flow Entry, veh/h	362	321	382	430	694	348	392
Cap Entry, veh/h	604	631	832	831	1900	782	803
V/C Ratio	0.599	0.509	0.459	0.518	0.365	0.445	0.489
Control Delay, s/veh	17.5	14.0	10.2	11.5	0.0	10.5	11.1
LOS	C	B	B	B	A	B	B
95th %tile Queue, veh	4	3	2	3	2	2	3

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	730	120	100	550	230	550
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	859	141	118	647	271	323
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1124	517	430	1747	622	521
Arrive On Green	0.32	0.32	0.06	0.49	0.33	0.33
Sat Flow, veh/h	3476	1599	1792	3668	1881	1575
Grp Volume(v), veh/h	859	141	118	647	271	323
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1787	1881	1575
Q Serve(g_s), s	11.8	3.5	2.1	6.0	6.0	9.2
Cycle Q Clear(g_c), s	11.8	3.5	2.1	6.0	6.0	9.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1124	517	430	1747	622	521
V/C Ratio(X)	0.76	0.27	0.27	0.37	0.44	0.62
Avail Cap(c_a), veh/h	1762	811	450	2215	848	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	13.4	9.9	8.5	13.9	15.0
Incr Delay (d2), s/veh	1.1	0.3	0.3	0.1	0.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	6.3	1.9	5.4	5.7	7.4
LnGrp Delay(d),s/veh	17.3	13.6	10.2	8.6	14.4	16.2
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	1000			765	594	
Approach Delay, s/veh	16.8			8.9	15.4	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				31.0		22.2	8.4	22.6
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				33.0		27.0	4.0	24.0
Max Q Clear Time (g_c+I1), s				8.0		13.8	4.1	11.2
Green Ext Time (p_c), s				8.1		3.4	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	380	440	200	390	60
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	12	335	518	235	459	53
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	355	672	585	1200	553	64
Arrive On Green	0.20	0.20	0.22	0.64	0.33	0.33
Sat Flow, veh/h	1792	1599	1792	1881	1653	191
Grp Volume(v), veh/h	12	335	518	235	0	512
Grp Sat Flow(s),veh/h/ln	1792	1599	1792	1881	0	1844
Q Serve(g_s), s	0.3	9.4	10.3	3.2	0.0	15.6
Cycle Q Clear(g_c), s	0.3	9.4	10.3	3.2	0.0	15.6
Prop In Lane	1.00	1.00	1.00			0.10
Lane Grp Cap(c), veh/h	355	672	585	1200	0	616
V/C Ratio(X)	0.03	0.50	0.89	0.20	0.00	0.83
Avail Cap(c_a), veh/h	558	852	804	1572	0	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.8	13.0	11.2	4.6	0.0	18.7
Incr Delay (d2), s/veh	0.0	0.6	8.9	0.1	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	14.0	10.5	3.0	0.0	13.8
LnGrp Delay(d),s/veh	19.8	13.6	20.1	4.7	0.0	25.3
LnGrp LOS	B	B	C	A		C
Approach Vol, veh/h	347			753	512	
Approach Delay, s/veh	13.8			15.3	25.3	
Approach LOS	B			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.9		17.1	18.5	25.4		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		51.0		19.0	21.0	25.0		
Max Q Clear Time (g_c+I1), s		5.2		11.4	12.3	17.6		
Green Ext Time (p_c), s		5.6		0.8	1.2	2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	80	20	630	770	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	12	94	24	741	906	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1700	912	918	0	-	0
Stage 1	912	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	102	333	747	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	99	333	747	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	436	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	747	-	318	-	-
HCM Lane V/C Ratio	0.031	-	0.333	-	-
HCM Control Delay (s)	10	-	21.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Approach	WB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	1	2
Adj Approach Flow, veh/h	1292	910	854
Demand Flow Rate, veh/h	1305	919	863
Vehicles Circulating, veh/h	397	306	783
Vehicles Exiting, veh/h	306	1340	919
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	21.8	3.0	20.0
Approach LOS	C	A	C

Lane	Left	Right	Left	Right	Bypass	Left	Right
Designated Moves	L	LTR	LT	TR	R	LT	TR
Assumed Moves	L	LTR	LT	TR	R	LT	TR
RT Channelized					Free		
Lane Util	0.530	0.470	0.471	0.529		0.470	0.530
Critical Headway, s	4.293	4.113	5.193	5.193		4.293	4.113
Entry Flow, veh/h	692	613	187	210	522	406	457
Cap Entry Lane, veh/h	839	856	832	832	1919	628	653
Entry HV Adj Factor	0.990	0.991	0.988	0.992	0.990	0.989	0.991
Flow Entry, veh/h	685	607	185	208	517	402	453
Cap Entry, veh/h	830	848	822	825	1900	621	647
V/C Ratio	0.825	0.716	0.225	0.252	0.272	0.646	0.700
Control Delay, s/veh	25.3	17.8	6.8	7.1	0.0	19.0	21.0
LOS	D	C	A	A	A	C	C
95th %tile Queue, veh	9	6	1	1	1	5	6

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	410	80	50	400	670	510
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	461	90	56	449	753	286
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	668	307	294	2257	944	794
Arrive On Green	0.19	0.19	0.04	0.63	0.50	0.50
Sat Flow, veh/h	3476	1599	1792	3668	1881	1583
Grp Volume(v), veh/h	461	90	56	449	753	286
Grp Sat Flow(s),veh/h/ln	1738	1599	1792	1787	1881	1583
Q Serve(g_s), s	7.0	2.7	0.8	3.0	18.8	6.2
Cycle Q Clear(g_c), s	7.0	2.7	0.8	3.0	18.8	6.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	668	307	294	2257	944	794
V/C Ratio(X)	0.69	0.29	0.19	0.20	0.80	0.36
Avail Cap(c_a), veh/h	1657	762	346	2714	1130	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	19.6	9.5	4.4	11.7	8.6
Incr Delay (d2), s/veh	1.3	0.5	0.3	0.0	3.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	4.7	0.7	2.6	15.9	5.0
LnGrp Delay(d),s/veh	22.6	20.1	9.8	4.4	15.2	8.9
LnGrp LOS	C	C	A	A	B	A
Approach Vol, veh/h	551			505	1039	
Approach Delay, s/veh	22.2			5.0	13.4	
Approach LOS	C			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				40.7		15.9	7.3	33.4
Change Period (Y+Rc), s				5.0		5.0	5.0	5.0
Max Green Setting (Gmax), s				43.0		27.0	4.0	34.0
Max Q Clear Time (g_c+I1), s				5.0		9.0	2.8	20.8
Green Ext Time (p_c), s				12.8		1.9	0.0	7.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	40	180	340	90	220	40
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	45	151	382	101	247	34
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	218	492	686	1120	432	59
Arrive On Green	0.12	0.12	0.19	0.60	0.27	0.27
Sat Flow, veh/h	1792	1599	1792	1881	1615	222
Grp Volume(v), veh/h	45	151	382	101	0	281
Grp Sat Flow(s),veh/h/ln	1792	1599	1792	1881	0	1837
Q Serve(g_s), s	0.8	2.5	4.7	0.8	0.0	4.7
Cycle Q Clear(g_c), s	0.8	2.5	4.7	0.8	0.0	4.7
Prop In Lane	1.00	1.00	1.00			0.12
Lane Grp Cap(c), veh/h	218	492	686	1120	0	491
V/C Ratio(X)	0.21	0.31	0.56	0.09	0.00	0.57
Avail Cap(c_a), veh/h	964	1158	707	1651	0	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	9.3	6.4	3.1	0.0	11.2
Incr Delay (d2), s/veh	0.5	0.3	0.9	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	4.6	4.3	0.8	0.0	4.5
LnGrp Delay(d),s/veh	14.4	9.7	7.3	3.1	0.0	12.2
LnGrp LOS	B	A	A	A		B
Approach Vol, veh/h	196			483	281	
Approach Delay, s/veh	10.8			6.4	12.2	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		26.0		9.3	11.6	14.5		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		31.0		19.0	7.0	19.0		
Max Q Clear Time (g_c+I1), s		2.8		4.5	6.7	6.7		
Green Ext Time (p_c), s		2.4		0.5	0.0	1.8		

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	100	140	420	390	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	112	157	472	438	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1231	444	449	0	-	0
Stage 1	444	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	197	616	1117	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	169	616	1117	-	-	-
Mov Cap-2 Maneuver	291	-	-	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	387	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	2.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1117	-	559	-	-
HCM Lane V/C Ratio	0.141	-	0.221	-	-
HCM Control Delay (s)	8.8	-	13.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.8	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	80	20	520	470	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	12	94	24	612	553	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1218	559	565	0	-	0
Stage 1	559	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	200	530	1012	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	195	530	1012	-	-	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1012	-	445	-	-
HCM Lane V/C Ratio	0.023	-	0.238	-	-
HCM Control Delay (s)	8.6	-	15.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	100	110	490	330	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	112	124	551	371	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1174	376	382	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	213	673	1182	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	673	1182	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	398	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1182	-	547	-	-
HCM Lane V/C Ratio	0.105	-	0.226	-	-
HCM Control Delay (s)	8.4	-	13.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.9	-	-

V/Cs 0.85

AM (PHF = .85)

	Entering volume	conflicting volume	Entering flow rate	Entering volume - right lane	Entering volume - left lane	Entering flow rate - right lane	Entering flow rate - left lane	conflicting flow rate	capacity right lane	capacity left lane	v/c - right lane	v/c - left lane	V/C approach
NEB California	370	990	435	185	185	218	218	1165	500	472	0.44	0.46	0.45
WB California	580	810	682	290	290	341	341	953	580	553	0.59	0.62	0.60
Keystone	630	500	741	315	315	371	371	588	749	727	0.50	0.51	0.50
Booth	460	940	541	230	230	271	271	1106	521	493	0.52	0.55	0.53
Foster	470	880	553	235	235	276	276	1035	547	520	0.51	0.53	0.52

PM (PHF = .89) 0.89

	Entering volume	conflicting volume	Entering flow rate	Entering volume - right lane	Entering volume - left lane	Entering flow rate - right lane	Entering flow rate - left lane	conflicting flow rate	capacity right lane	capacity left lane	v/c - right lane	v/c - left lane	V/C approach
NEB California	290	700	326	145	145	163	163	787	652	626	0.25	0.26	0.25
WB California	1150	510	1292	575	575	646	646	573	757	735	0.85	0.88	0.87
Keystone	760	820	854	380	380	427	427	921	593	566	0.72	0.75	0.74
Booth	330	1420	371	165	165	185	185	1596	370	341	0.50	0.54	0.52
Foster	330	1260	371	165	165	185	185	1416	419	391	0.44	0.47	0.46

Delays

AM (PHF = .85)

	Delay right lane	Delay left lane	Delay for approach	Delay for the roundabout
NEB California	14.9	16.4	8.8	***14.5***
WB California	17.9	19.9	18.9	
Keystone	12.0	12.6	12.3	
Booth	16.9	18.8	17.9	
Foster	15.8	17.4	16.6	

Total VHD	
11.3	vehicle-hours of delay in the AM peak hour of analysis

PM (PHF = .89)

	Delay right lane	Delay left lane	Delay for approach	Delay for the roundabout
NEB California	8.6	9.1	5.0	***26.0***
WB California	34.4	40.3	37.4	
Keystone	24.8	28.8	26.8	
Booth	21.9	25.6	23.8	
Foster	17.5	19.8	18.7	

Total VHD	
22.2	vehicle-hours of delay in the PM peak hour of analysis

Appendix H

Travel Time Studies

Pacific Traffic Data Services

Reno Nv.

NB AM

PC-Travel Reports for study: RENO AM NB

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 2**

Study Summary

Runs Used in This Study

Run Title	Start Date	Start Time	Length	Before/ After	Run Type
RENO AM-NB-001TN	08/26/13	07:01	5364	Before	Primary
RENO AM-NB-002T	08/26/13	07:09	5257	Before	Secondary
RENO AM-NB-003T	08/26/13	07:16	5298	Before	Secondary
RENO AM-NB-004T	08/26/13	07:25	5231	Before	Secondary
RENO AM-NB-005T	08/26/13	07:33	5367	Before	Secondary
RENO AM-NB-006T	08/26/13	07:43	5338	Before	Secondary
RENO AM-NB-008T	08/26/13	08:01	5340	Before	Secondary
RENO AM-NB-009T	08/26/13	08:10	5339	Before	Secondary
RENO AM-NB-010T	08/26/13	08:19	5273	Before	Secondary
RENO AM-NB-011T	08/26/13	08:27	5323	Before	Secondary
RENO AM-NB-012T	08/26/13	08:36	5217	Before	Secondary
RENO AM-NB-013T	08/26/13	08:44	5249	Before	Secondary
RENO AM-NB-014T	08/26/13	08:53	5199	Before	Secondary

Node Info

#	Len	Name
1	0	CALIFORNIA
2	1594	RIVERSIDE DR.
3	1019	W.1ST ST
4	533	W. 2ND ST
5	870	W. 4TH ST
6	739	W. 5TH ST
7	609	I-80 RAMPS

Length of Study Route = 5,364 feet

Notes:

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 3**

Overall Output Statistics

Node #	Length	Node	Travel Time	# of Stops	Avg Speed	Total Delay	Time <= 0 MPH	Time <= 35 MPH	Time <= 55 MPH
1	0	CALIFORNIA							
2	1594	RIVERSIDE DR.	41.3	0.1	26.3	4.6	0.0	40.8	41.3
3	1019	W.1ST ST	31.8	0.2	21.8	8.6	2.8	31.8	31.8
4	533	W. 2ND ST	21.7	0.3	16.8	9.5	1.8	21.7	21.7
5	870	W. 4TH ST	27.7	0.3	21.4	7.8	1.5	27.7	27.7
6	739	W. 5TH ST	25.9	0.1	19.4	8.6	2.2	25.9	25.9
7	609	I-80 RAMPS	20.9	0.2	19.8	8.2	1.5	20.1	20.1
Total	**5,364**		**169.4**	**1.2**	**21.6**	**47.4**	**9.8**	**168.0**	**168.5**

Stats based on 13 BEFORE runs.
Stops based on a Stop Speed of 5 MPH.
Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 4**

Fuel Consumption & Emissions

Node #	Length	Node Name	Fuel (gal)	HC (grams)	CO (grams)	NOx (grams)
1	0	CALIFORNIA				
2	1594	RIVERSIDE DR.	0.0175	1.8730	16.0530	1.3059
3	1019	W.1ST ST	0.0096	0.8400	8.1074	0.3404
4	533	W. 2ND ST	0.0065	0.6558	4.8331	0.3516
5	870	W. 4TH ST	0.0085	0.8117	7.2046	0.3902
6	739	W. 5TH ST	0.0080	0.7692	6.2068	0.3879
7	609	I-80 RAMPS	0.0053	0.4625	3.8992	0.1572
Total	**5,364**		**0.0554**	**5.4121**	**46.3041**	**2.9333**

Stats based on 13 BEFORE runs.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 5**

Detailed Statistics By Run

Travel Time (sec) by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	41	40	41	40	40	41	39	41
3	1019	W.1ST ST	23	22	23	47	86	23	25	24
4	533	W. 2ND ST	24	12	14	18	68	21	26	15
5	870	W. 4TH ST	21	24	20	21	28	44	25	44
6	739	W. 5TH ST	17	20	45	17	22	52	18	21
7	609	I-80 RAMPS	16	15	20	14	20	31	17	17
Totals	**5364**		**142**	**133**	**163**	**157**	**264**	**212**	**150**	**162**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 6**

Detailed Statistics By Run

Travel Time (sec) by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	42	41	42	44	45
3	1019	W.1ST ST	23	23	24	47	24
4	533	W. 2ND ST	13	14	22	20	15
5	870	W. 4TH ST	19	44	19	20	31
6	739	W. 5TH ST	18	51	22	17	17
7	609	I-80 RAMPS	14	66	17	14	11
Totals	**5364**		**129**	**239**	**146**	**162**	**143**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 7**

Detailed Statistics By Run

Number of Stops by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	0	0	0	1	0	0	0	0
3	1019	W.1ST ST	0	0	0	1	1	0	0	0
4	533	W. 2ND ST	1	0	0	0	1	0	1	0
5	870	W. 4TH ST	0	0	0	0	0	1	0	1
6	739	W. 5TH ST	0	0	1	0	0	0	0	0
7	609	I-80 RAMPS	0	0	0	0	1	1	0	0
Totals	**5364**		**1**	**0**	**1**	**2**	**3**	**2**	**1**	**1**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Number of Stops by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	0	0	0	0	0
3	1019	W.1ST ST	0	0	0	1	0
4	533	W. 2ND ST	0	0	1	0	0
5	870	W. 4TH ST	0	1	0	0	1
6	739	W. 5TH ST	0	0	0	0	0
7	609	I-80 RAMPS	0	1	0	0	0
Totals	**5364**		**0**	**2**	**1**	**1**	**1**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 9**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	26.4	27.6	26.7	27.6	27.3	27.0	28.3	26.5
3	1019	W.1ST ST	30.3	31.3	30.6	14.6	8.2	29.5	27.8	30.0
4	533	W. 2ND ST	15.1	29.8	25.6	20.1	5.3	17.3	13.7	22.7
5	870	W. 4TH ST	28.3	24.6	29.3	28.3	21.5	13.3	24.0	13.5
6	739	W. 5TH ST	29.5	26.1	11.5	29.5	23.6	9.7	28.2	25.0
7	609	I-80 RAMPS	26.1	22.9	18.6	24.8	19.6	13.2	23.7	23.4
Totals	**5364**		**25.7**	**27.1**	**22.3**	**22.9**	**13.9**	**17.2**	**24.4**	**22.6**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	26.4	26.9	26.2	25.3	24.8
3	1019	W.1ST ST	29.8	30.7	28.3	14.2	28.5
4	533	W. 2ND ST	29.0	24.6	17.0	18.2	23.5
5	870	W. 4TH ST	29.6	13.3	30.6	29.7	19.2
6	739	W. 5TH ST	29.1	10.1	22.9	29.9	30.7
7	609	I-80 RAMPS	25.5	5.9	19.6	25.3	28.1
Totals	**5364**		**28.0**	**15.3**	**24.5**	**22.2**	**25.0**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 11**

Detailed Statistics By Run

Total Delay (sec) by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	5	3	5	3	4	4	2	5
3	1019	W.1ST ST	0	0	0	24	62	0	1	0
4	533	W. 2ND ST	12	0	2	6	56	8	14	3
5	870	W. 4TH ST	1	4	0	1	8	24	5	24
6	739	W. 5TH ST	0	2	28	0	4	35	1	3
7	609	I-80 RAMPS	2	3	7	3	6	17	3	3
Totals	**5364**		**20**	**12**	**42**	**37**	**140**	**88**	**26**	**38**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Total Delay (sec) by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	5	4	5	7	8
3	1019	W.1ST ST	0	0	1	24	0
4	533	W. 2ND ST	0	2	9	8	3
5	870	W. 4TH ST	0	24	0	0	11
6	739	W. 5TH ST	0	34	5	0	0
7	609	I-80 RAMPS	2	53	6	2	0
Totals	**5364**		**7**	**117**	**26**	**41**	**22**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 13**

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	0	0	0	0	0	0	0	0
3	1019	W.1ST ST	0	0	0	12	22	0	0	0
4	533	W. 2ND ST	0	0	0	0	24	0	0	0
5	870	W. 4TH ST	0	0	0	0	0	3	0	4
6	739	W. 5TH ST	0	0	15	0	0	2	0	0
7	609	I-80 RAMPS	0	0	0	0	0	0	0	0
Totals	**5364**		**0**	**0**	**15**	**12**	**46**	**5**	**0**	**4**

Pacific Traffic Data Services

Reno Nv.

NB AM

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	0	0	0	0	0
3	1019	W.1ST ST	0	0	0	2	0
4	533	W. 2ND ST	0	0	0	0	0
5	870	W. 4TH ST	0	11	0	0	1
6	739	W. 5TH ST	0	12	0	0	0
7	609	I-80 RAMPS	0	20	0	0	0
Totals	**5364**		**0**	**43**	**0**	**2**	**1**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 15**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	41	40	41	40	40	41	32	41
3	1019	W.1ST ST	23	22	23	47	86	23	25	24
4	533	W. 2ND ST	24	12	14	18	68	21	26	15
5	870	W. 4TH ST	21	24	20	21	28	44	25	44
6	739	W. 5TH ST	17	20	45	17	22	52	18	21
7	609	I-80 RAMPS	16	14	19	13	20	30	16	16
Totals	**5364**		**142**	**132**	**162**	**156**	**264**	**211**	**142**	**161**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	42	41	42	44	45
3	1019	W.1ST ST	23	23	24	47	24
4	533	W. 2ND ST	13	14	22	20	15
5	870	W. 4TH ST	19	44	19	20	31
6	739	W. 5TH ST	18	51	22	17	17
7	609	I-80 RAMPS	13	65	16	13	10
Totals	**5364**		**128**	**238**	**145**	**161**	**142**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 17**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO AM-NB-001TN
RENO AM-NB-002T
RENO AM-NB-003T
RENO AM-NB-004T
RENO AM-NB-005T
RENO AM-NB-006T
RENO AM-NB-008T
RENO AM-NB-009

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	41	40	41	40	40	41	39	41
3	1019	W.1ST ST	23	22	23	47	86	23	25	24
4	533	W. 2ND ST	24	12	14	18	68	21	26	15
5	870	W. 4TH ST	21	24	20	21	28	44	25	44
6	739	W. 5TH ST	17	20	45	17	22	52	18	21
7	609	I-80 RAMPS	16	14	19	13	20	30	16	16
Totals	**5364**		**142**	**132**	**162**	**156**	**264**	**211**	**149**	**161**

Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO AM-NB-010T
RENO AM-NB-011T
RENO AM-NB-012T
RENO AM-NB-013T
RENO AM-NB-014T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13
1	0	CALIFORNIA					
2	1594	RIVERSIDE DR.	42	41	42	44	45
3	1019	W.1ST ST	23	23	24	47	24
4	533	W. 2ND ST	13	14	22	20	15
5	870	W. 4TH ST	19	44	19	20	31
6	739	W. 5TH ST	18	51	22	17	17
7	609	I-80 RAMPS	13	65	16	13	10
Totals	**5364**		**128**	**238**	**145**	**161**	**142**

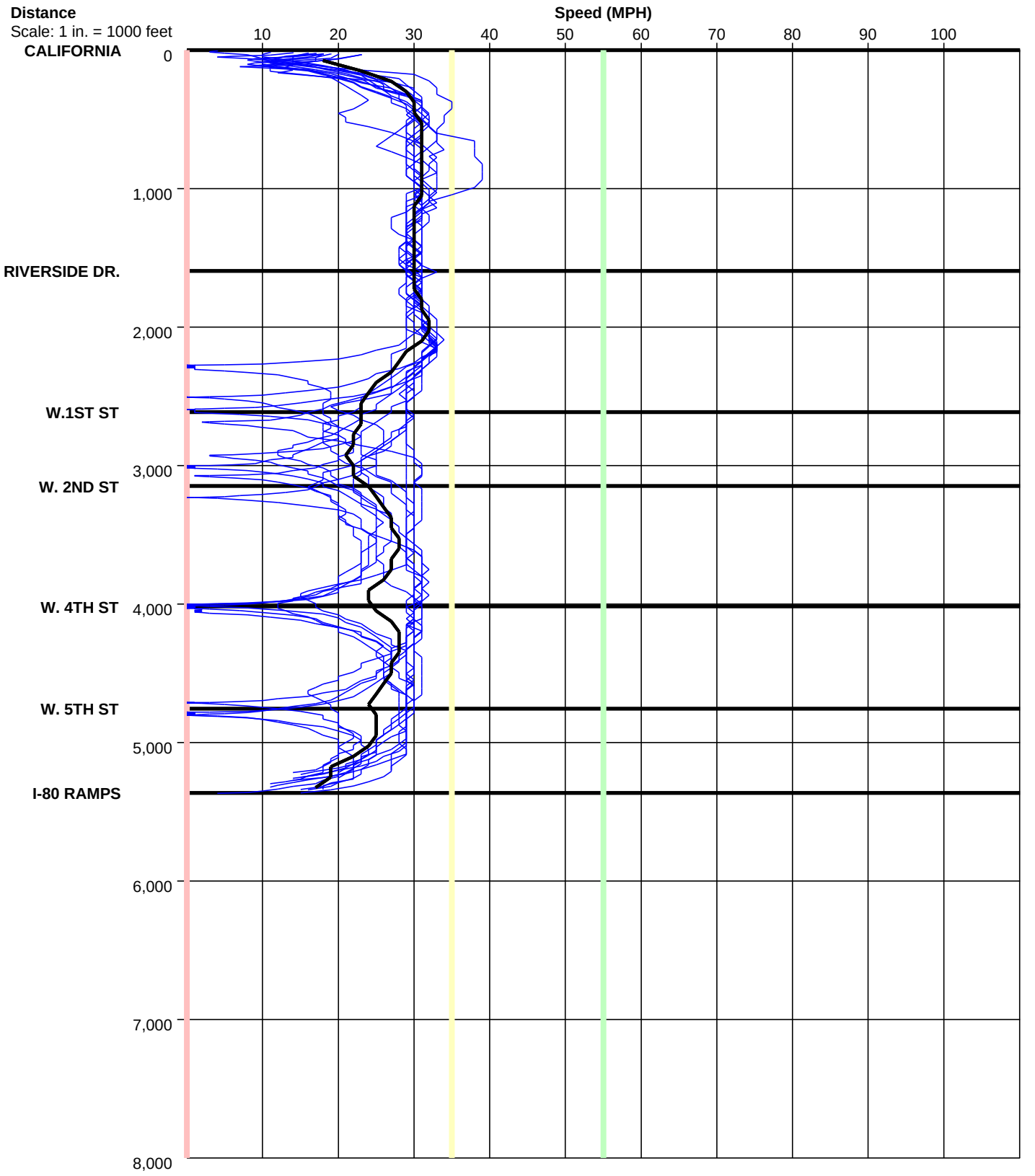
Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 19**

Speed/Distance Profiles of All Runs



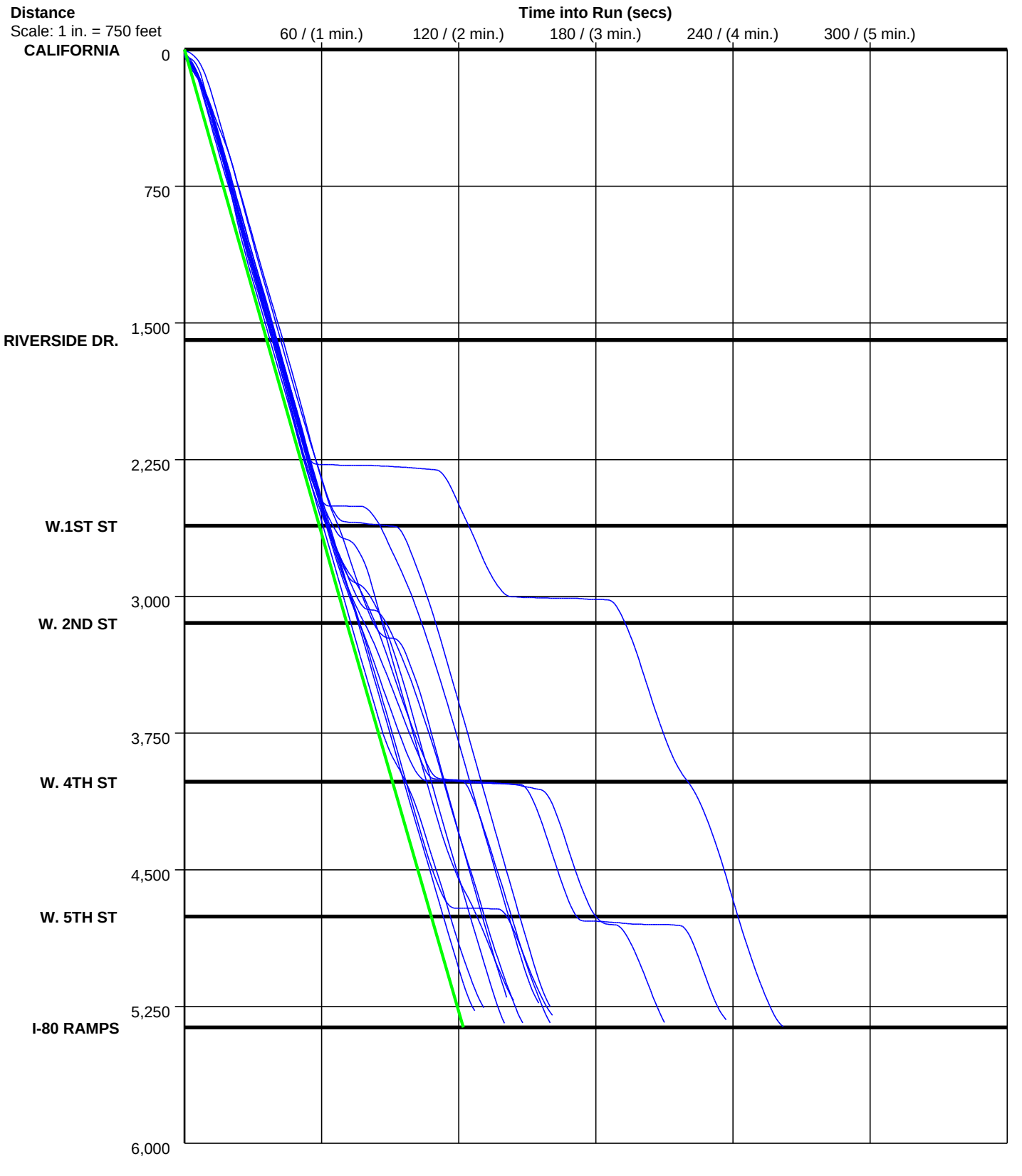
Pacific Traffic Data Services

Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 20**

Time/Space Trajectories of All Runs



Solid Line is Normal Speed of 30 MPH

Pacific Traffic Data Services

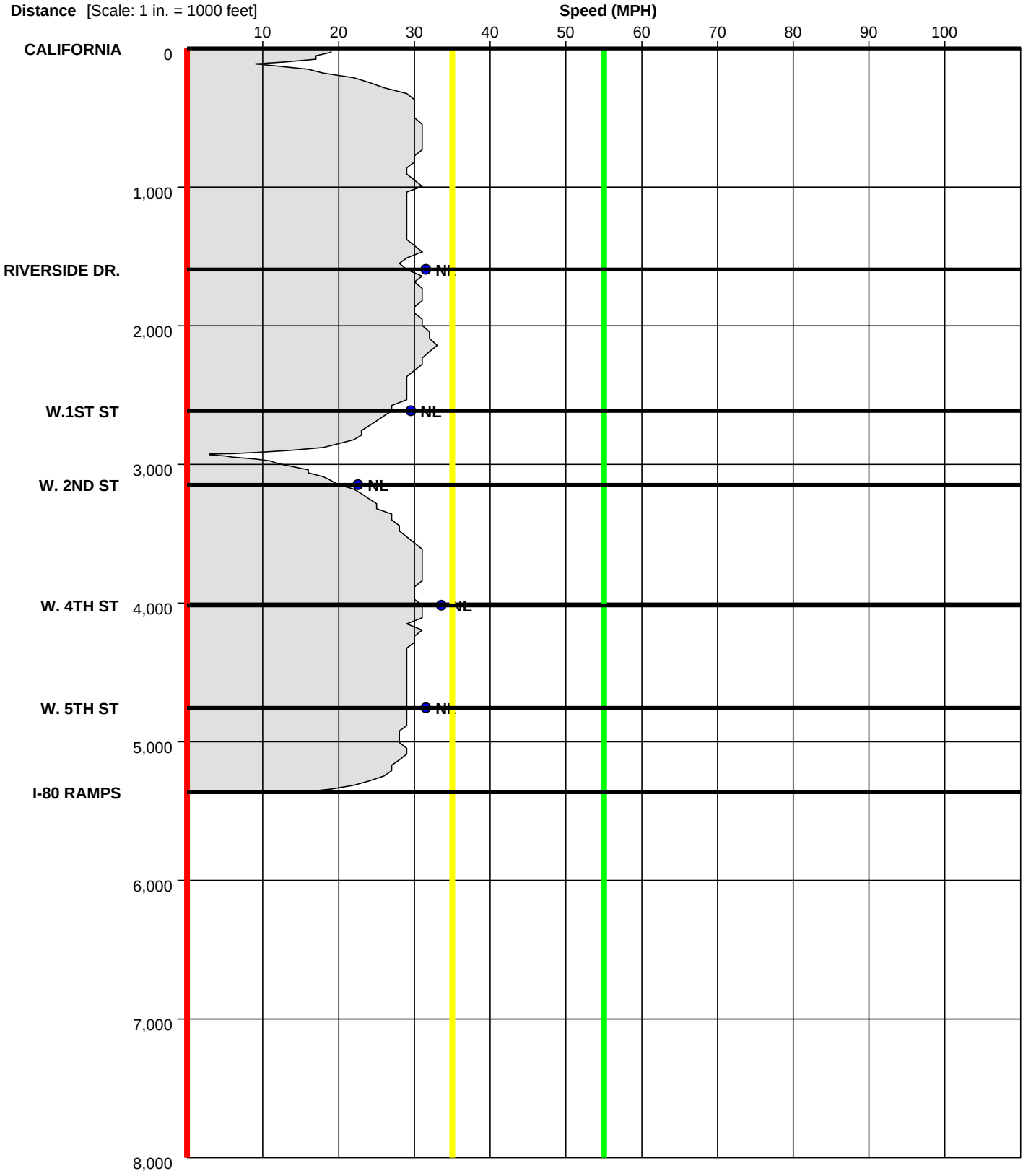
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 21**

Speed Profile

Run : RENO AM-NB-001TN Start Time: 07:01 (This is a Before Run)



Pacific Traffic Data Services

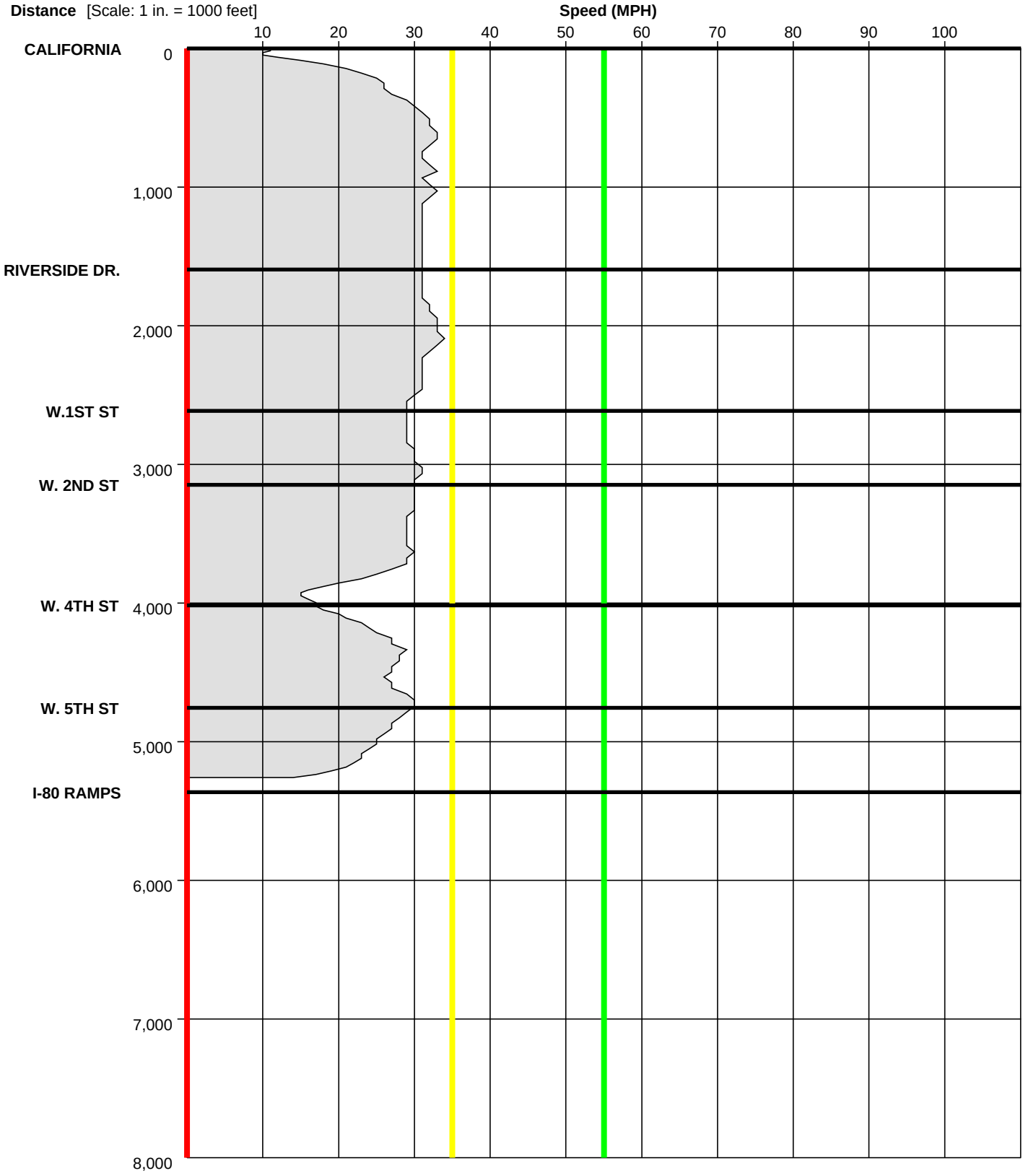
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 22**

Speed Profile

Run : RENO AM-NB-002T Start Time: 07:09 (This is a Before Run)



Pacific Traffic Data Services

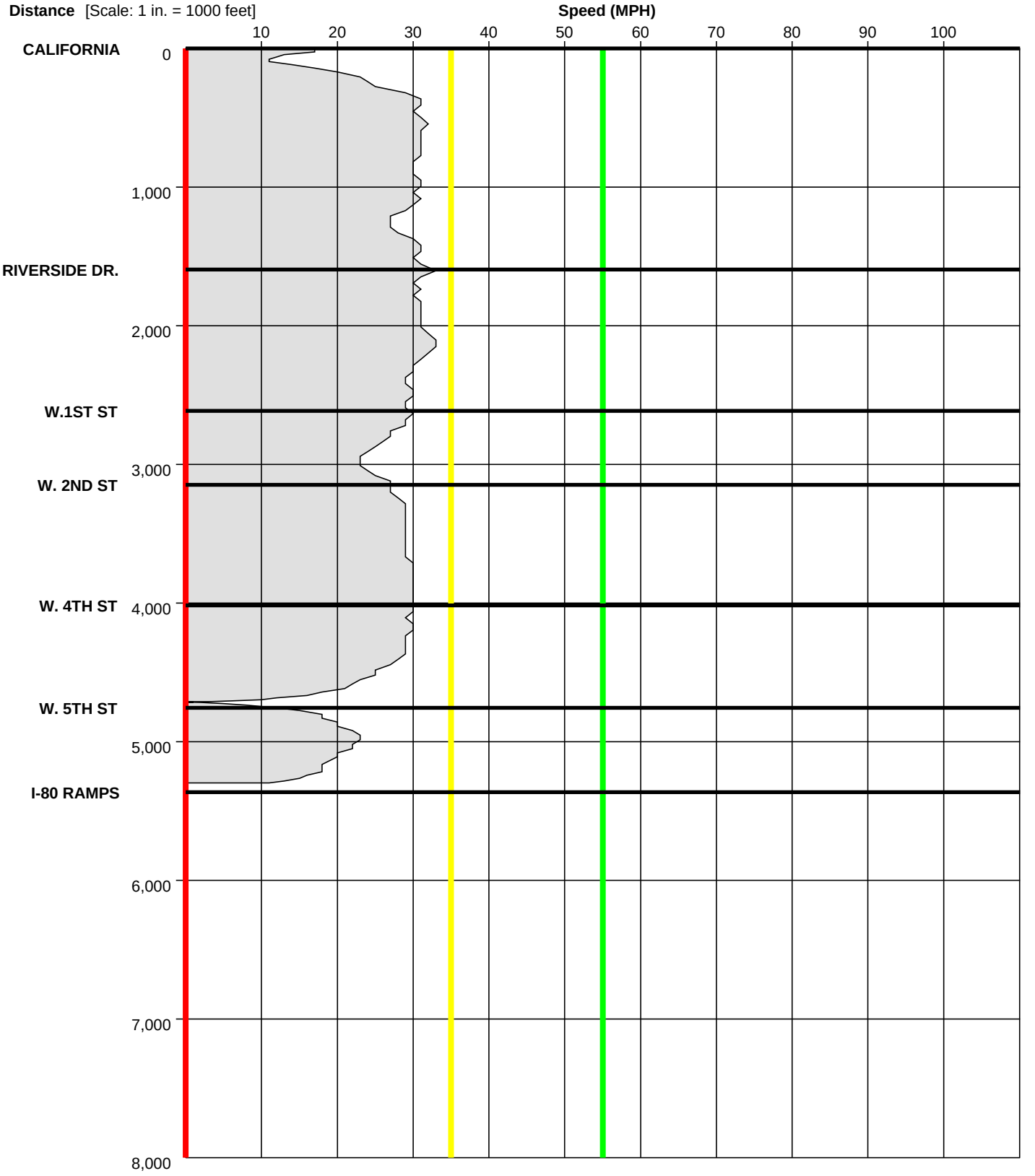
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 23**

Speed Profile

Run : RENO AM-NB-003T Start Time: 07:16 (This is a Before Run)



Pacific Traffic Data Services

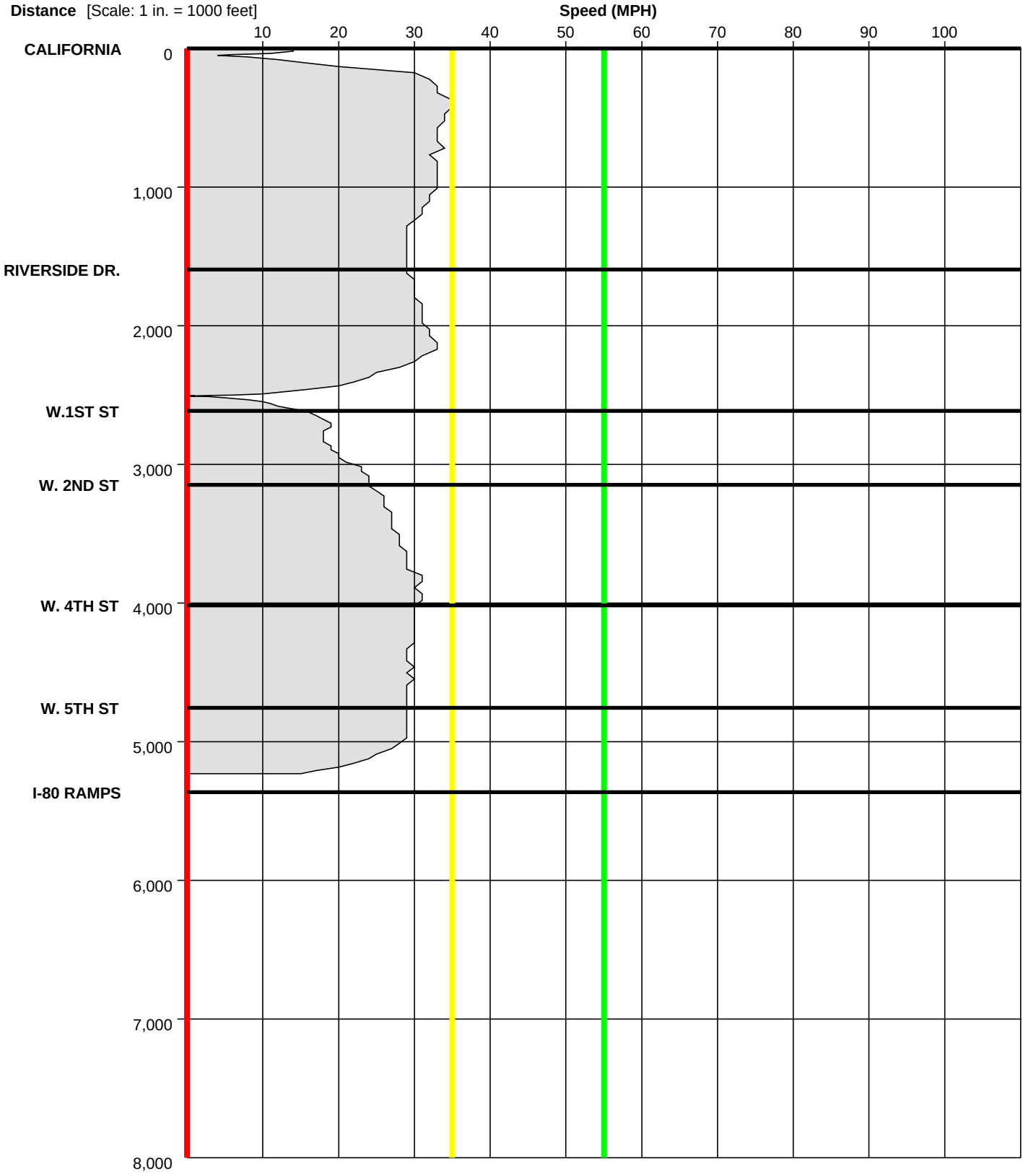
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 24**

Speed Profile

Run : RENO AM-NB-004T Start Time: 07:25 (This is a Before Run)



Pacific Traffic Data Services

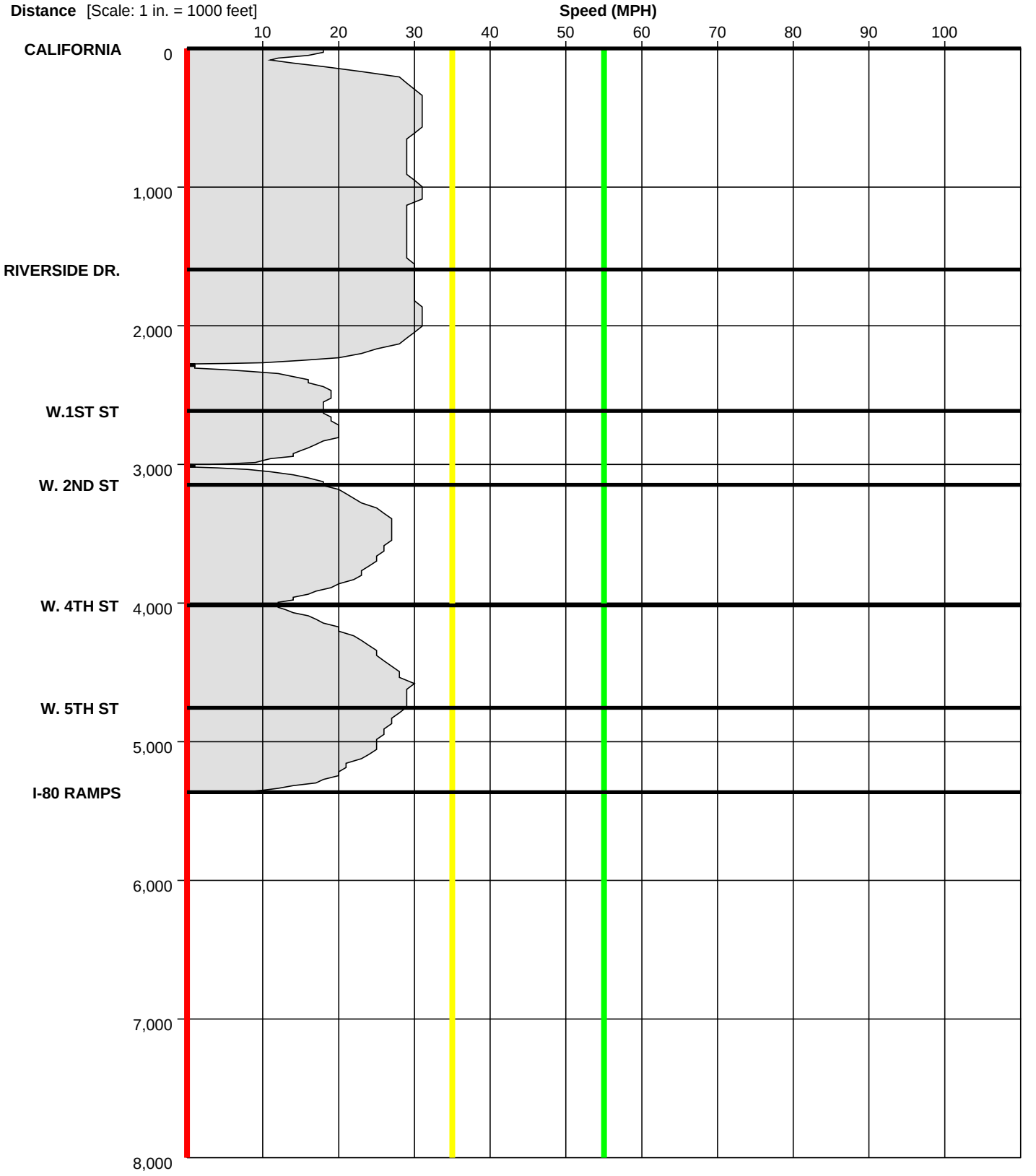
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 25**

Speed Profile

Run : RENO AM-NB-005T Start Time: 07:33 (This is a Before Run)



Pacific Traffic Data Services

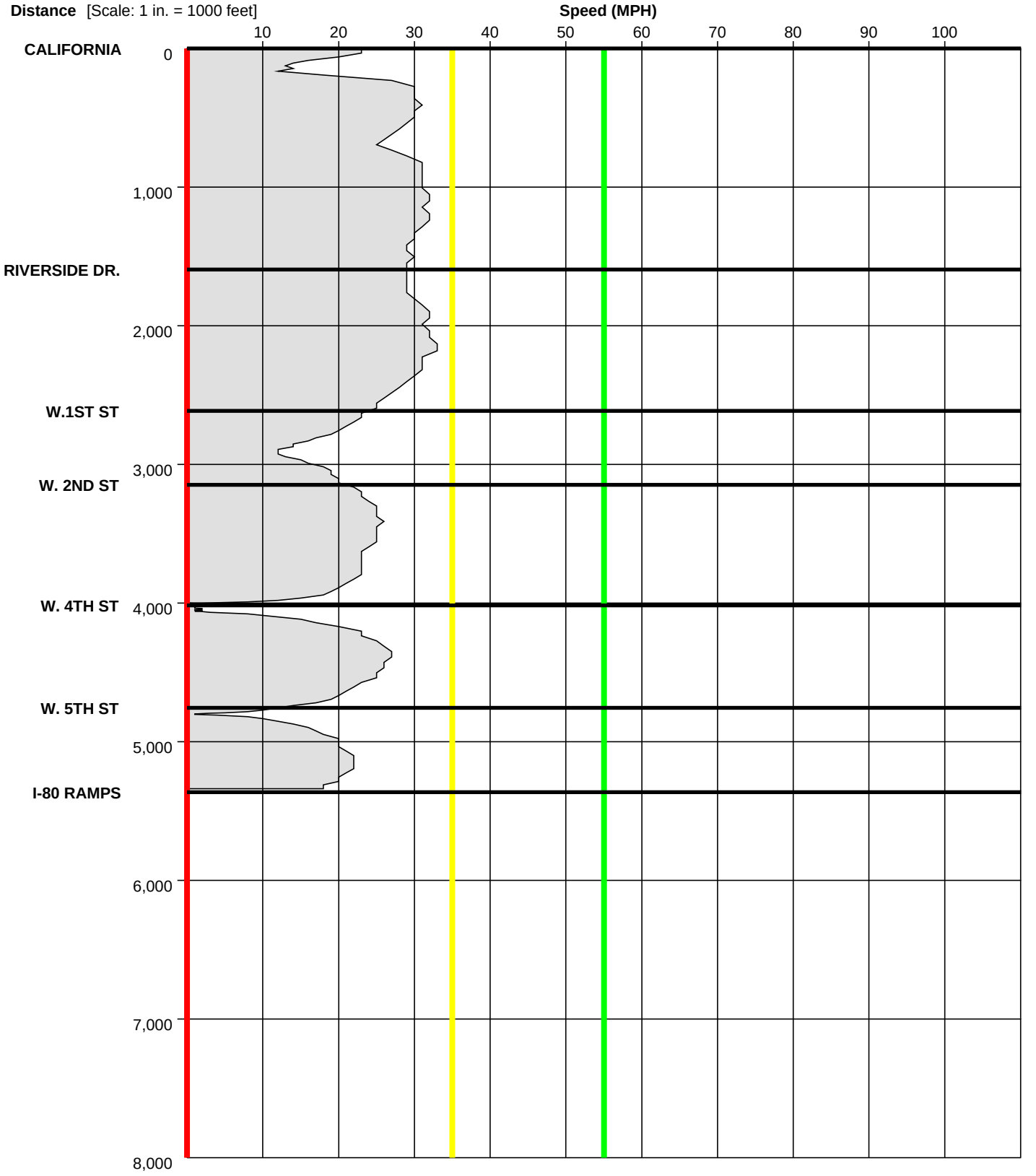
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 26**

Speed Profile

Run : RENO AM-NB-006T Start Time: 07:43 (This is a Before Run)



Pacific Traffic Data Services

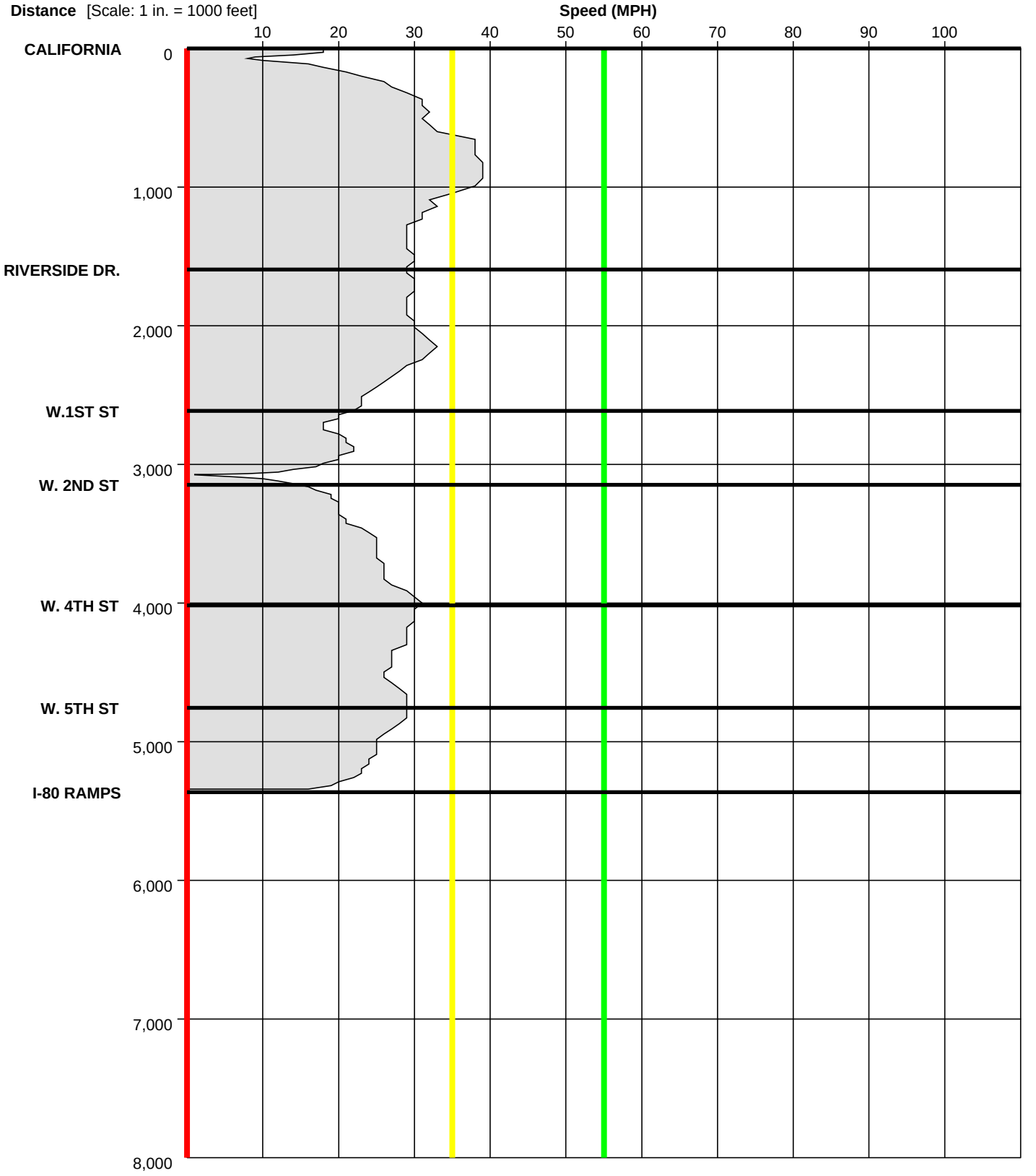
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 27**

Speed Profile

Run : RENO AM-NB-008T Start Time: 08:01 (This is a Before Run)



Pacific Traffic Data Services

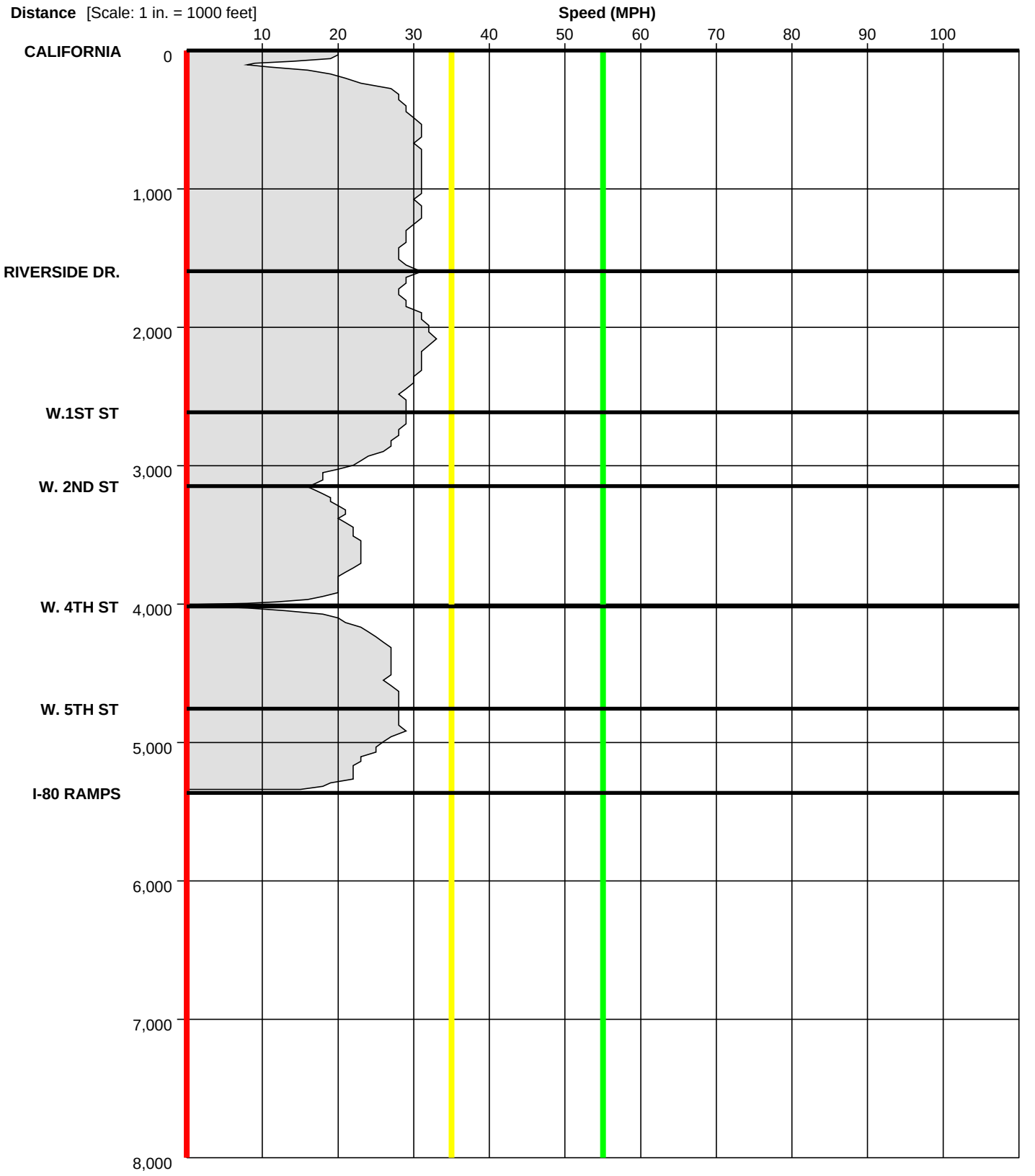
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 28**

Speed Profile

Run : RENO AM-NB-009T Start Time: 08:10 (This is a Before Run)



Pacific Traffic Data Services

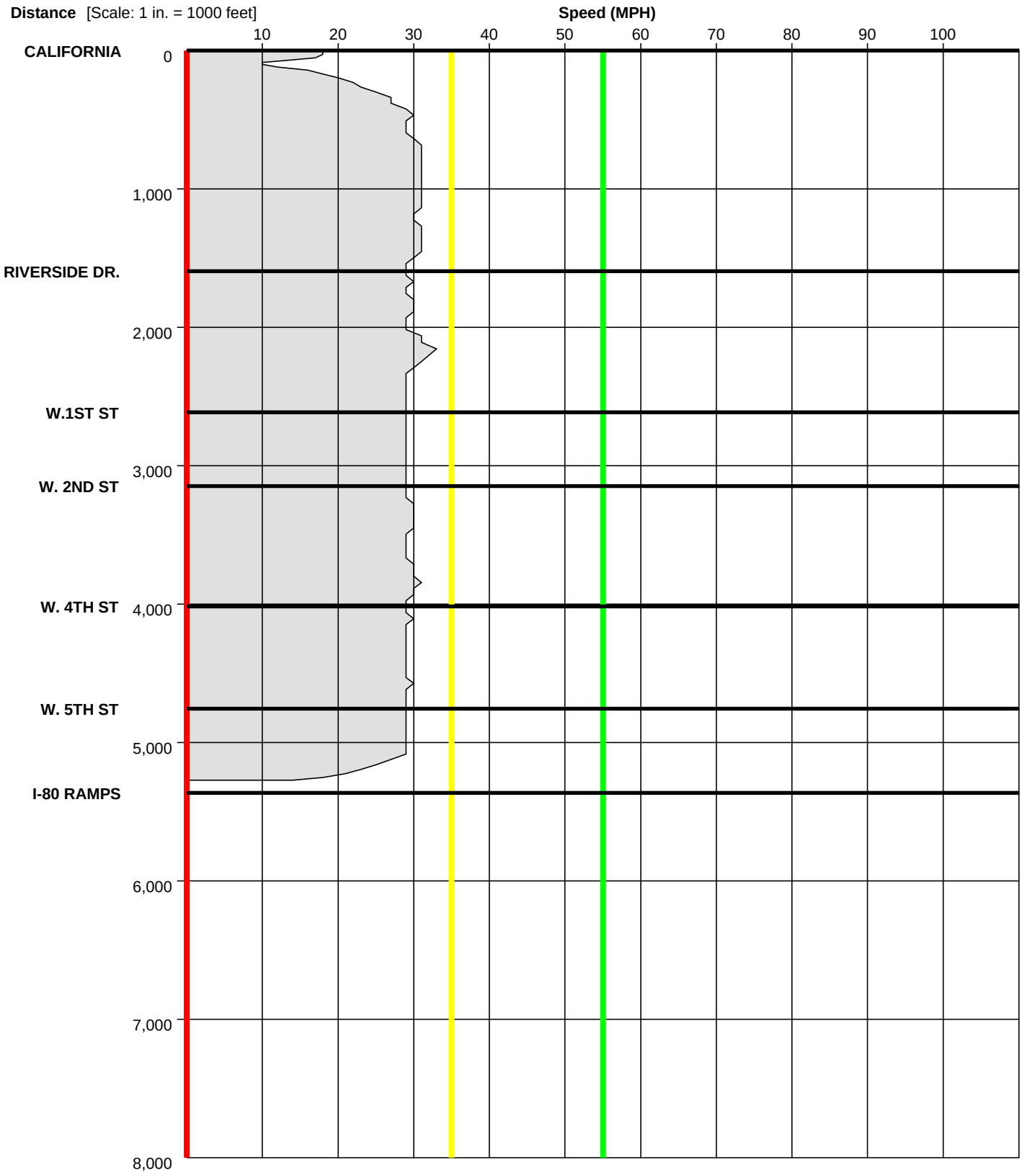
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 29**

Speed Profile

Run : RENO AM-NB-010T Start Time: 08:19 (This is a Before Run)



Pacific Traffic Data Services

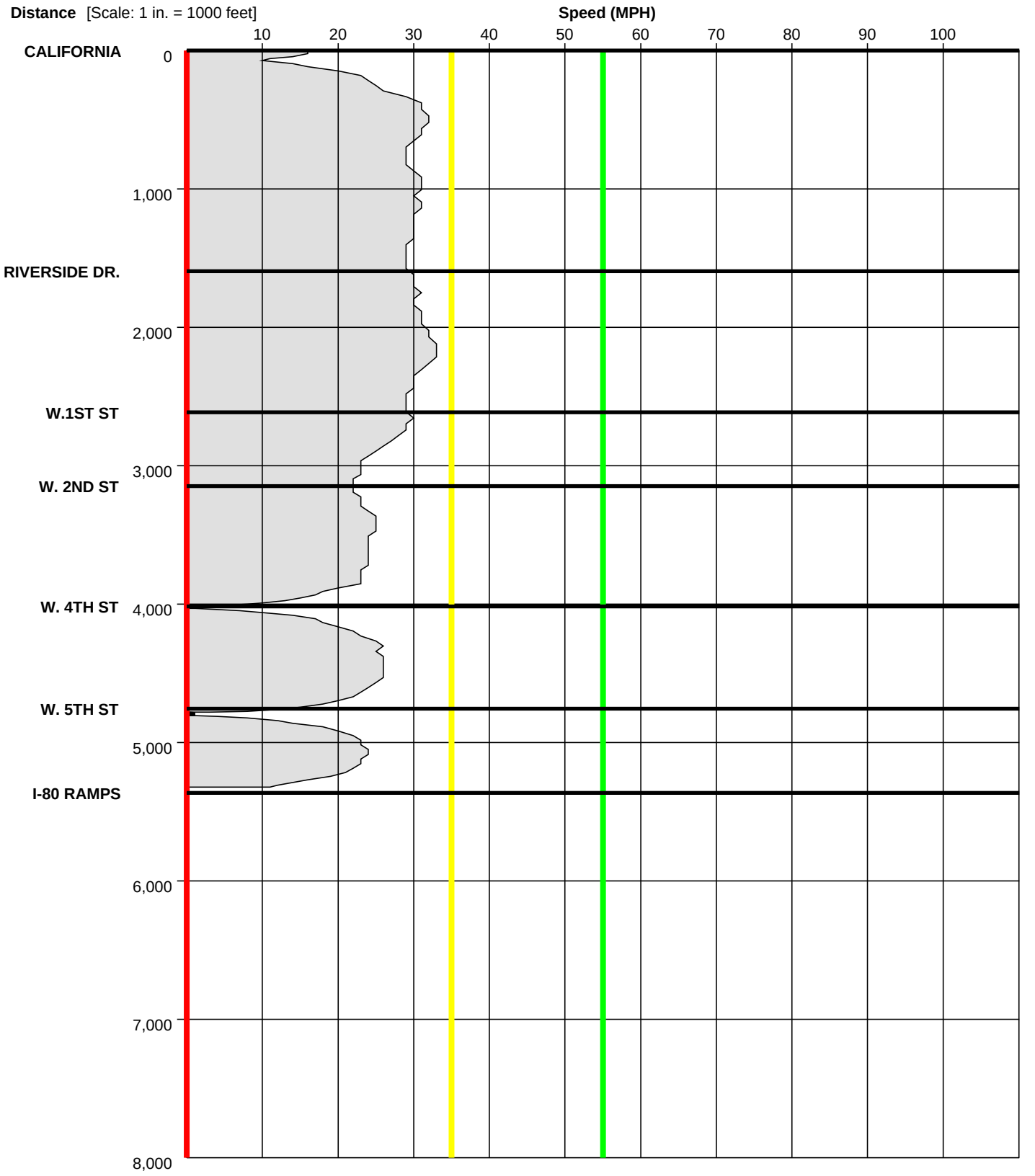
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 30**

Speed Profile

Run : RENO AM-NB-011T Start Time: 08:27 (This is a Before Run)



Pacific Traffic Data Services

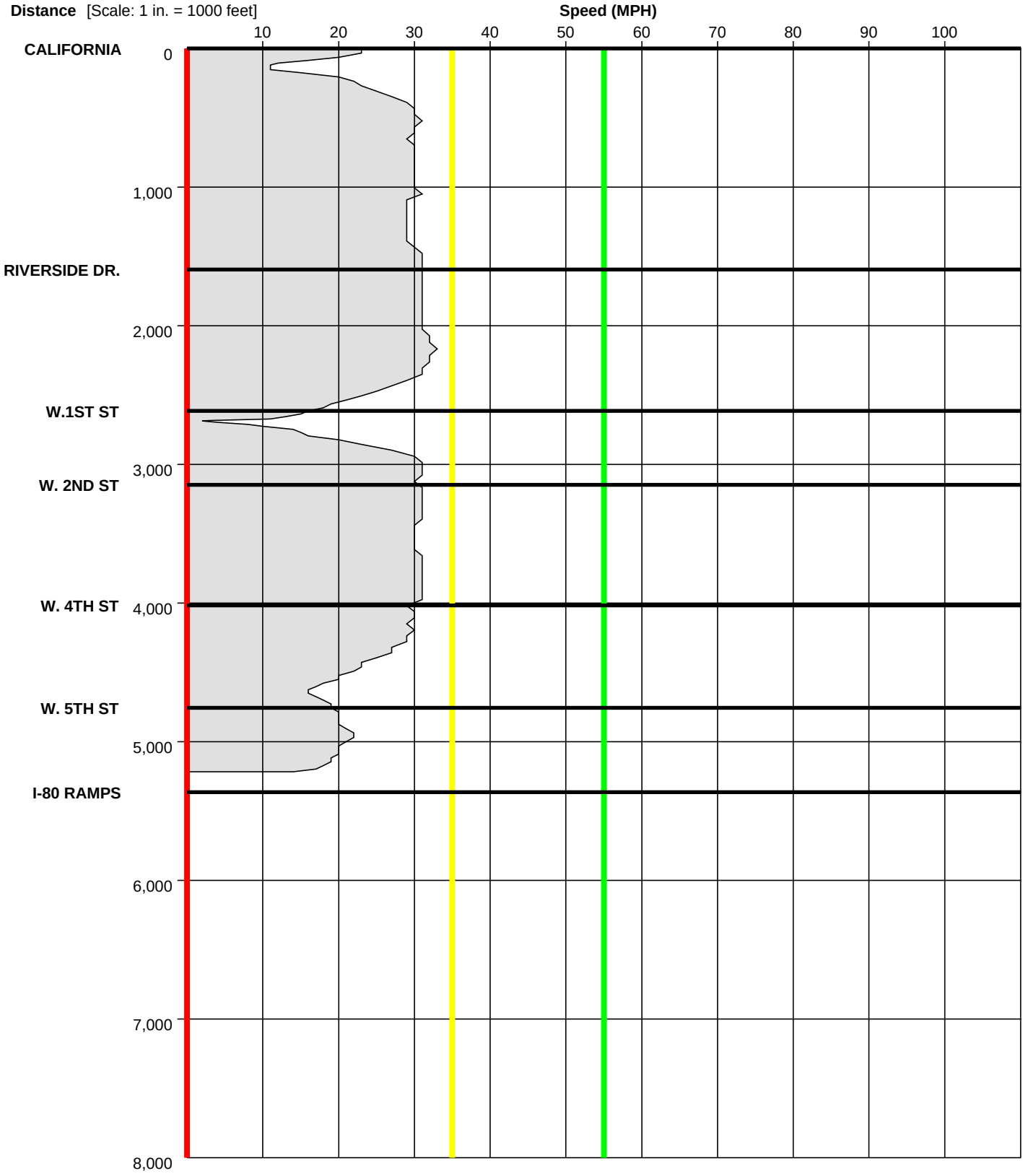
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 31**

Speed Profile

Run : RENO AM-NB-012T Start Time: 08:36 (This is a Before Run)



Pacific Traffic Data Services

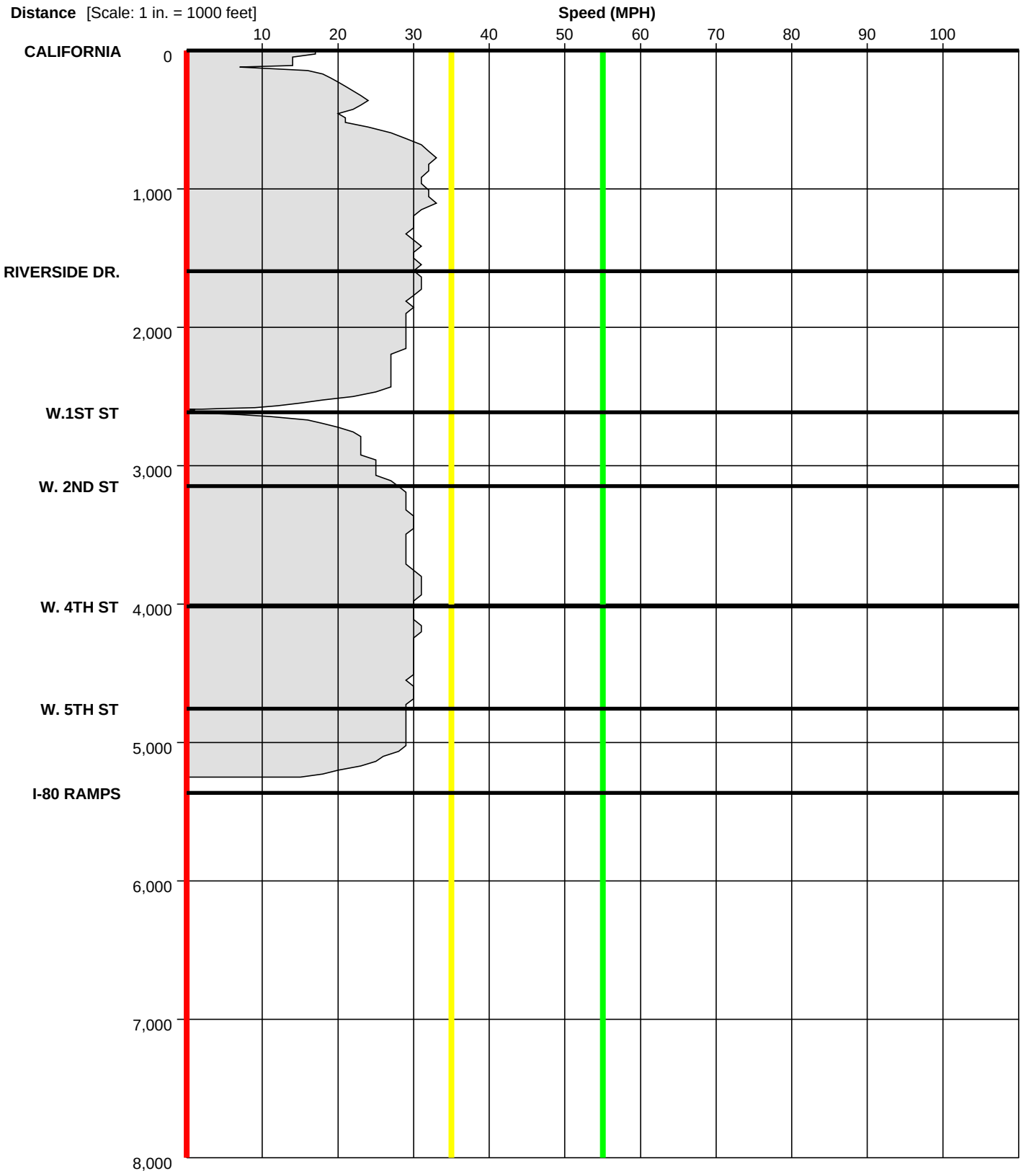
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 32**

Speed Profile

Run : RENO AM-NB-013T Start Time: 08:44 (This is a Before Run)



Pacific Traffic Data Services

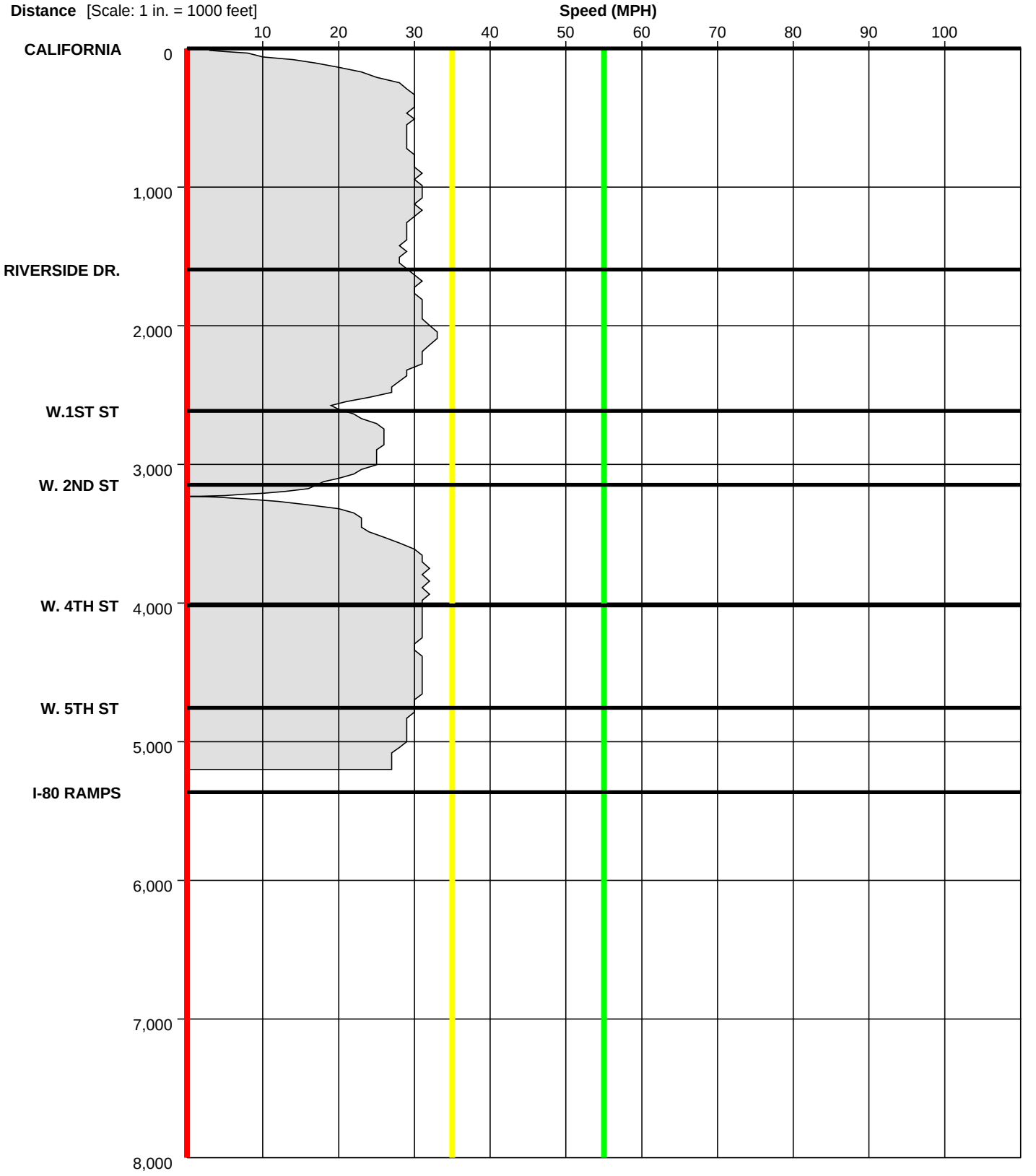
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 33**

Speed Profile

Run : RENO AM-NB-014T Start Time: 08:53 (This is a Before Run)



Pacific Traffic Data Services

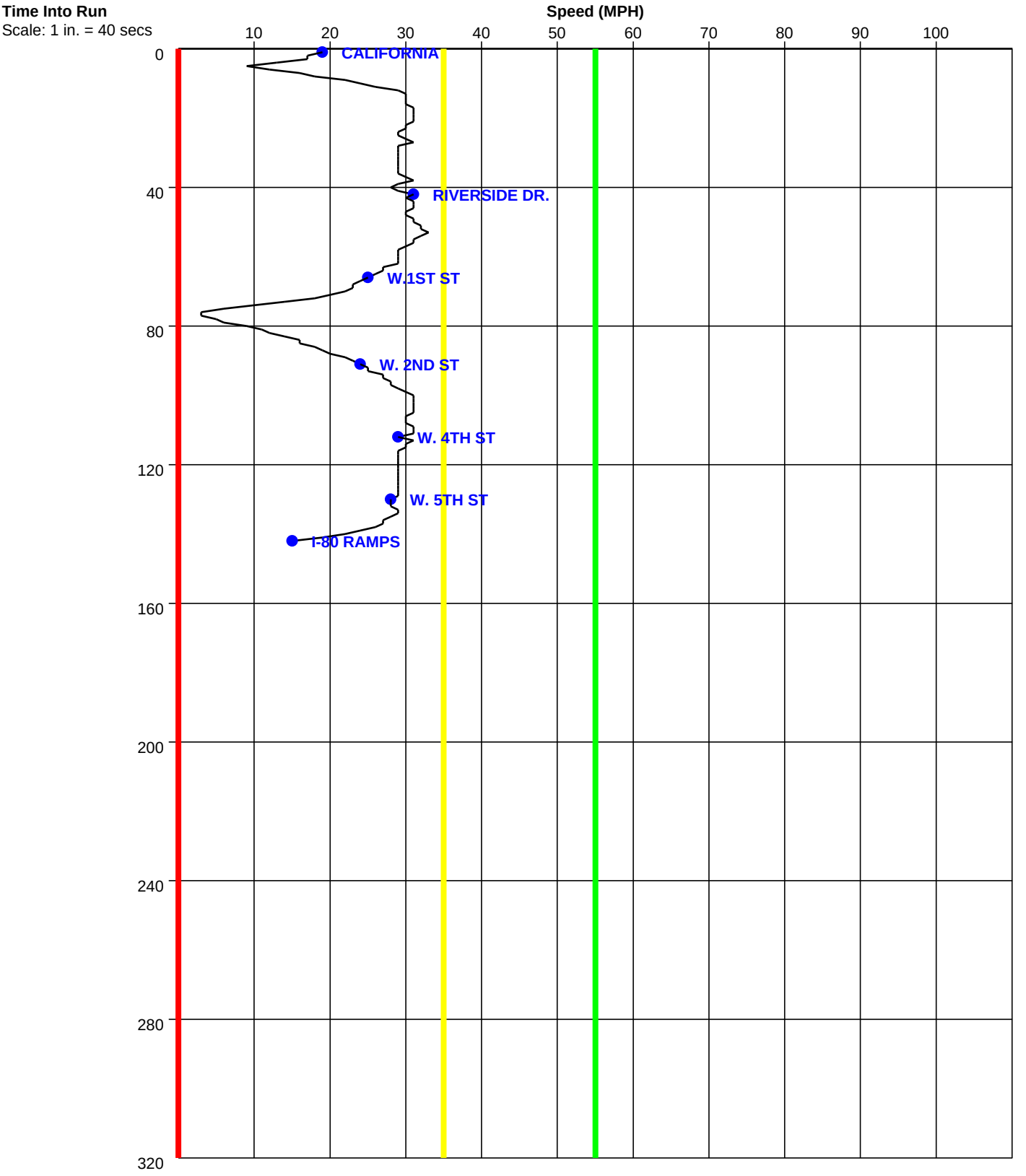
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 34**

Time-Based Speed Profile

Run : RENO AM-NB-001TN Start Time:07:01 (This is a Before Run)



Pacific Traffic Data Services

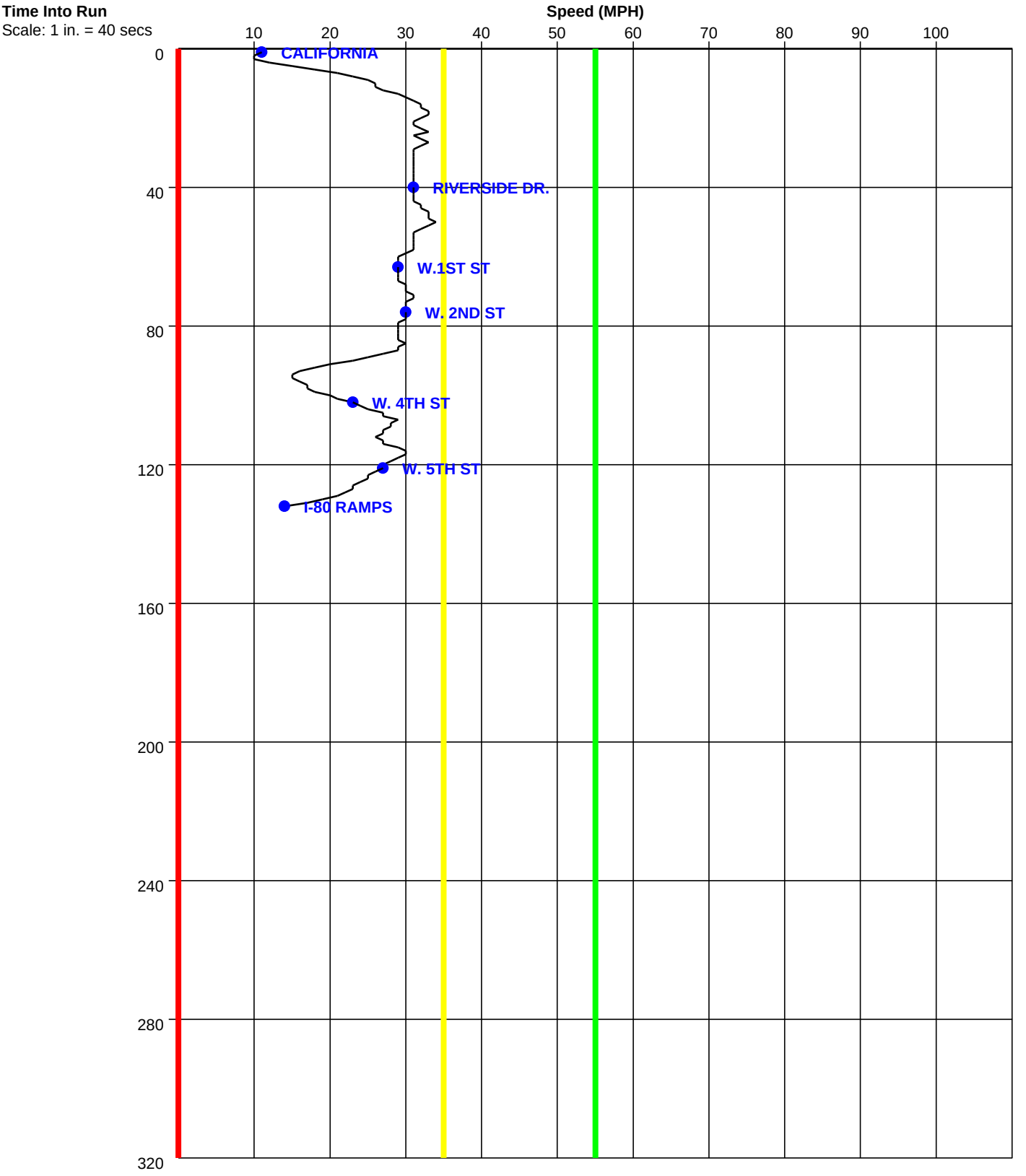
Reno Nv.

NB AM

Study Name : **RENO AM NB**
Study Date : **8/26/2013**
Page No. : **35**

Time-Based Speed Profile

Run : RENO AM-NB-002T Start Time:07:09 (This is a Before Run)



Pacific Traffic Data Services

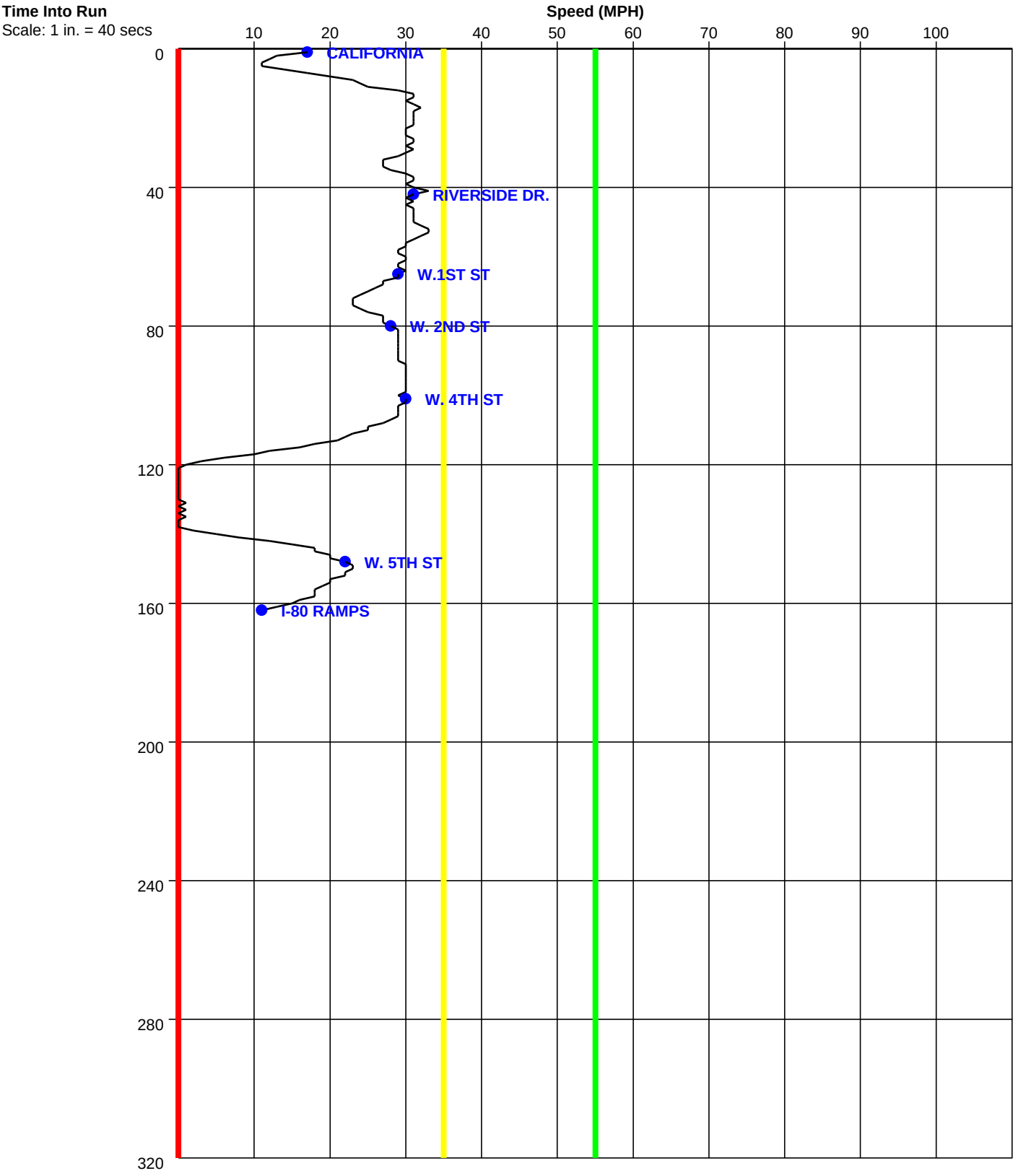
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 36**

Time-Based Speed Profile

Run : RENO AM-NB-003T Start Time:07:16 (This is a Before Run)



Pacific Traffic Data Services

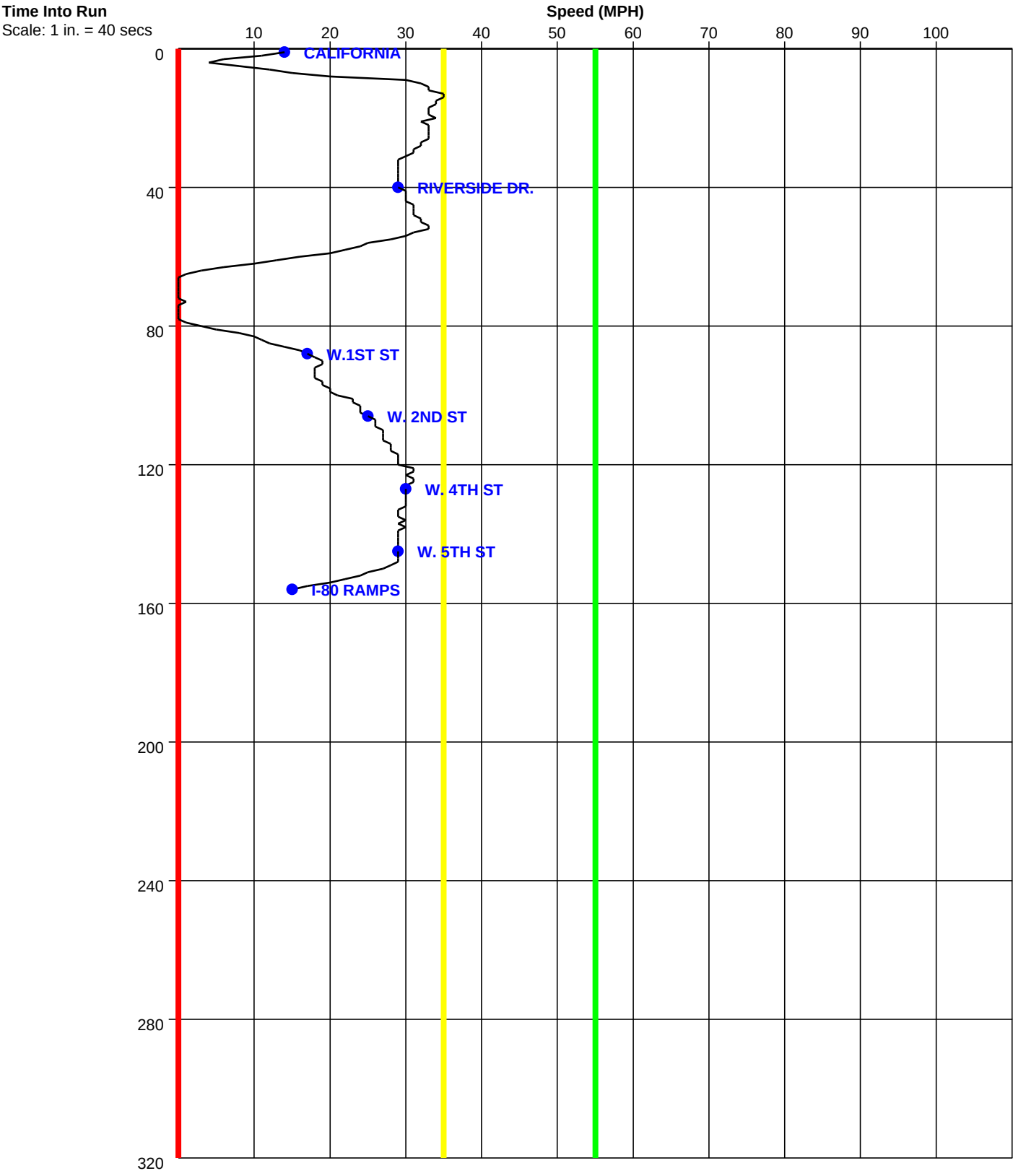
Reno Nv.

NB AM

Study Name : **RENO AM NB**
Study Date : **8/26/2013**
Page No. : **37**

Time-Based Speed Profile

Run : RENO AM-NB-004T Start Time:07:25 (This is a Before Run)



Pacific Traffic Data Services

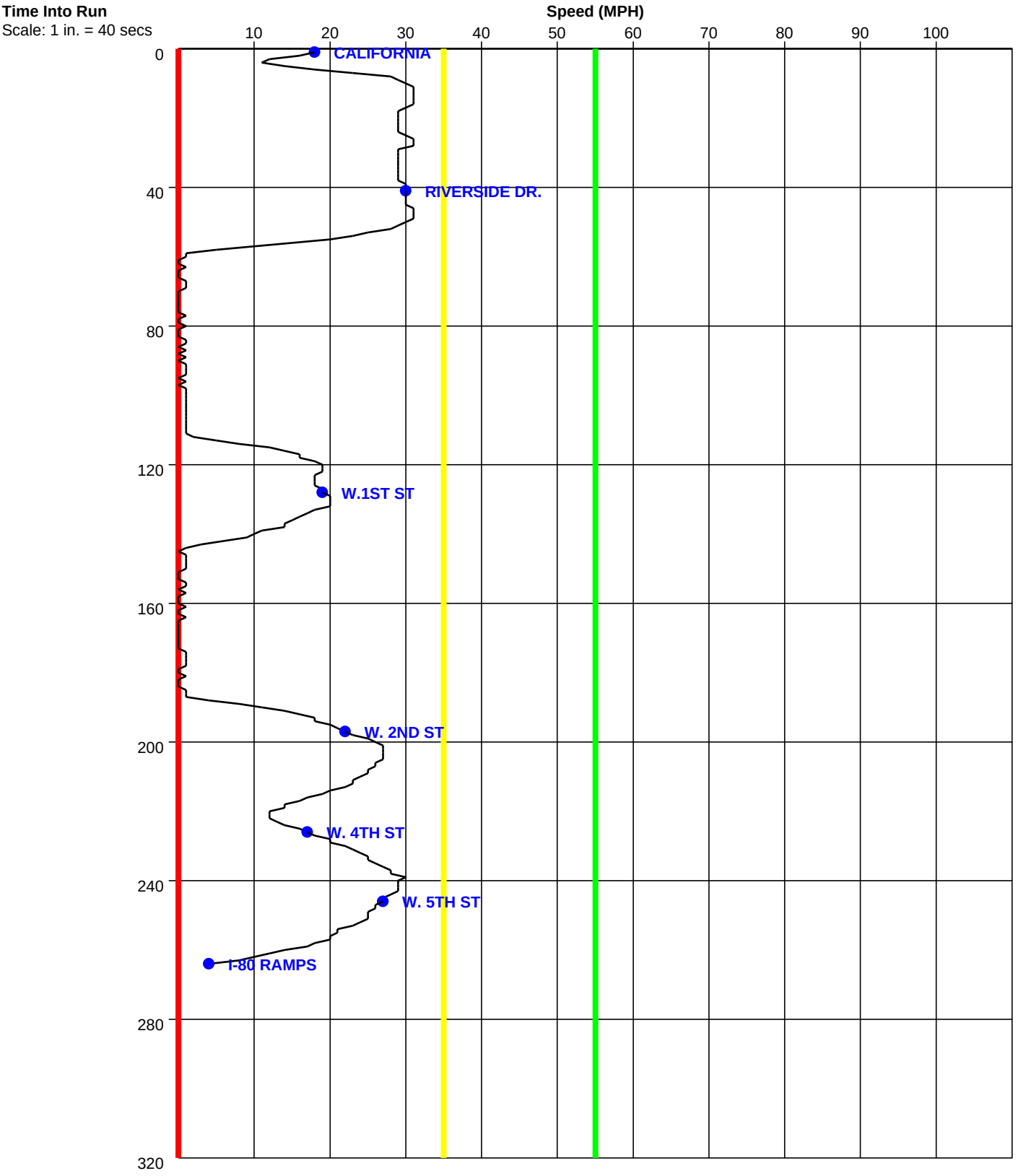
Reno Nv.

NB AM

Study Name : **RENO AM NB**
Study Date : **8/26/2013**
Page No. : **38**

Time-Based Speed Profile

Run : RENO AM-NB-005T Start Time:07:33 (This is a Before Run)



Pacific Traffic Data Services

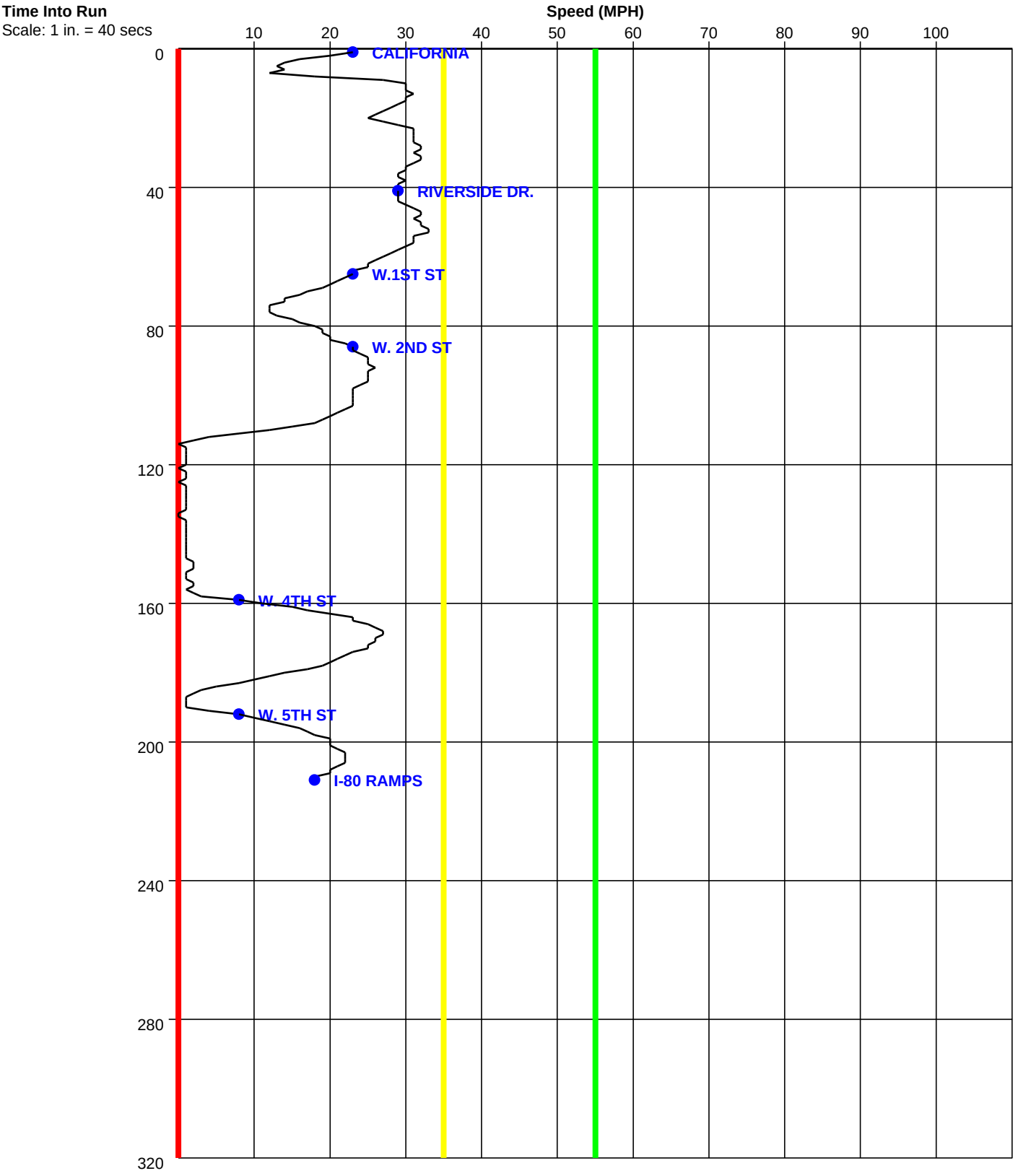
Reno Nv.

NB AM

Study Name : **RENO AM NB**
Study Date : **8/26/2013**
Page No. : **39**

Time-Based Speed Profile

Run : RENO AM-NB-006T Start Time:07:43 (This is a Before Run)



Pacific Traffic Data Services

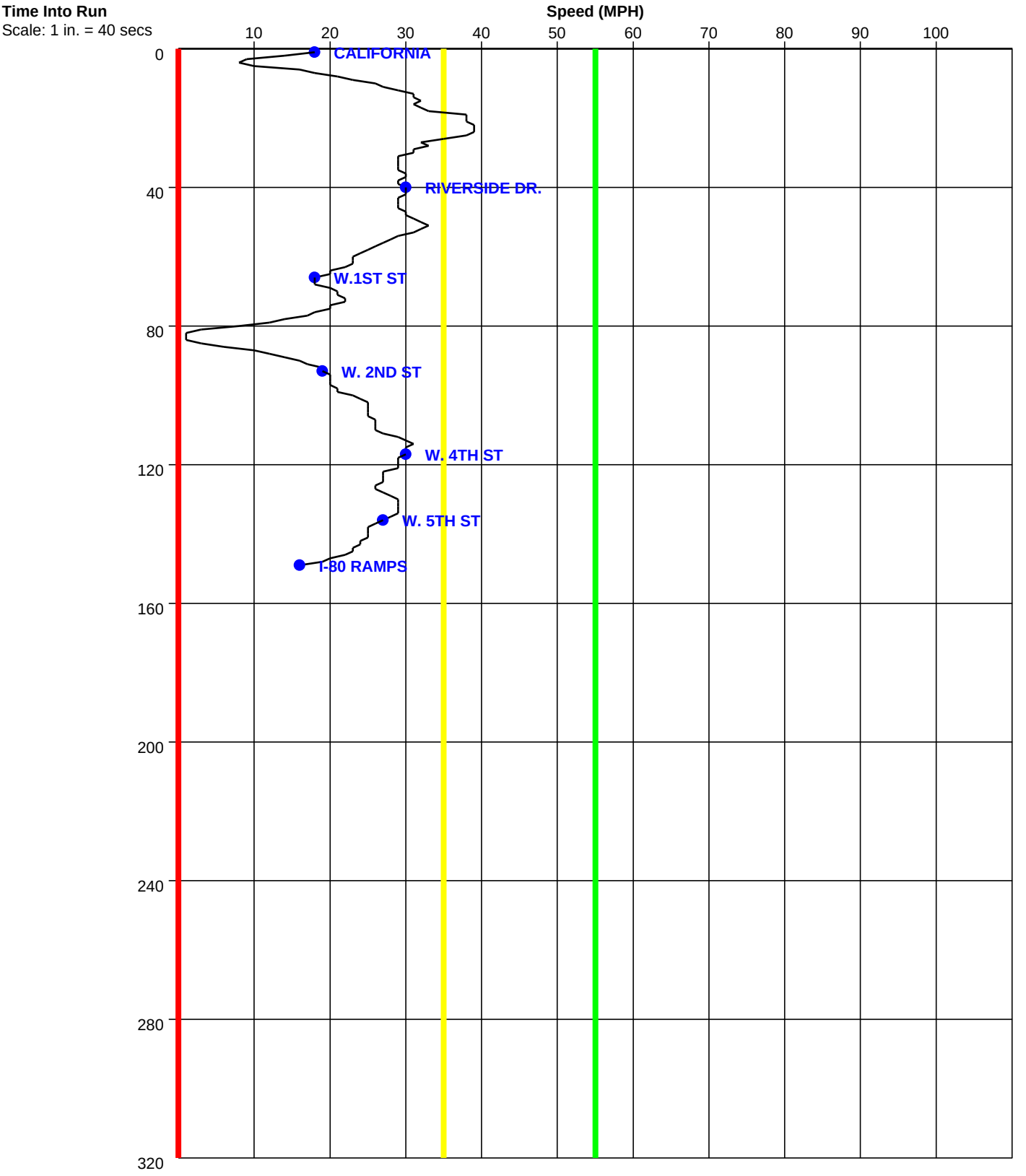
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 40**

Time-Based Speed Profile

Run : RENO AM-NB-008T Start Time:08:01 (This is a Before Run)



Pacific Traffic Data Services

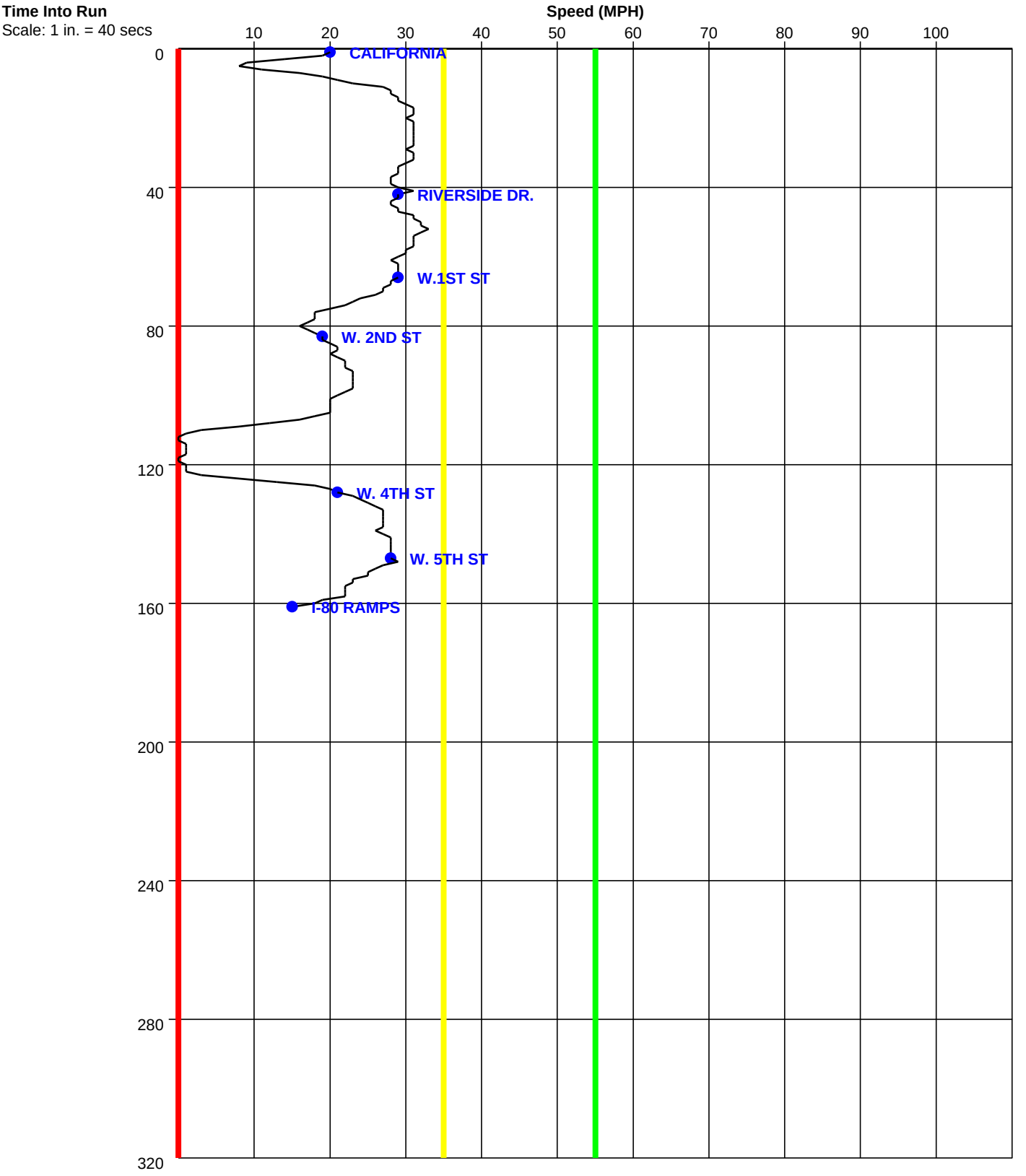
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 41**

Time-Based Speed Profile

Run : RENO AM-NB-009T Start Time:08:10 (This is a Before Run)



Pacific Traffic Data Services

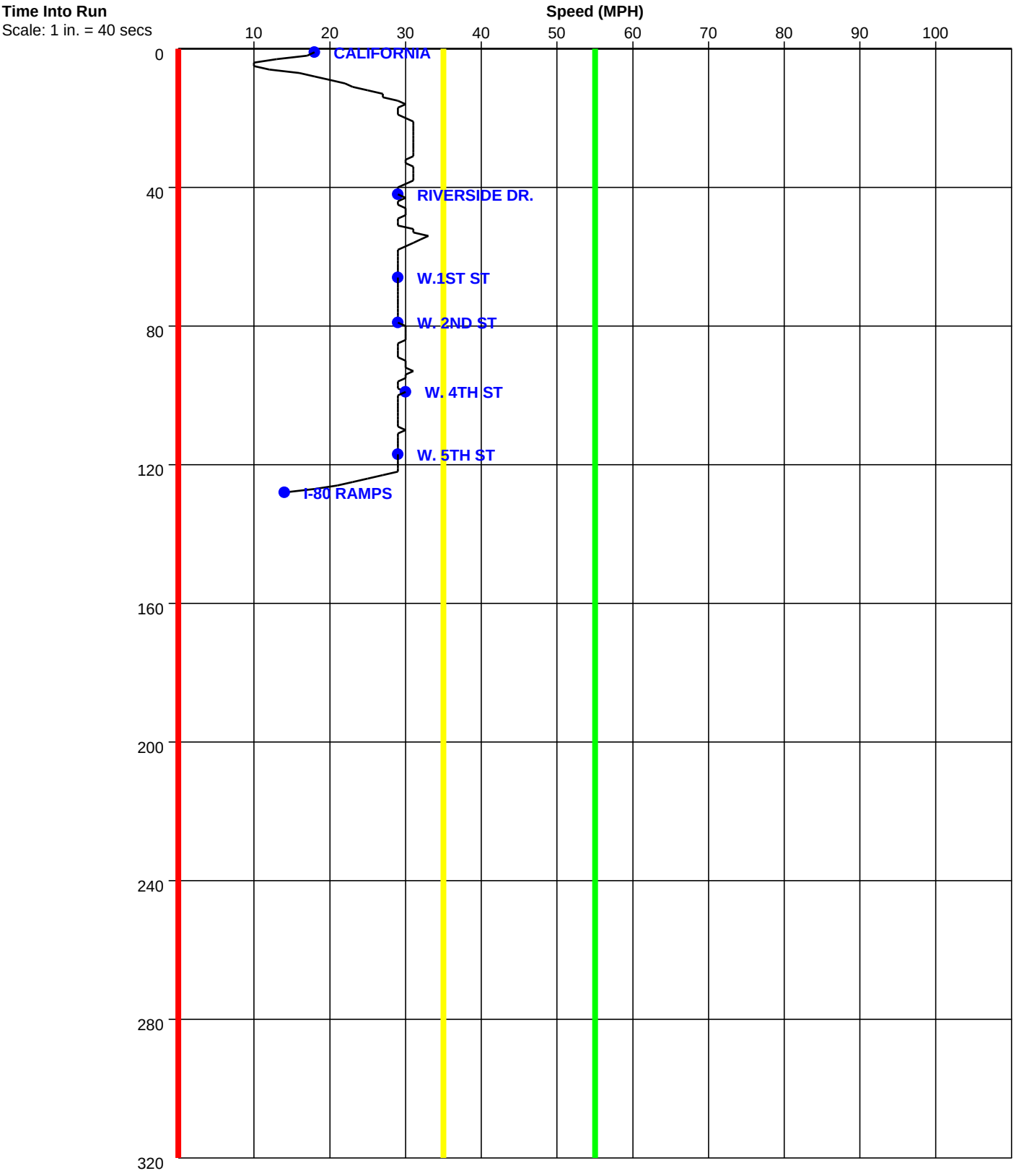
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 42**

Time-Based Speed Profile

Run : RENO AM-NB-010T Start Time:08:19 (This is a Before Run)



Pacific Traffic Data Services

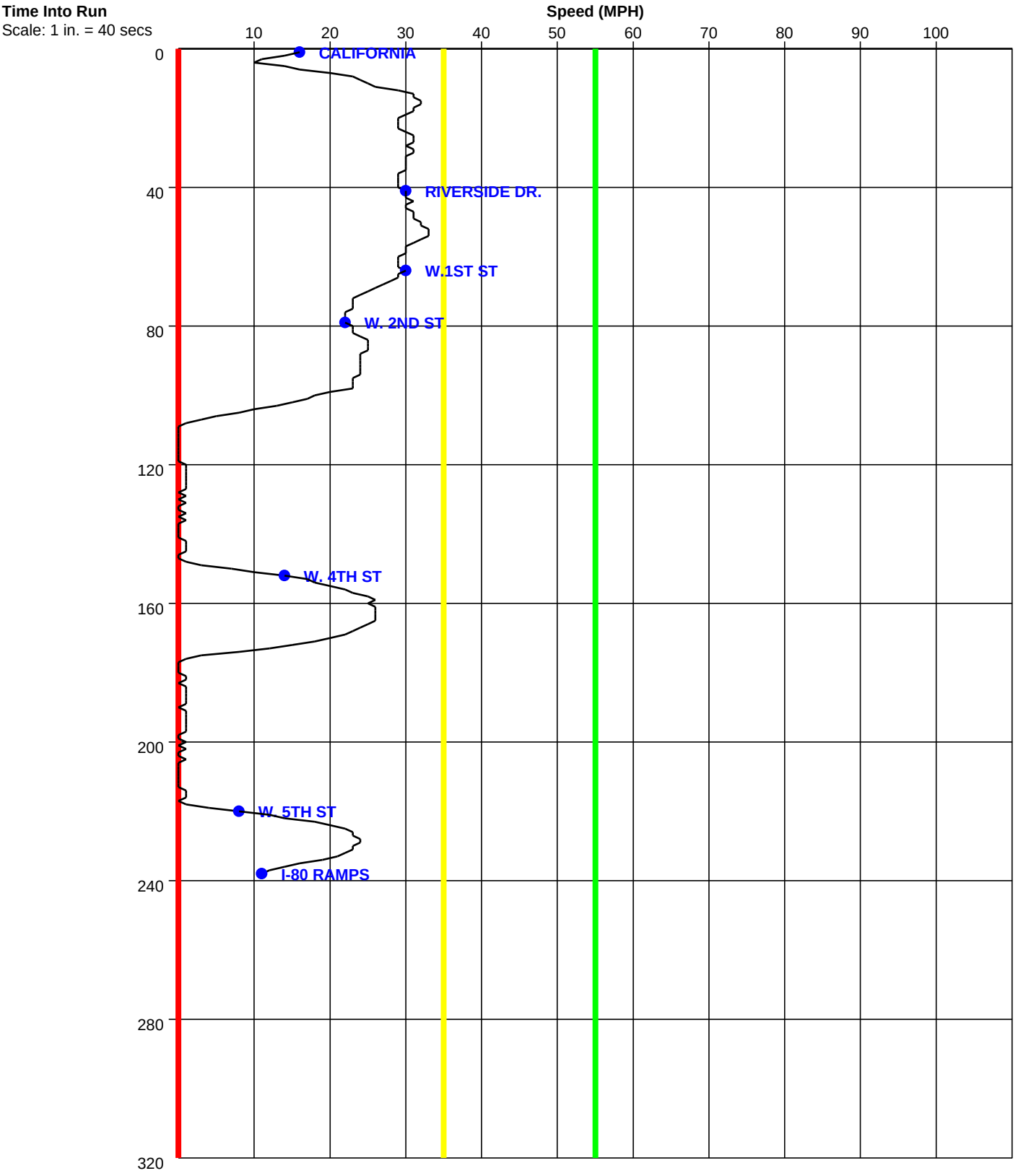
Reno Nv.

NB AM

Study Name : **RENO AM NB**
Study Date : **8/26/2013**
Page No. : **43**

Time-Based Speed Profile

Run : RENO AM-NB-011T Start Time:08:27 (This is a Before Run)



Pacific Traffic Data Services

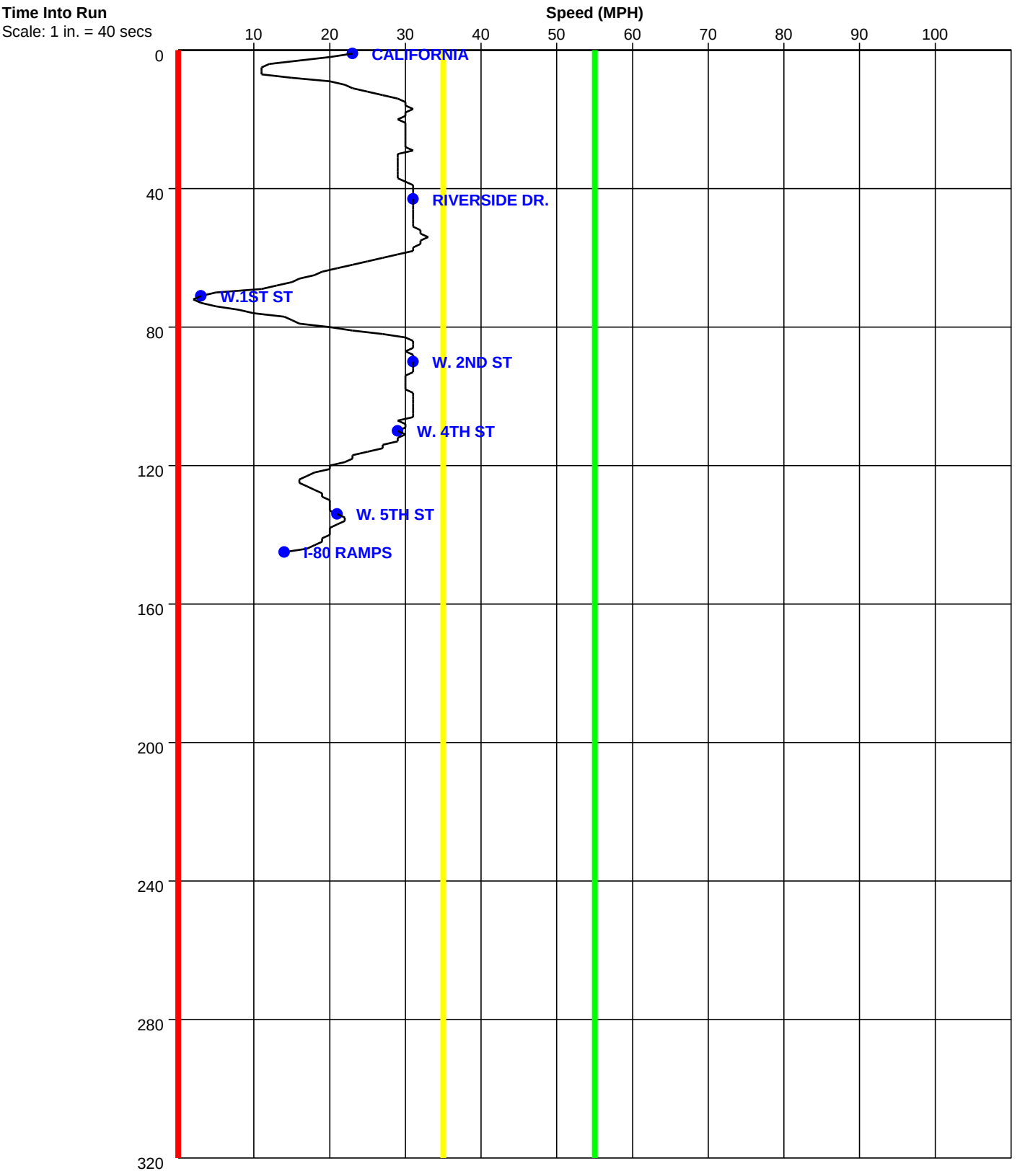
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 44**

Time-Based Speed Profile

Run : RENO AM-NB-012T Start Time:08:36 (This is a Before Run)



Pacific Traffic Data Services

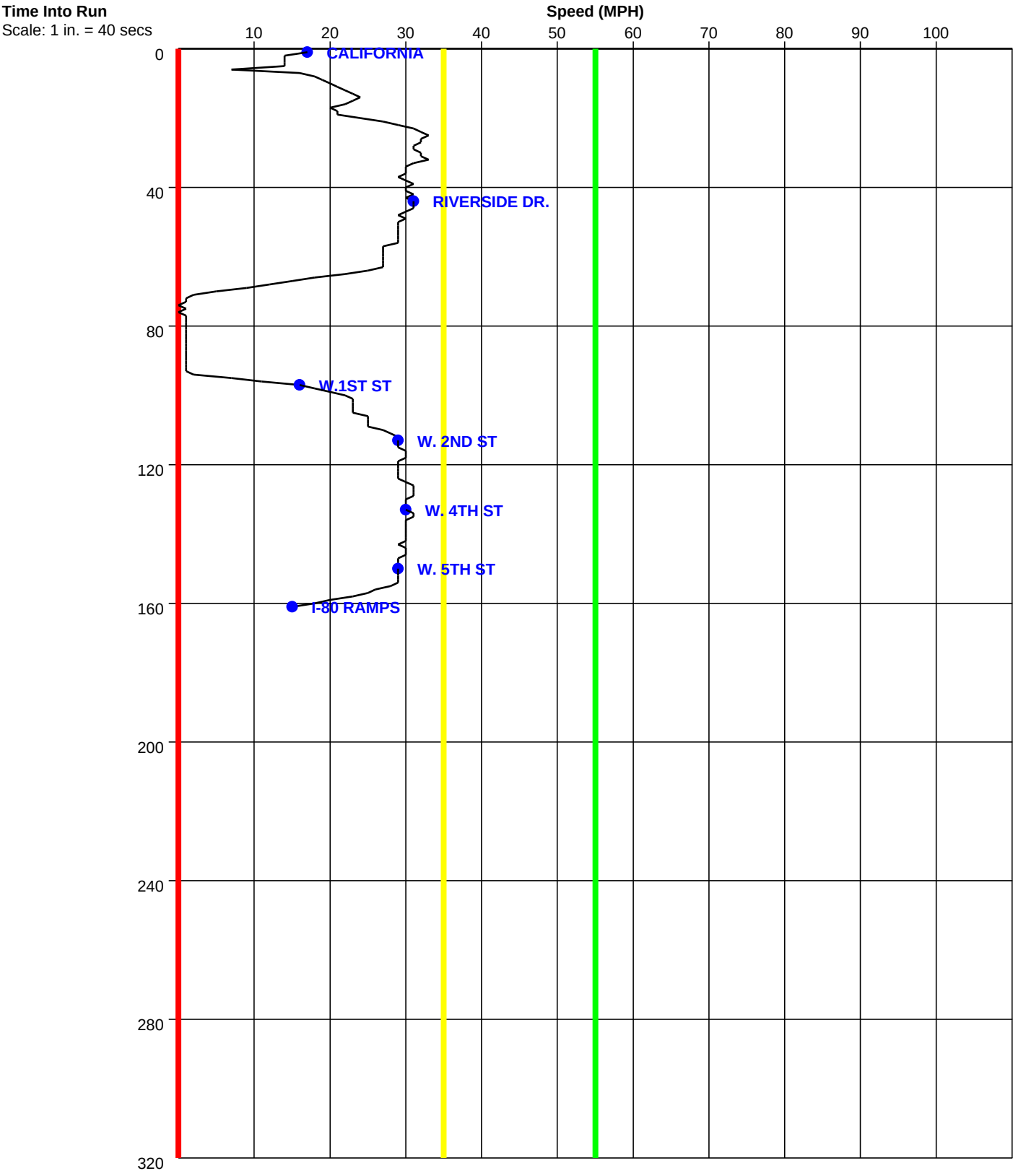
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 45**

Time-Based Speed Profile

Run : RENO AM-NB-013T Start Time:08:44 (This is a Before Run)



Pacific Traffic Data Services

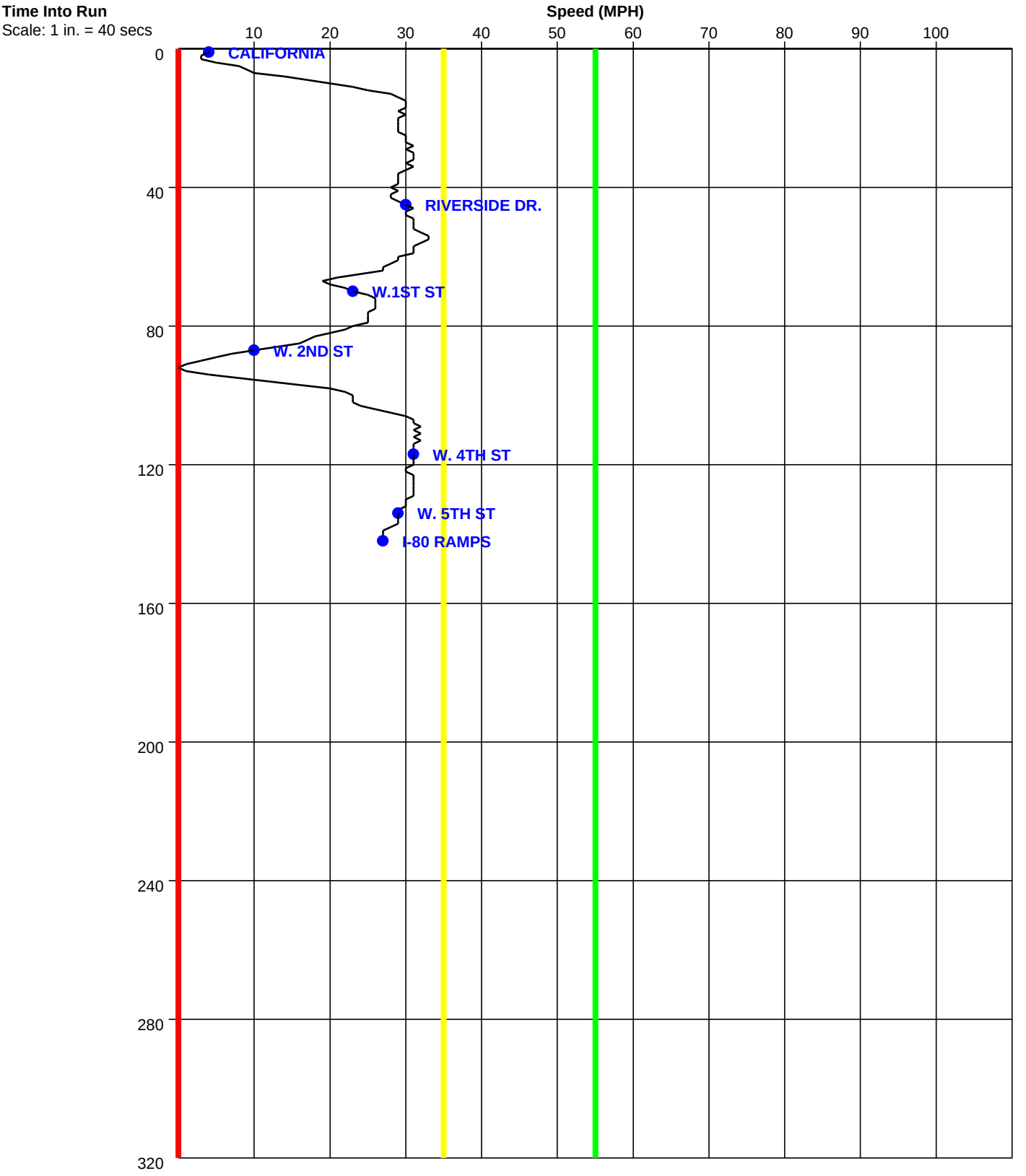
Reno Nv.

NB AM

Study Name **: RENO AM NB**
Study Date **: 8/26/2013**
Page No. **: 46**

Time-Based Speed Profile

Run : RENO AM-NB-014T Start Time:08:53 (This is a Before Run)



Pacific Traffic Data Services

Reno Nv.

SB AM

PC-Travel Reports for study: RENO AM SB

Pacific Traffic
Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 3**

Study Summary

Runs Used in This Study

Run Title	Start Date	Start Time	Length	Before/ After	Run Type
RENO AM-SB-001TN	08/26/13	06:57	5394	Before	Primary
RENO AM-SB-002T	08/26/13	07:04	5272	Before	Secondary
RENO AM-SB-003T	08/26/13	07:12	5284	Before	Secondary
RENO AM-SB-004T	08/26/13	07:20	5348	Before	Secondary
RENO AM-SB-005T	08/26/13	07:28	5284	Before	Secondary
RENO AM-SB-006T	08/26/13	07:38	5259	Before	Secondary
RENO AM-SB-007T	08/26/13	07:49	5351	Before	Secondary
RENO AM-SB-008	08/26/13	07:56	5216	Before	Secondary
RENO AM-SB-009T	08/26/13	08:04	5247	Before	Secondary
RENO AM-SB-010T	08/26/13	08:14	5237	Before	Secondary
RENO AM-SB-011T	08/26/13	08:22	5300	Before	Secondary
RENO AM-SB-012T	08/26/13	08:33	5175	Before	Secondary
RENO AM-SB-013T	08/26/13	08:40	5240	Before	Secondary
RENO AM-SB-014T	08/26/13	08:48	5325	Before	Secondary
RENO AM-SB-015T	08/26/13	08:56	5305	Before	Secondary

Node Info

#	Len	Name
1	0	I-80 OFF RAMP
2	542	W. 5TH ST
3	725	W. 4TH ST
4	857	W. 2ND ST
5	524	W. 1ST ST.
6	966	RIVERSIDE DR
7	1780	CALIFORNIA

Length of Study Route = 5,394 feet

Notes:

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Overall Output Statistics

Node #	Length	Node	Travel Time	# of Stops	Avg Speed	Total Delay	Time <= 0 MPH	Time <= 35 MPH	Time <= 55 MPH
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	21.7	0.2	17.1	9.0	0.0	21.7	21.7
3	725	W. 4TH ST	26.1	0.2	19.0	9.3	2.4	26.1	26.1
4	857	W. 2ND ST	26.0	0.2	22.5	6.1	0.4	26.0	26.0
5	524	W. 1ST ST.	21.3	0.3	16.8	9.3	2.1	21.3	21.3
6	966	RIVERSIDE DR	22.2	0.0	29.7	0.1	0.0	22.2	22.2
7	1780	CALIFORNIA	39.9	0.0	30.4	1.5	0.0	39.0	39.0
Total	**5,394**		**157.1**	**0.9**	**23.4**	**35.3**	**4.9**	**156.2**	**156.2**

Stats based on 15 BEFORE runs.
Stops based on a Stop Speed of 5 MPH.
Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 5**

Fuel Consumption & Emissions

Node #	Length	Node Name	Fuel (gal)	HC (grams)	CO (grams)	NOx (grams)
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	0.0082	1.0165	6.3740	0.7815
3	725	W. 4TH ST	0.0076	0.6912	6.2306	0.2852
4	857	W. 2ND ST	0.0080	0.7436	6.3526	0.3551
5	524	W. 1ST ST.	0.0066	0.7049	5.5351	0.4058
6	966	RIVERSIDE DR	0.0081	0.7395	7.1227	0.3914
7	1780	CALIFORNIA	0.0127	1.0144	10.2217	0.3832
Total	**5,394**		**0.0512**	**4.9101**	**41.8366**	**2.6022**

Stats based on 15 BEFORE runs.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 6**

Detailed Statistics By Run

Travel Time (sec) by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	18	17	19	18	19	17	18
3	725	W. 4TH ST	21	37	17	16	17	18	18	16
4	857	W. 2ND ST	20	21	20	39	33	24	22	23
5	524	W. 1ST ST.	12	12	31	18	18	56	16	43
6	966	RIVERSIDE DR	22	22	24	21	21	22	22	23
7	1780	CALIFORNIA	41	38	39	42	41	39	42	37
Totals	**5394**		**140**	**148**	**148**	**155**	**148**	**178**	**137**	**160**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Travel Time (sec) by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13	Run #14	Run #15
			RENO AM-SB-009T	RENO AM-SB-010T	RENO AM-SB-011T	RENO AM-SB-012T	RENO AM-SB-013T	RENO AM-SB-014T	RENO AM-SB-015T
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	27	22	26	18	30	21	31
3	725	W. 4TH ST	78	21	18	17	19	17	61
4	857	W. 2ND ST	26	26	22	21	45	26	22
5	524	W. 1ST ST.	13	27	19	12	15	15	12
6	966	RIVERSIDE DR	23	23	22	22	23	21	22
7	1780	CALIFORNIA	39	39	41	39	38	43	41
Totals	**5394**		**206**	**158**	**148**	**129**	**170**	**143**	**189**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Number of Stops by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	0	0	0	0	0	0	0	0
3	725	W. 4TH ST	0	1	0	0	0	0	0	0
4	857	W. 2ND ST	0	0	0	1	1	0	0	0
5	524	W. 1ST ST.	0	0	1	0	0	1	0	1
6	966	RIVERSIDE DR	0	0	0	0	0	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0	0
Totals	**5394**		**0**	**1**	**1**	**1**	**1**	**1**	**0**	**1**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Number of Stops by Section

Node #	Length	Node Name	Run #9 RENO AM-SB-009T	Run #10 RENO AM-SB-010T	Run #11 RENO AM-SB-011T	Run #12 RENO AM-SB-012T	Run #13 RENO AM-SB-013T	Run #14 RENO AM-SB-014T	Run #15 RENO AM-SB-015T
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	1	0	0	0	1	0	1
3	725	W. 4TH ST	1	0	0	0	0	0	1
4	857	W. 2ND ST	0	0	0	0	1	0	0
5	524	W. 1ST ST.	0	1	0	0	0	0	0
6	966	RIVERSIDE DR	0	0	0	0	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0
Totals	**5394**		**2**	**1**	**0**	**0**	**2**	**0**	**2**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	15.4	20.8	22.0	20.5	21.6	20.2	22.1	21.9
3	725	W. 4TH ST	23.5	13.6	30.5	31.1	28.4	27.9	28.3	30.5
4	857	W. 2ND ST	29.2	28.5	29.0	14.4	18.0	24.2	25.8	25.0
5	524	W. 1ST ST.	29.7	29.8	11.2	20.3	19.9	6.4	22.8	8.6
6	966	RIVERSIDE DR	30.1	30.0	28.0	31.7	30.6	29.6	30.4	29.2
7	1780	CALIFORNIA	29.5	29.9	29.2	28.5	28.5	29.3	28.4	29.6
Totals	**5394**		**26.3**	**24.5**	**24.5**	**23.7**	**24.5**	**20.3**	**26.9**	**22.4**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO AM-SB-009T
RENO AM-SB-010T
RENO AM-SB-011T
RENO AM-SB-012T
RENO AM-SB-013T
RENO AM-SB-014T
RENO AM-SB-015T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13	Run #14	Run #15
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	13.7	16.9	14.5	21.2	12.9	18.8	12.7
3	725	W. 4TH ST	6.4	23.4	27.3	29.1	26.5	28.6	8.0
4	857	W. 2ND ST	22.7	22.6	26.8	27.8	12.7	22.2	27.1
5	524	W. 1ST ST.	28.2	13.6	18.9	30.1	23.7	23.8	29.7
6	966	RIVERSIDE DR	28.2	29.1	29.8	29.9	29.6	31.0	30.1
7	1780	CALIFORNIA	29.2	28.4	28.7	27.7	29.3	27.6	28.2
Totals	**5394**		**17.5**	**22.7**	**24.6**	**27.6**	**21.2**	**25.5**	**19.3**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Total Delay (sec) by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	12	5	5	6	5	6	5	5
3	725	W. 4TH ST	5	20	0	0	0	1	1	0
4	857	W. 2ND ST	1	1	0	19	13	4	2	3
5	524	W. 1ST ST.	0	0	19	6	6	44	4	31
6	966	RIVERSIDE DR	0	0	1	0	0	0	0	0
7	1780	CALIFORNIA	1	0	0	2	3	1	2	0
Totals	**5394**		**19**	**26**	**25**	**33**	**27**	**56**	**14**	**39**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Total Delay (sec) by Section

Node #	Length	Node Name	Run #9 (RENO AM-SB-009T)	Run #10 (RENO AM-SB-010T)	Run #11 (RENO AM-SB-011T)	Run #12 (RENO AM-SB-012T)	Run #13 (RENO AM-SB-013T)	Run #14 (RENO AM-SB-014T)	Run #15 (RENO AM-SB-015T)
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	15	10	13	5	17	8	18
3	725	W. 4TH ST	61	4	1	0	2	0	44
4	857	W. 2ND ST	6	6	2	1	25	6	2
5	524	W. 1ST ST.	1	15	7	0	3	3	0
6	966	RIVERSIDE DR	1	0	0	0	0	0	0
7	1780	CALIFORNIA	1	2	2	3	0	4	2
Totals	**5394**		**85**	**37**	**25**	**9**	**47**	**21**	**66**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	0	0	0	0	0	0	0	0
3	725	W. 4TH ST	0	7	0	0	0	0	0	0
4	857	W. 2ND ST	0	0	0	4	0	0	0	0
5	524	W. 1ST ST.	0	0	9	0	0	12	0	11
6	966	RIVERSIDE DR	0	0	0	0	0	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0	0
Totals	**5394**		**0**	**7**	**9**	**4**	**0**	**12**	**0**	**11**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO AM-SB-009T
RENO AM-SB-010T
RENO AM-SB-011T
RENO AM-SB-012T
RENO AM-SB-013T
RENO AM-SB-014T
RENO AM-SB-015T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13	Run #14	Run #15
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	0	0	0	0	0	0	0
3	725	W. 4TH ST	9	0	0	0	0	0	20
4	857	W. 2ND ST	0	0	0	0	2	0	0
5	524	W. 1ST ST.	0	0	0	0	0	0	0
6	966	RIVERSIDE DR	0	0	0	0	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0
Totals	**5394**		**9**	**0**	**0**	**0**	**2**	**0**	**20**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 16**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	18	17	19	18	19	17	18
3	725	W. 4TH ST	21	37	17	16	17	18	18	16
4	857	W. 2ND ST	20	21	20	39	33	24	22	23
5	524	W. 1ST ST.	12	12	31	18	18	56	16	43
6	966	RIVERSIDE DR	22	22	24	21	21	22	22	23
7	1780	CALIFORNIA	41	37	38	41	40	38	41	36
Totals	**5394**		**140**	**147**	**147**	**154**	**147**	**177**	**136**	**159**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO AM-SB-009T
RENO AM-SB-010T
RENO AM-SB-011T
RENO AM-SB-012T
RENO AM-SB-013T
RENO AM-SB-014T
RENO AM-SB-015T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13	Run #14	Run #15
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	27	22	26	18	30	21	31
3	725	W. 4TH ST	78	21	18	17	19	17	61
4	857	W. 2ND ST	26	26	22	21	45	26	22
5	524	W. 1ST ST.	13	27	19	12	15	15	12
6	966	RIVERSIDE DR	23	23	22	22	23	21	22
7	1780	CALIFORNIA	38	38	40	38	37	42	40
Totals	**5394**		**205**	**157**	**147**	**128**	**169**	**142**	**188**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 18**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO AM-SB-001TN
RENO AM-SB-002T
RENO AM-SB-003T
RENO AM-SB-004T
RENO AM-SB-005T
RENO AM-SB-006T
RENO AM-SB-007T
RENO AM-SB-00

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	18	17	19	18	19	17	18
3	725	W. 4TH ST	21	37	17	16	17	18	18	16
4	857	W. 2ND ST	20	21	20	39	33	24	22	23
5	524	W. 1ST ST.	12	12	31	18	18	56	16	43
6	966	RIVERSIDE DR	22	22	24	21	21	22	22	23
7	1780	CALIFORNIA	41	37	38	41	40	38	41	36
Totals	**5394**		**140**	**147**	**147**	**154**	**147**	**177**	**136**	**159**

Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO AM-SB-009T
RENO AM-SB-010T
RENO AM-SB-011T
RENO AM-SB-012T
RENO AM-SB-013T
RENO AM-SB-014T
RENO AM-SB-015T

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12	Run #13	Run #14	Run #15
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	27	22	26	18	30	21	31
3	725	W. 4TH ST	78	21	18	17	19	17	61
4	857	W. 2ND ST	26	26	22	21	45	26	22
5	524	W. 1ST ST.	13	27	19	12	15	15	12
6	966	RIVERSIDE DR	23	23	22	22	23	21	22
7	1780	CALIFORNIA	38	38	40	38	37	42	40
Totals	**5394**		**205**	**157**	**147**	**128**	**169**	**142**	**188**

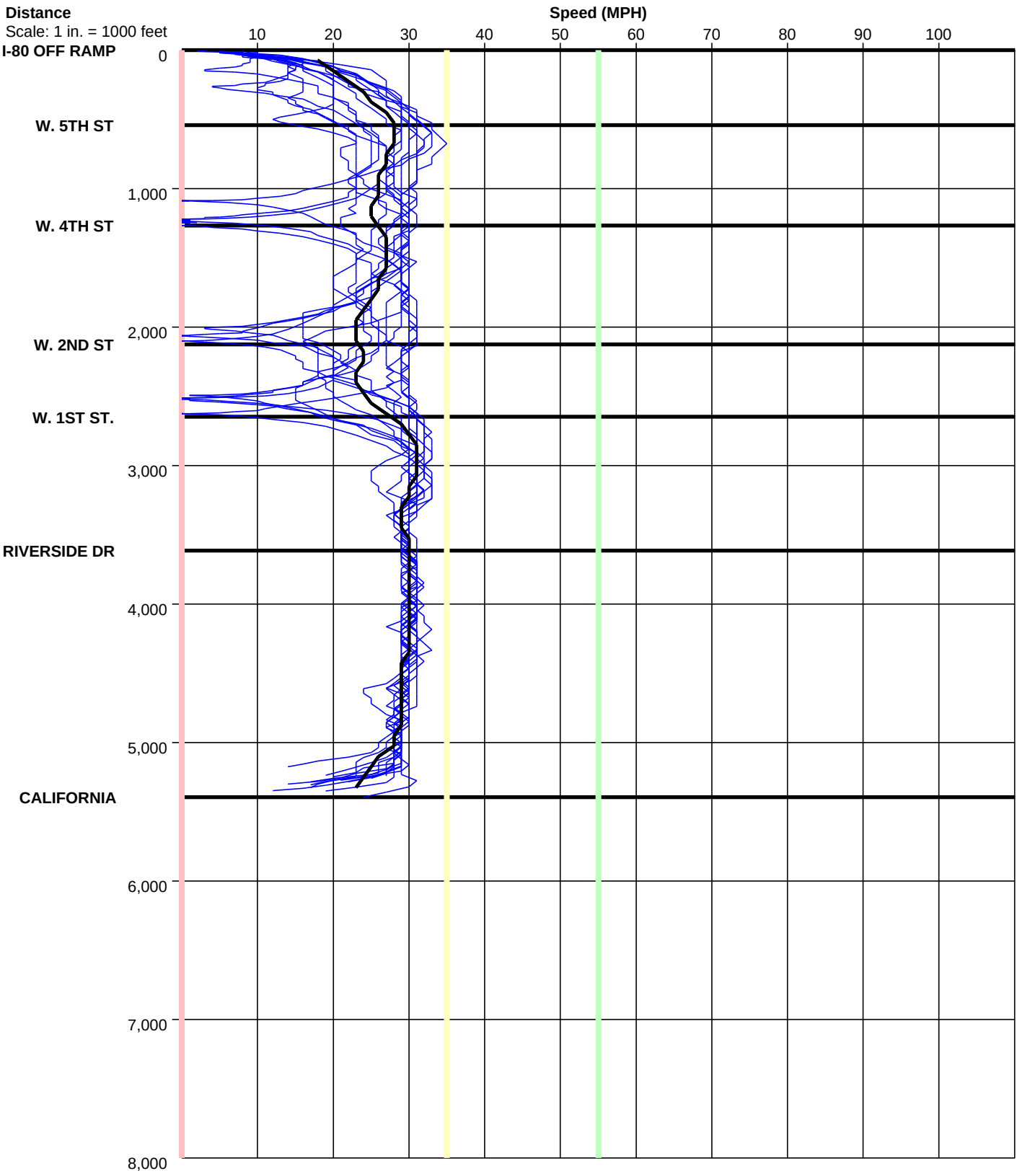
Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name : **RENO AM SB**
Study Date : **8/26/2013**
Page No. : **20**

Speed/Distance Profiles of All Runs



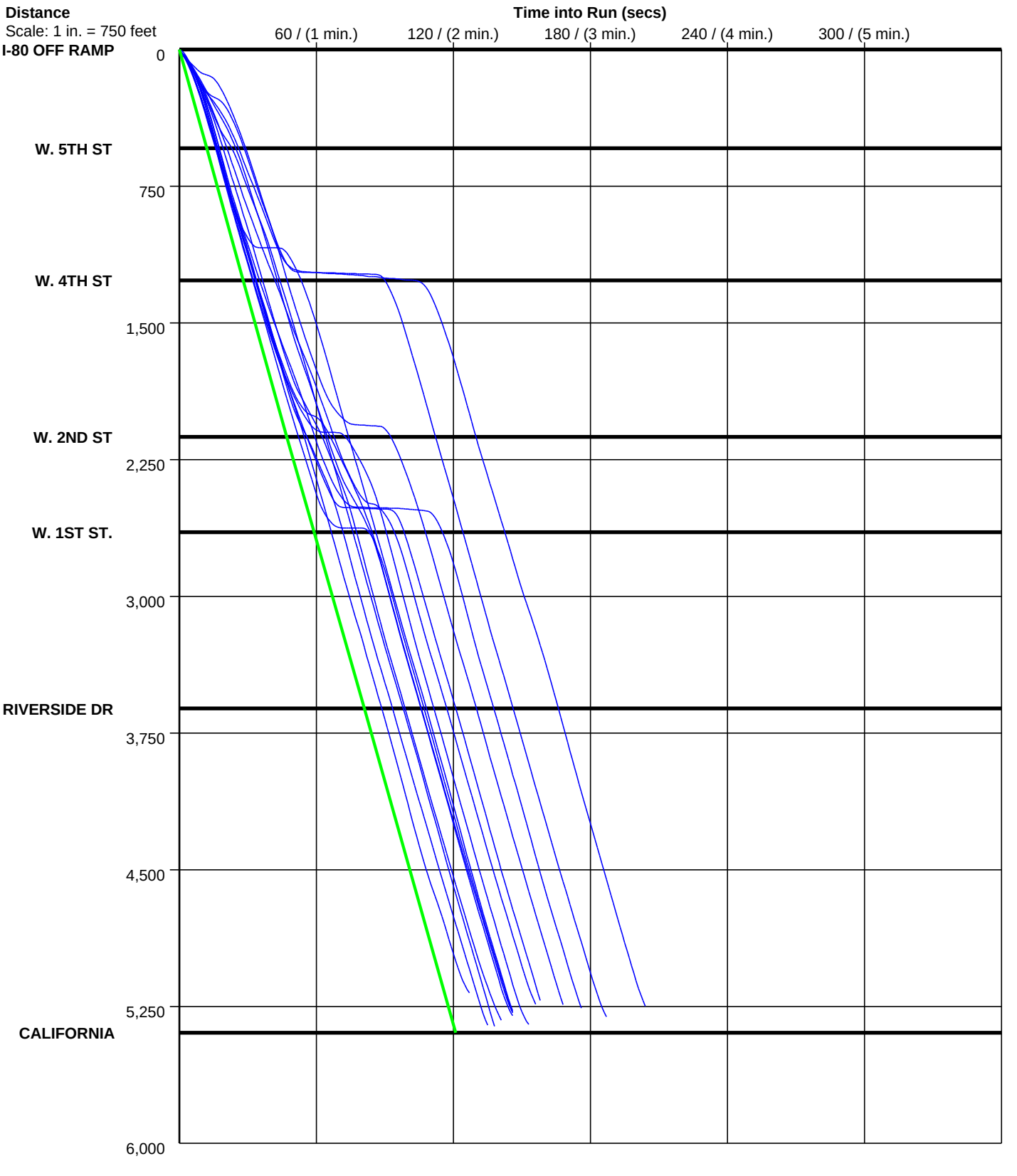
Pacific Traffic Data Services

Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 21**

Time/Space Trajectories of All Runs



Solid Line is Normal Speed of 30 MPH

Pacific Traffic Data Services

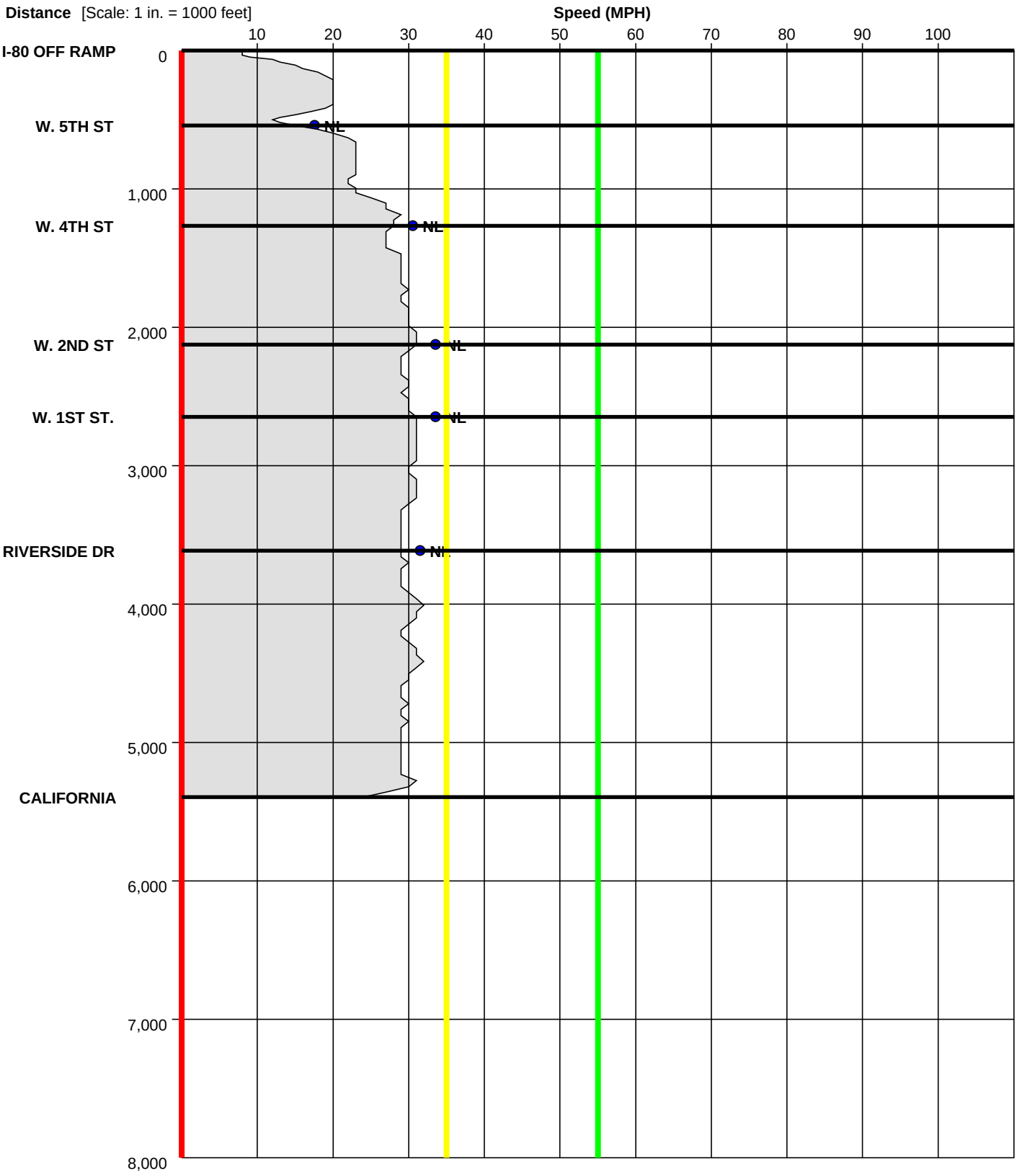
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 22**

Speed Profile

Run : RENO AM-SB-001TN Start Time: 06:57 (This is a Before Run)



Pacific Traffic Data Services

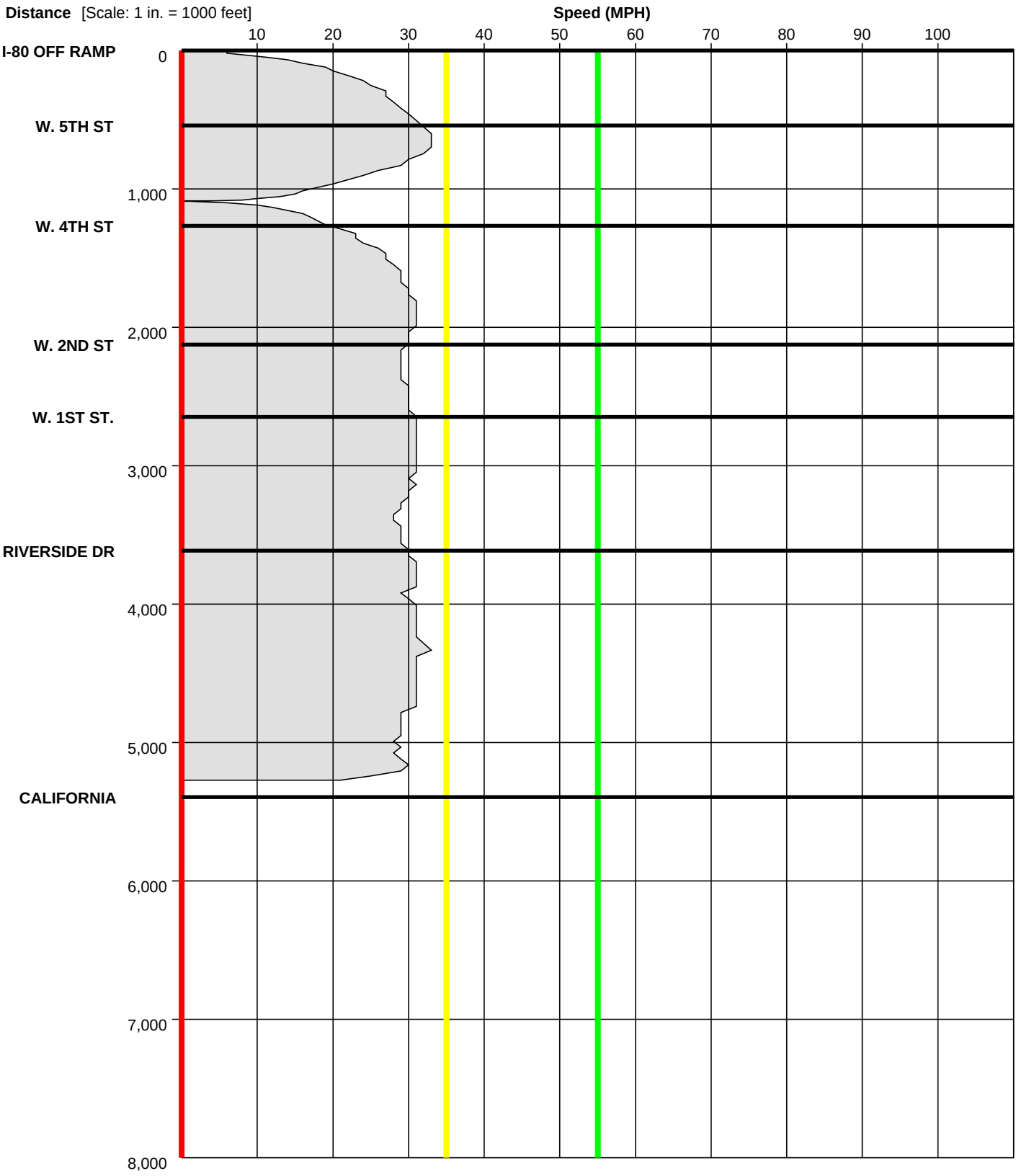
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 23**

Speed Profile

Run : RENO AM-SB-002T Start Time: 07:04 (This is a Before Run)



Pacific Traffic Data Services

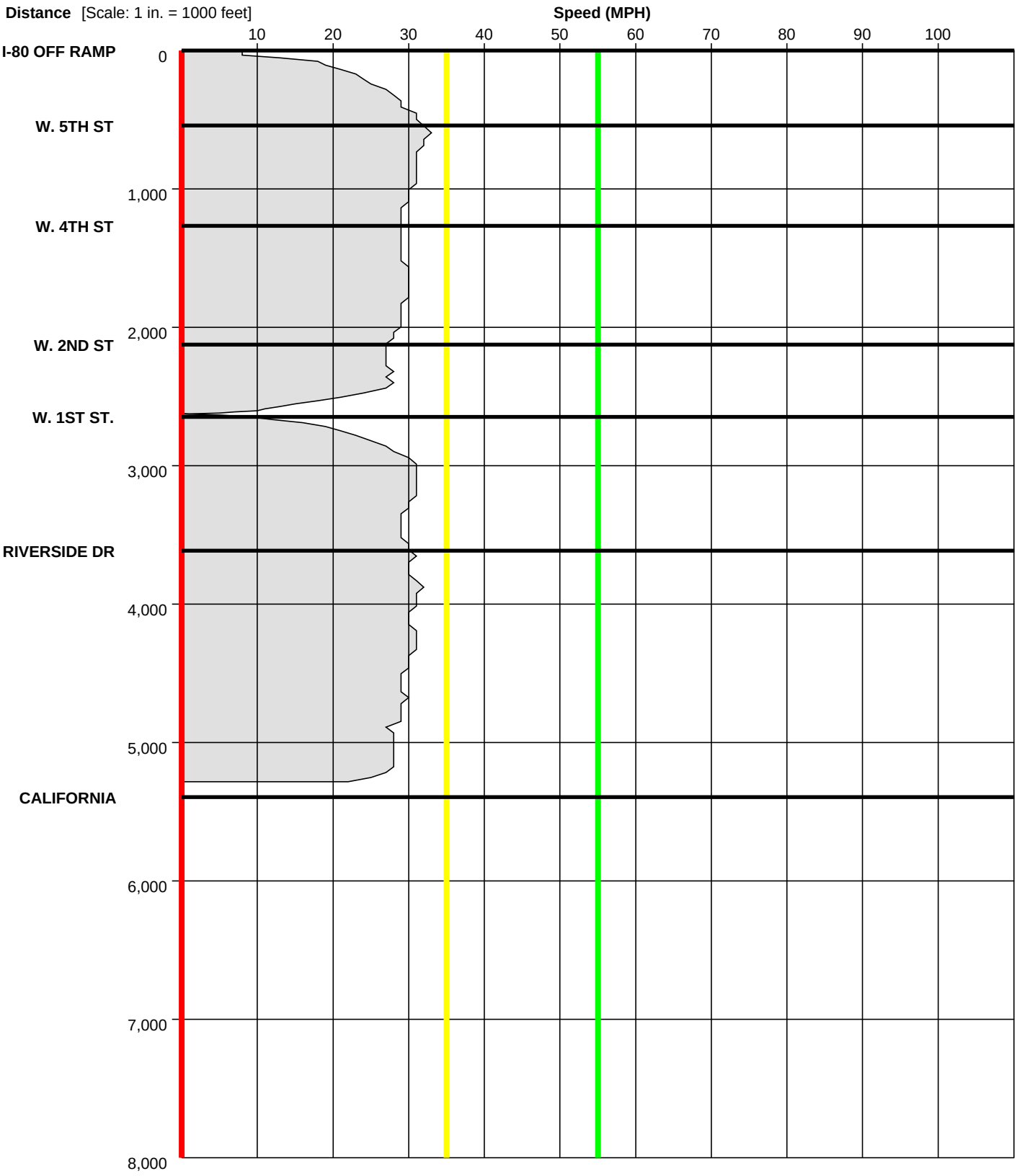
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 24**

Speed Profile

Run : RENO AM-SB-003T Start Time: 07:12 (This is a Before Run)



Pacific Traffic Data Services

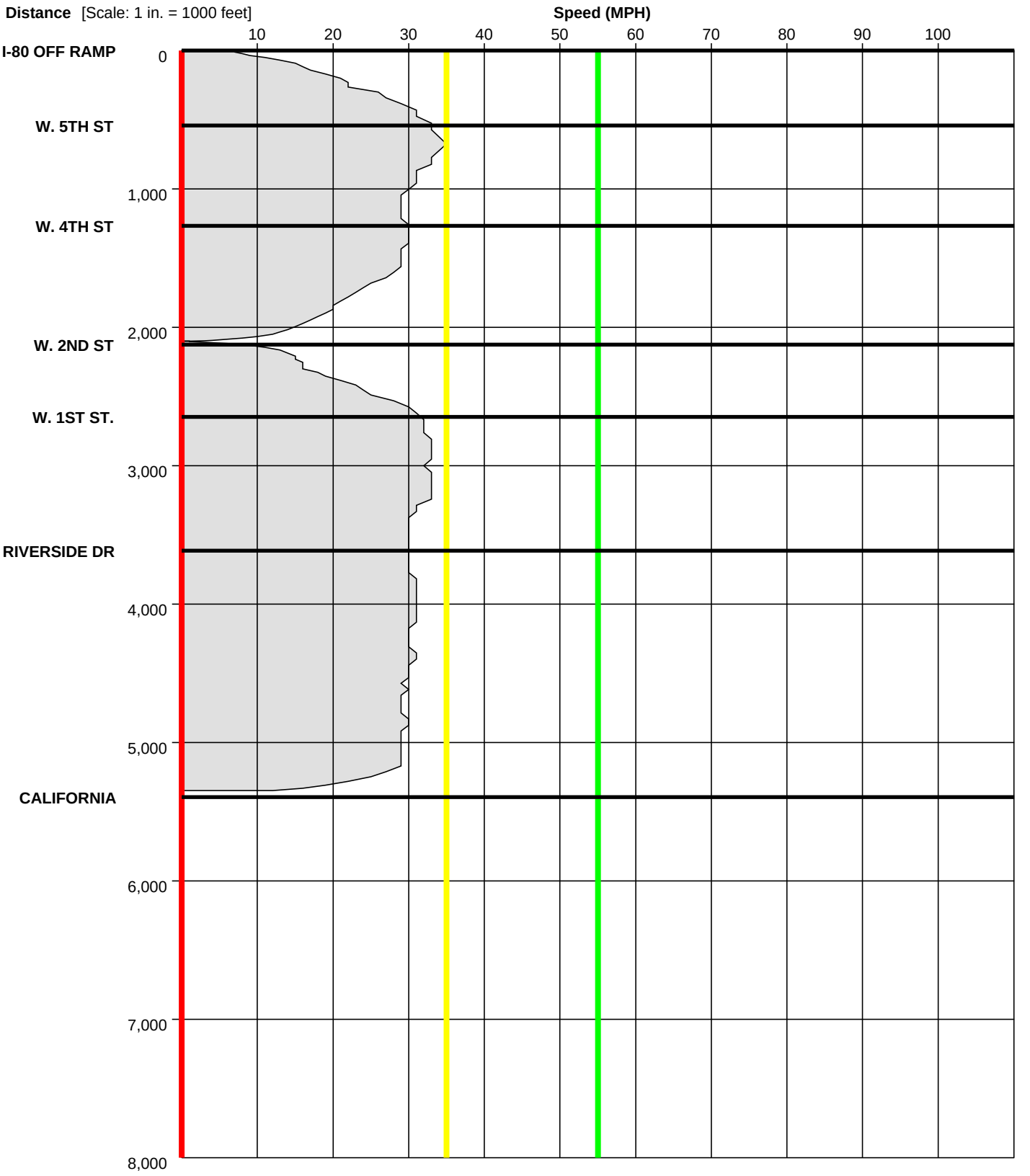
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 25**

Speed Profile

Run : RENO AM-SB-004T Start Time: 07:20 (This is a Before Run)



Pacific Traffic Data Services

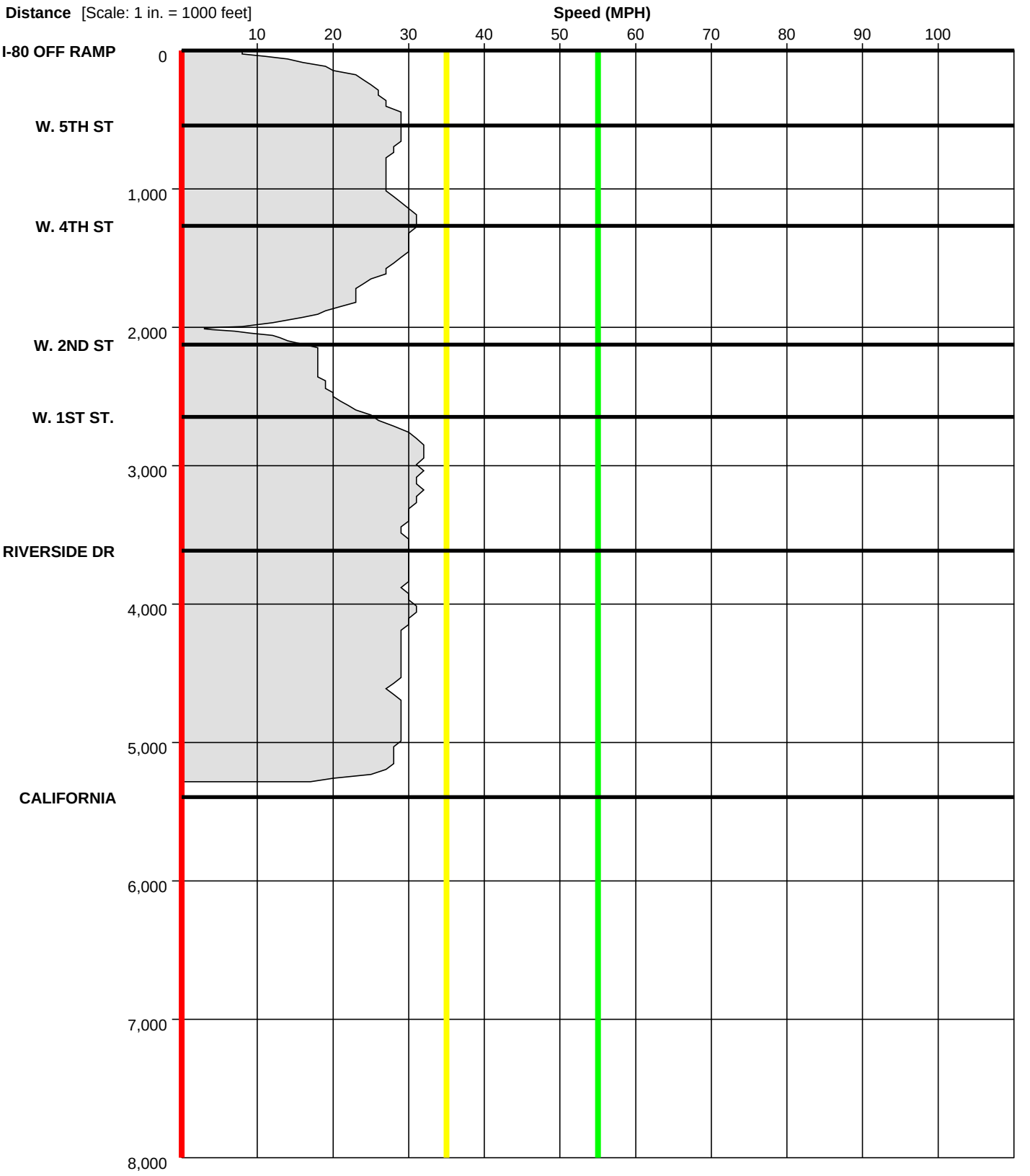
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 26**

Speed Profile

Run : RENO AM-SB-005T Start Time: 07:28 (This is a Before Run)



Pacific Traffic Data Services

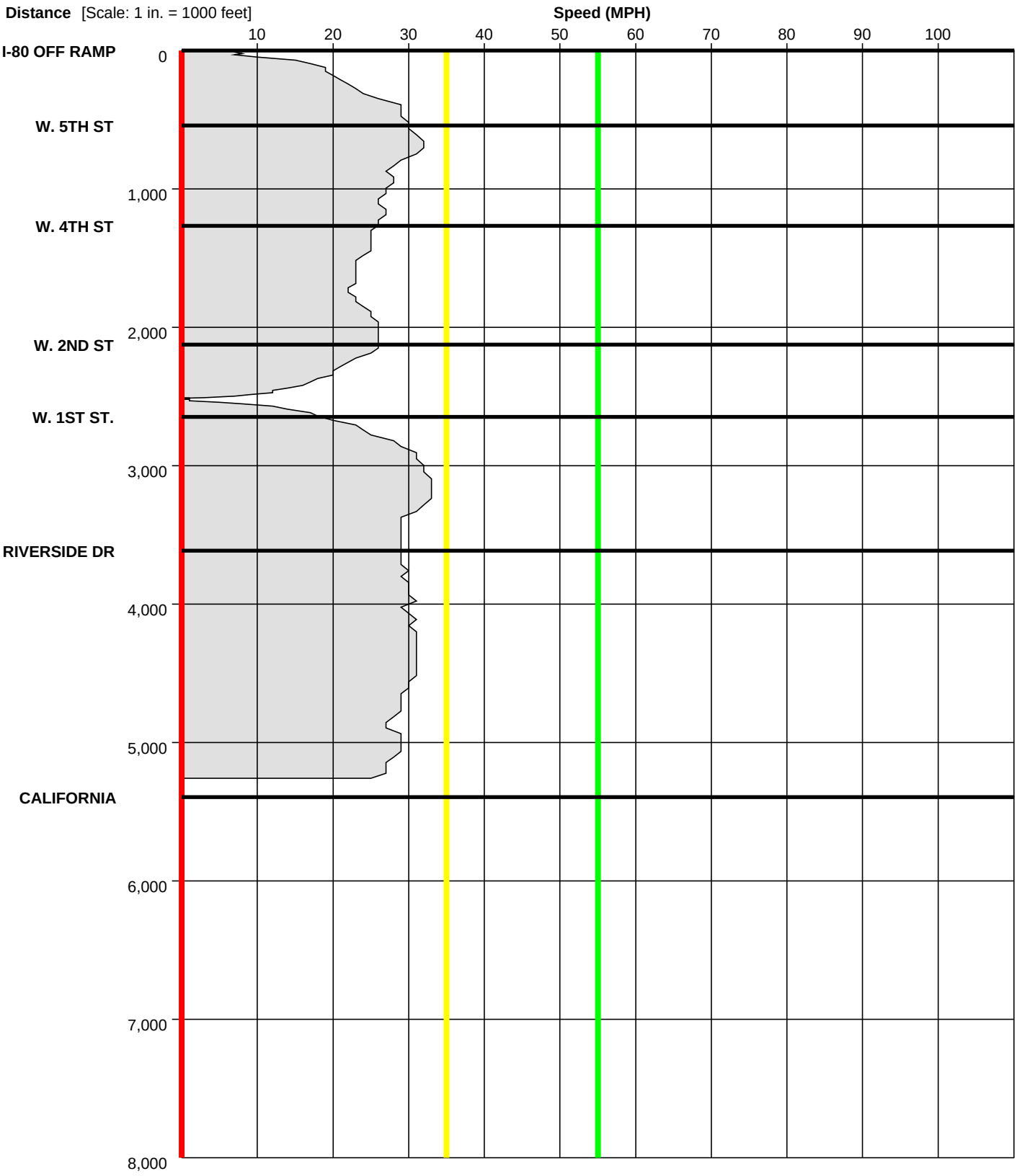
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 27**

Speed Profile

Run : RENO AM-SB-006T Start Time: 07:38 (This is a Before Run)



Pacific Traffic Data Services

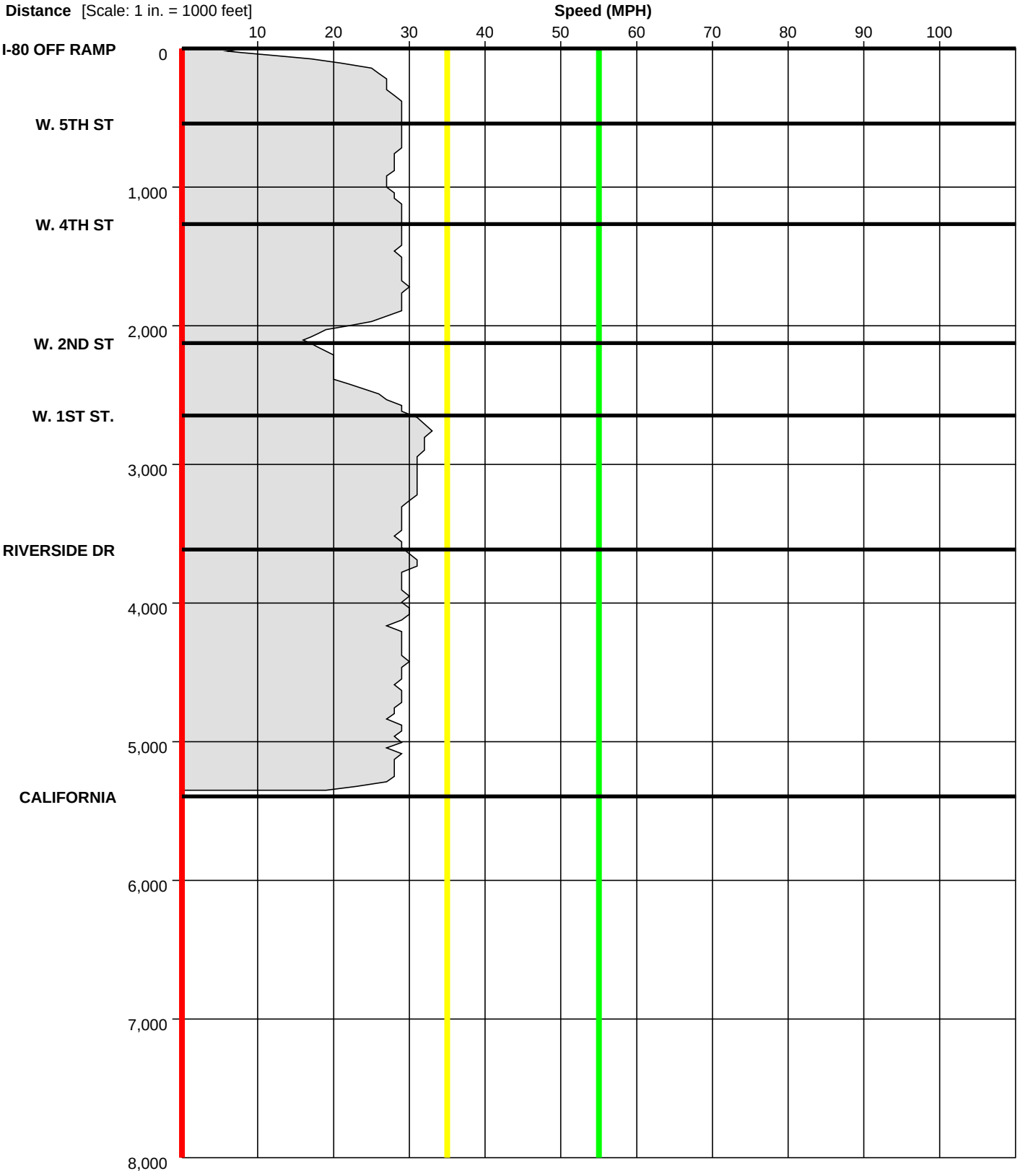
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 28**

Speed Profile

Run : RENO AM-SB-007T Start Time: 07:49 (This is a Before Run)



Pacific Traffic Data Services

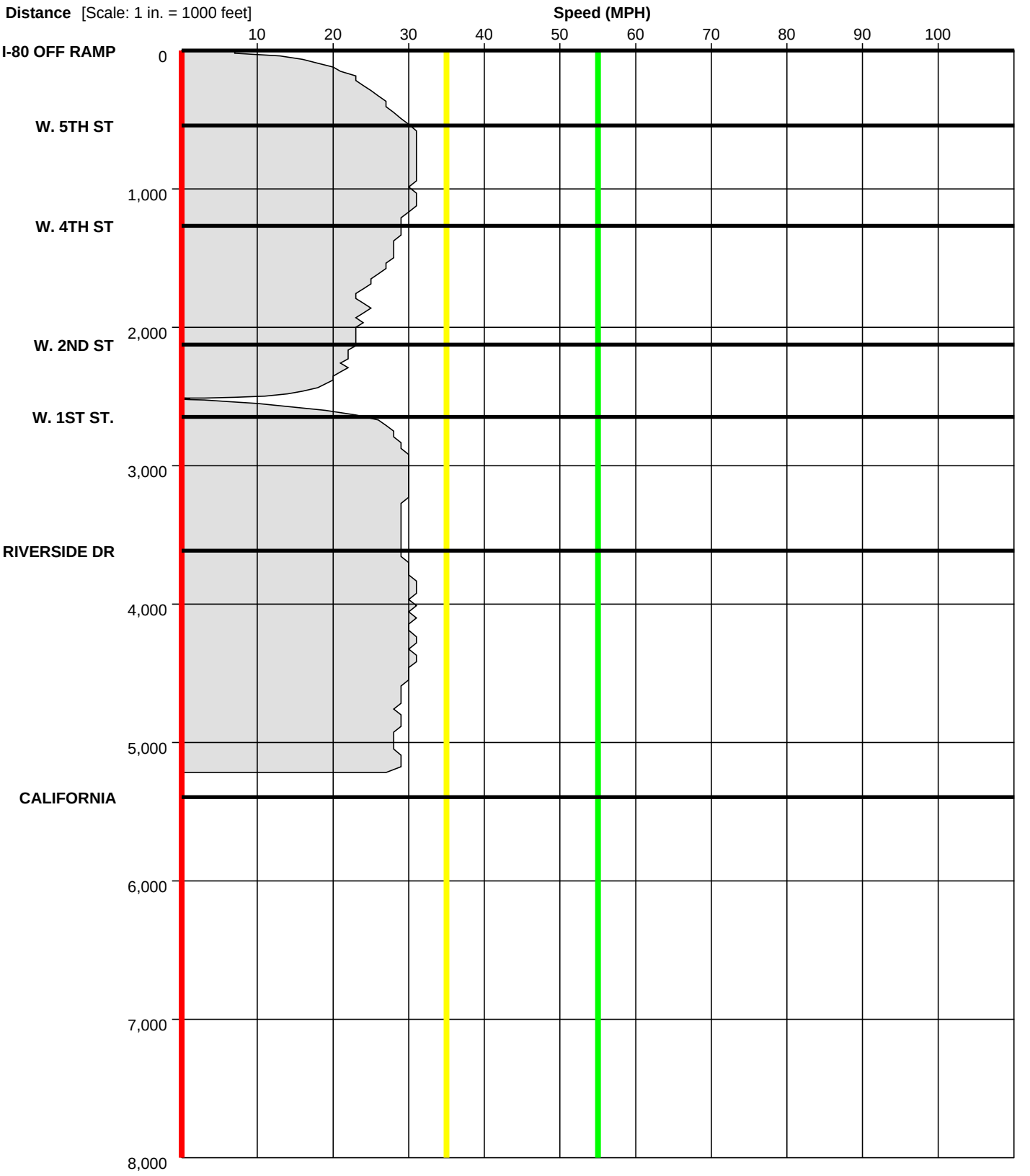
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 29**

Speed Profile

Run : RENO AM-SB-008 Start Time: 07:56 (This is a Before Run)



Pacific Traffic Data Services

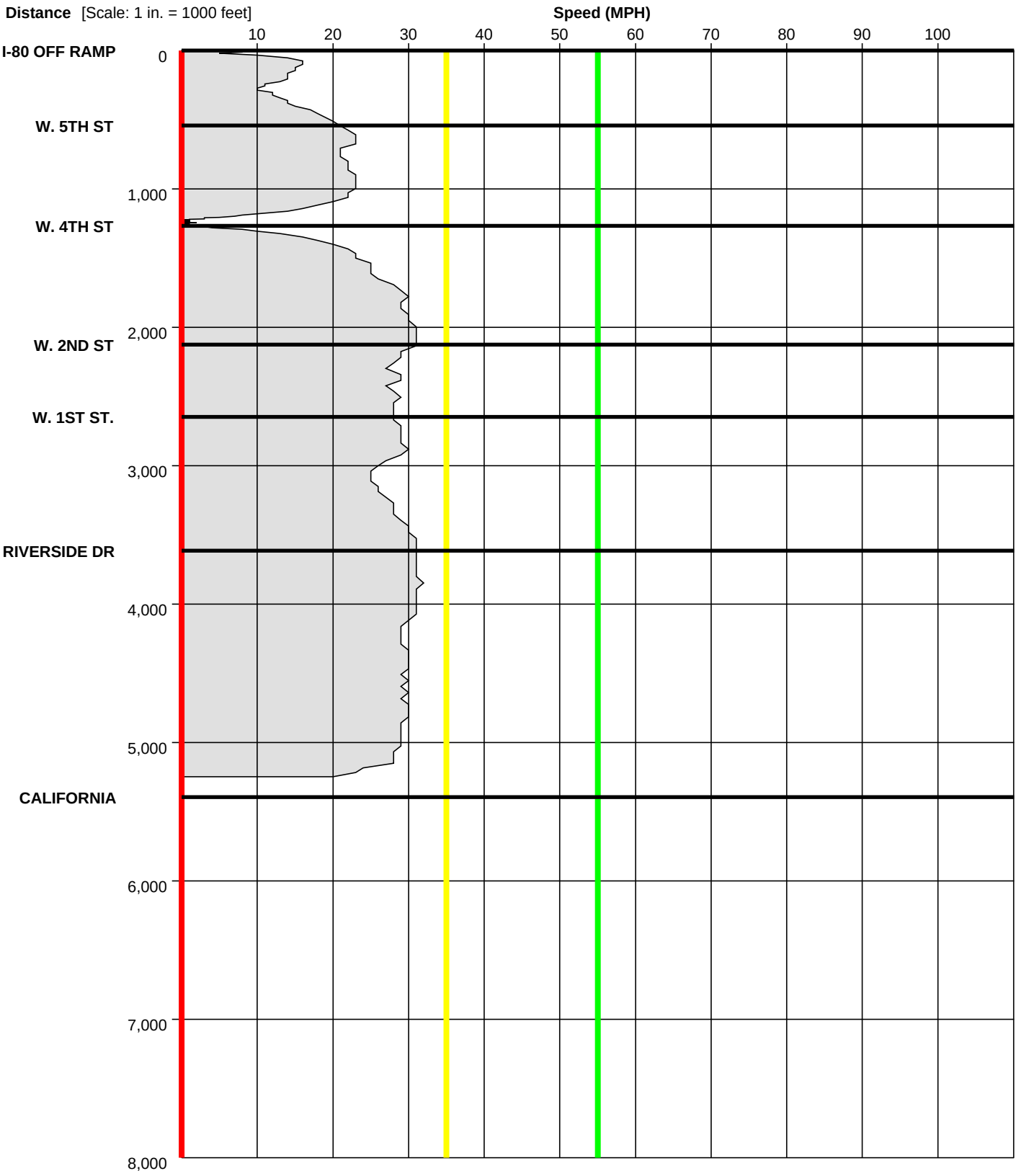
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 30**

Speed Profile

Run : RENO AM-SB-009T Start Time: 08:04 (This is a Before Run)



Pacific Traffic Data Services

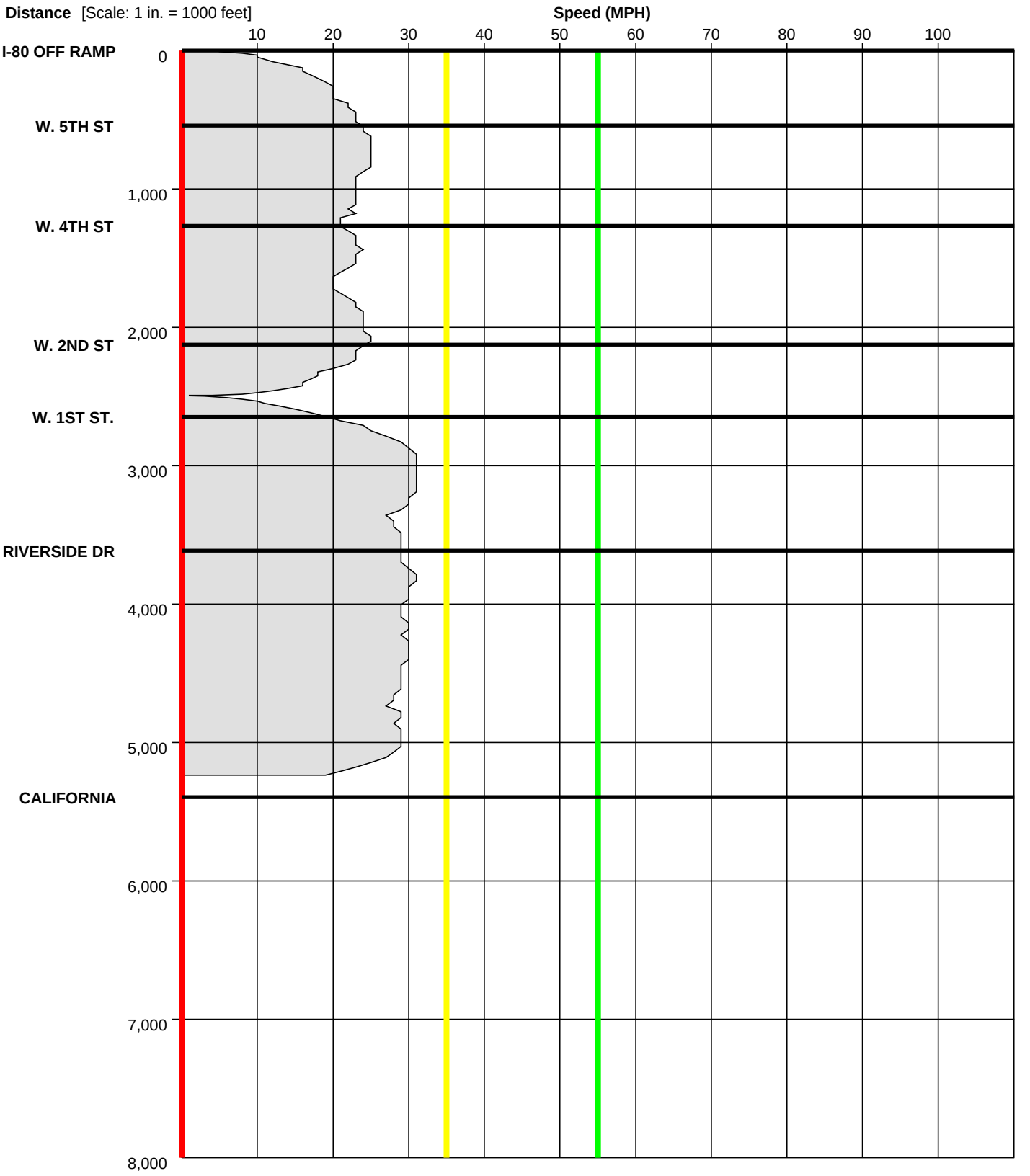
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 31**

Speed Profile

Run : RENO AM-SB-010T Start Time: 08:14 (This is a Before Run)



Pacific Traffic Data Services

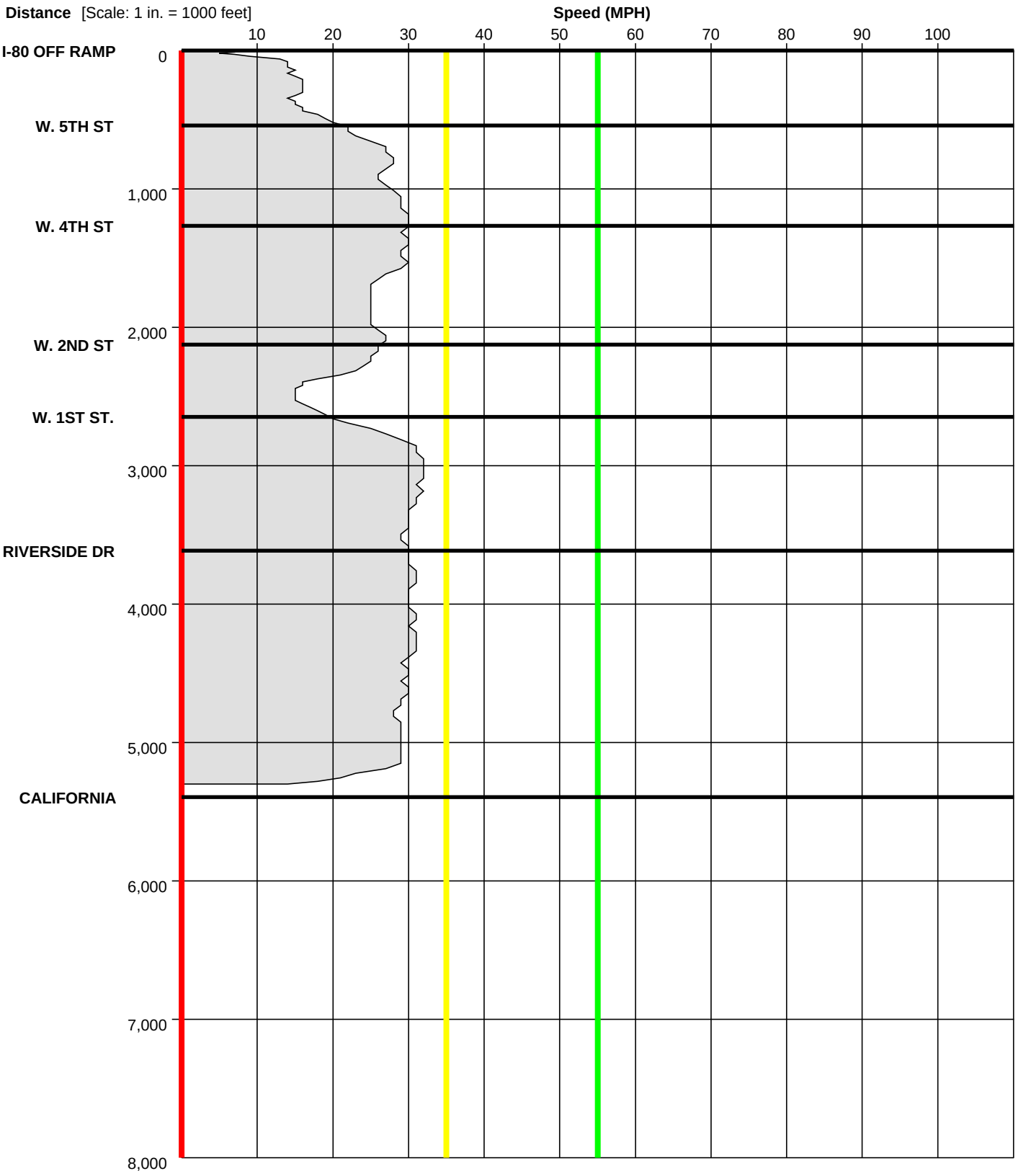
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 32**

Speed Profile

Run : RENO AM-SB-011T Start Time: 08:22 (This is a Before Run)



Pacific Traffic Data Services

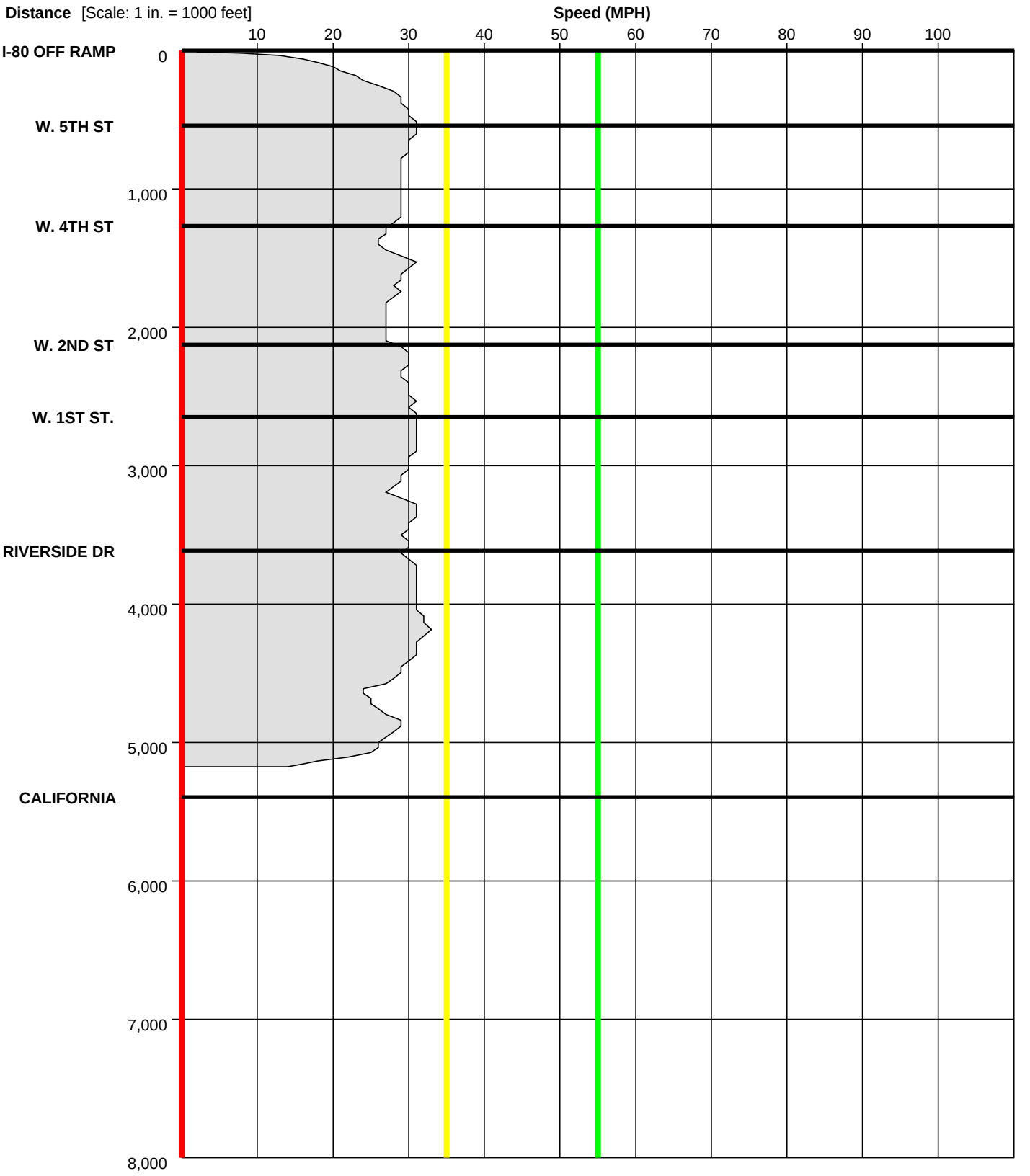
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 33**

Speed Profile

Run : RENO AM-SB-012T Start Time: 08:33 (This is a Before Run)



Pacific Traffic Data Services

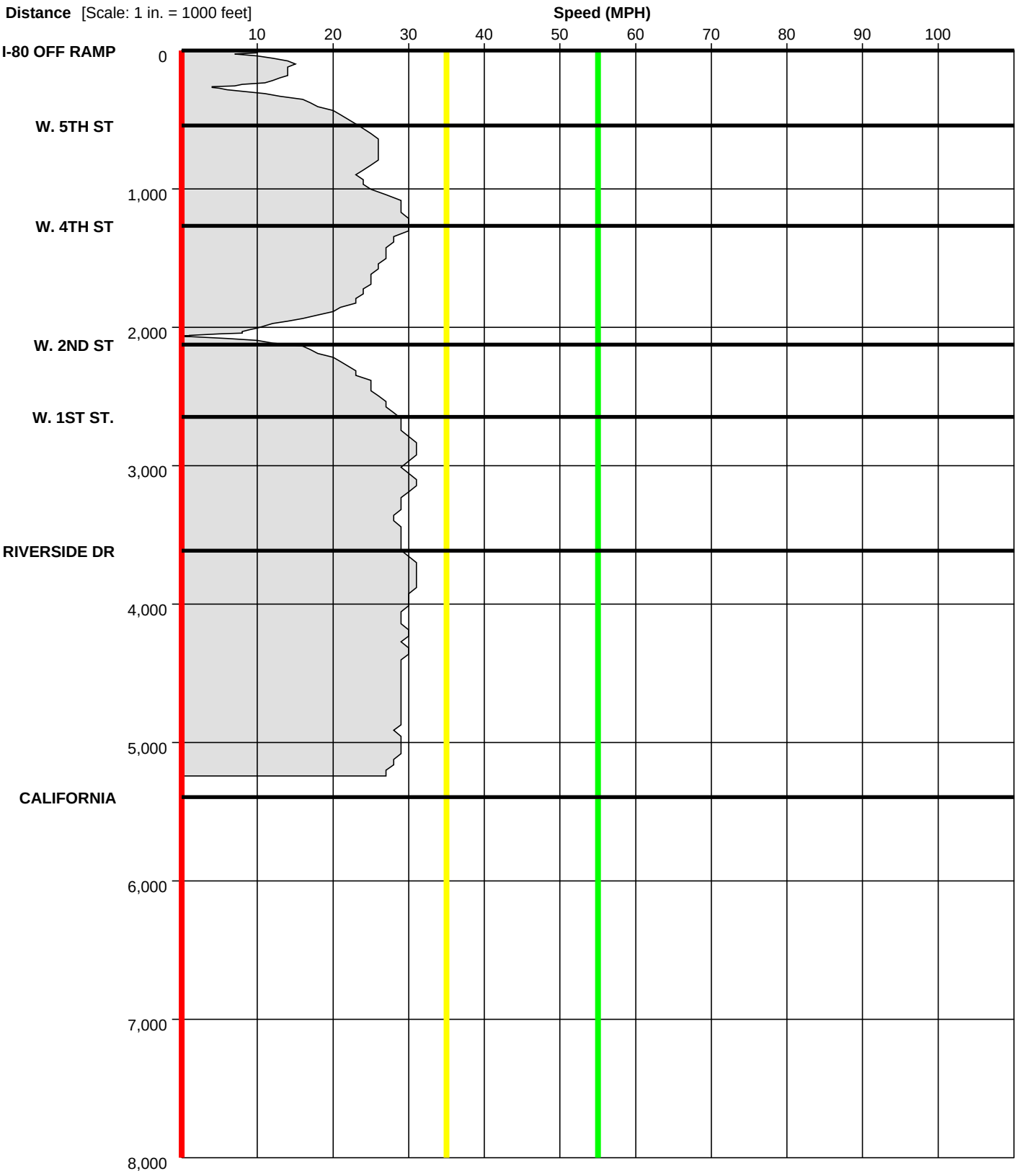
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 34**

Speed Profile

Run : RENO AM-SB-013T Start Time: 08:40 (This is a Before Run)



Pacific Traffic Data Services

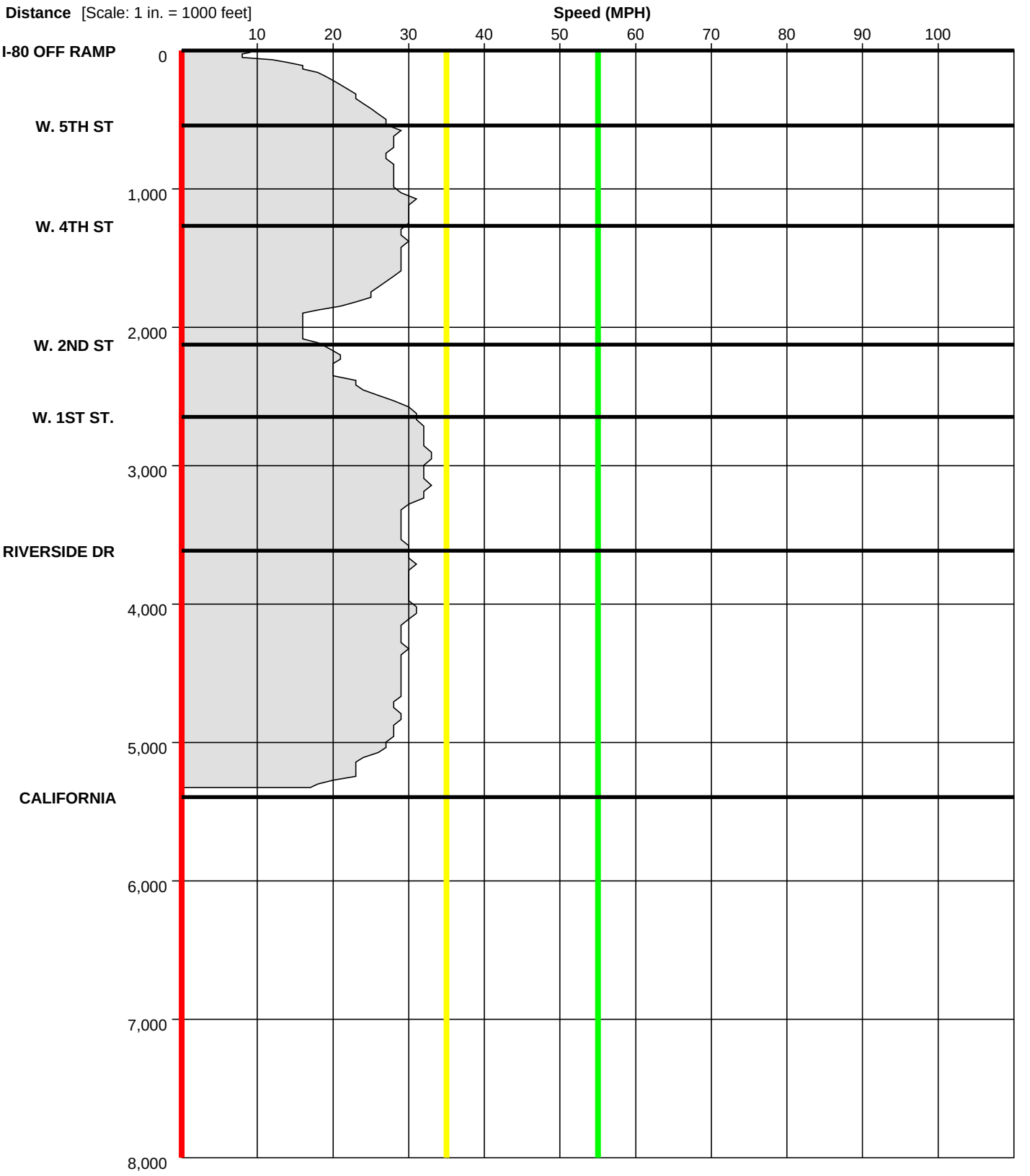
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 35**

Speed Profile

Run : RENO AM-SB-014T Start Time: 08:48 (This is a Before Run)



Pacific Traffic Data Services

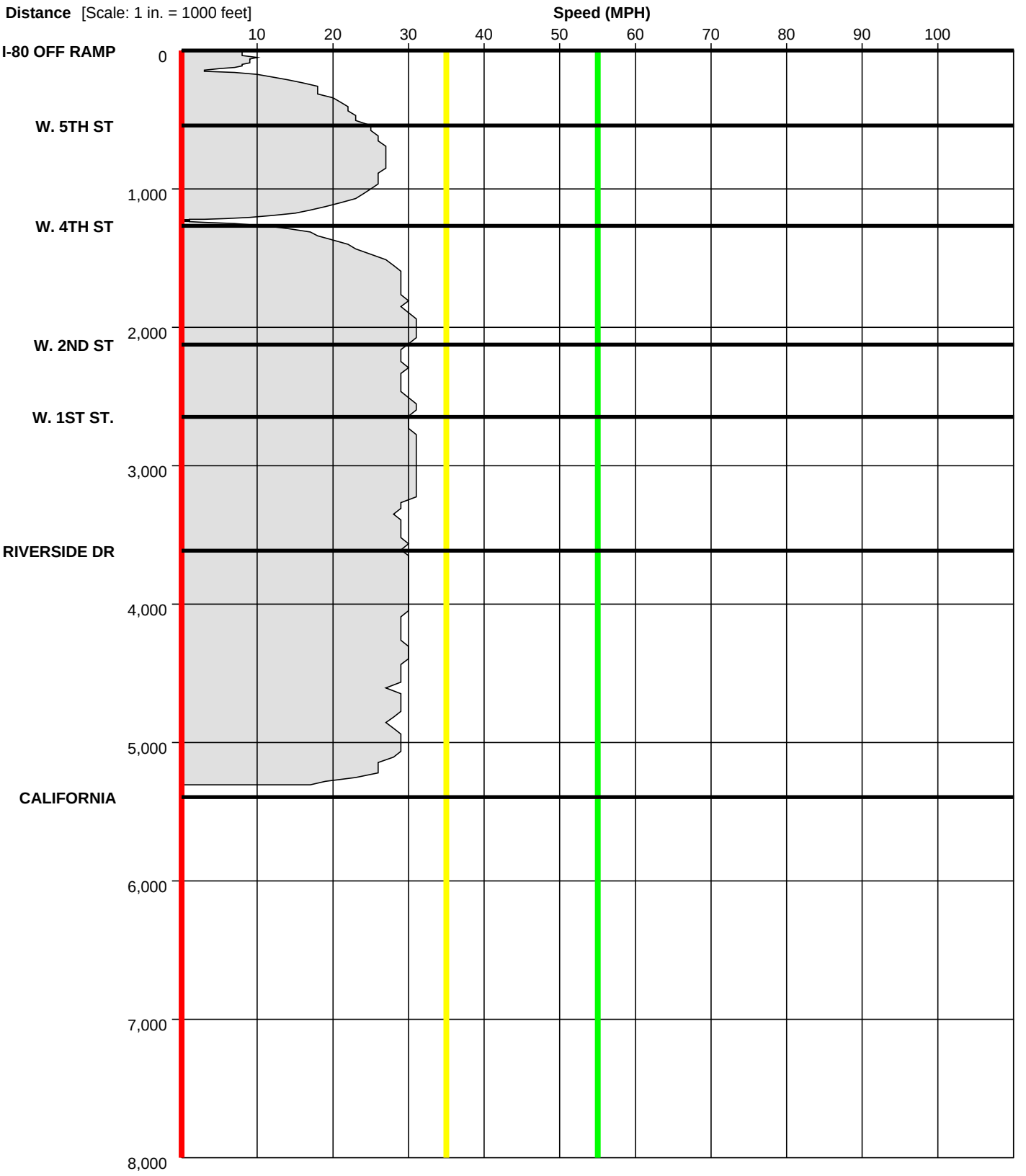
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 36**

Speed Profile

Run : RENO AM-SB-015T Start Time: 08:56 (This is a Before Run)



Pacific Traffic Data Services

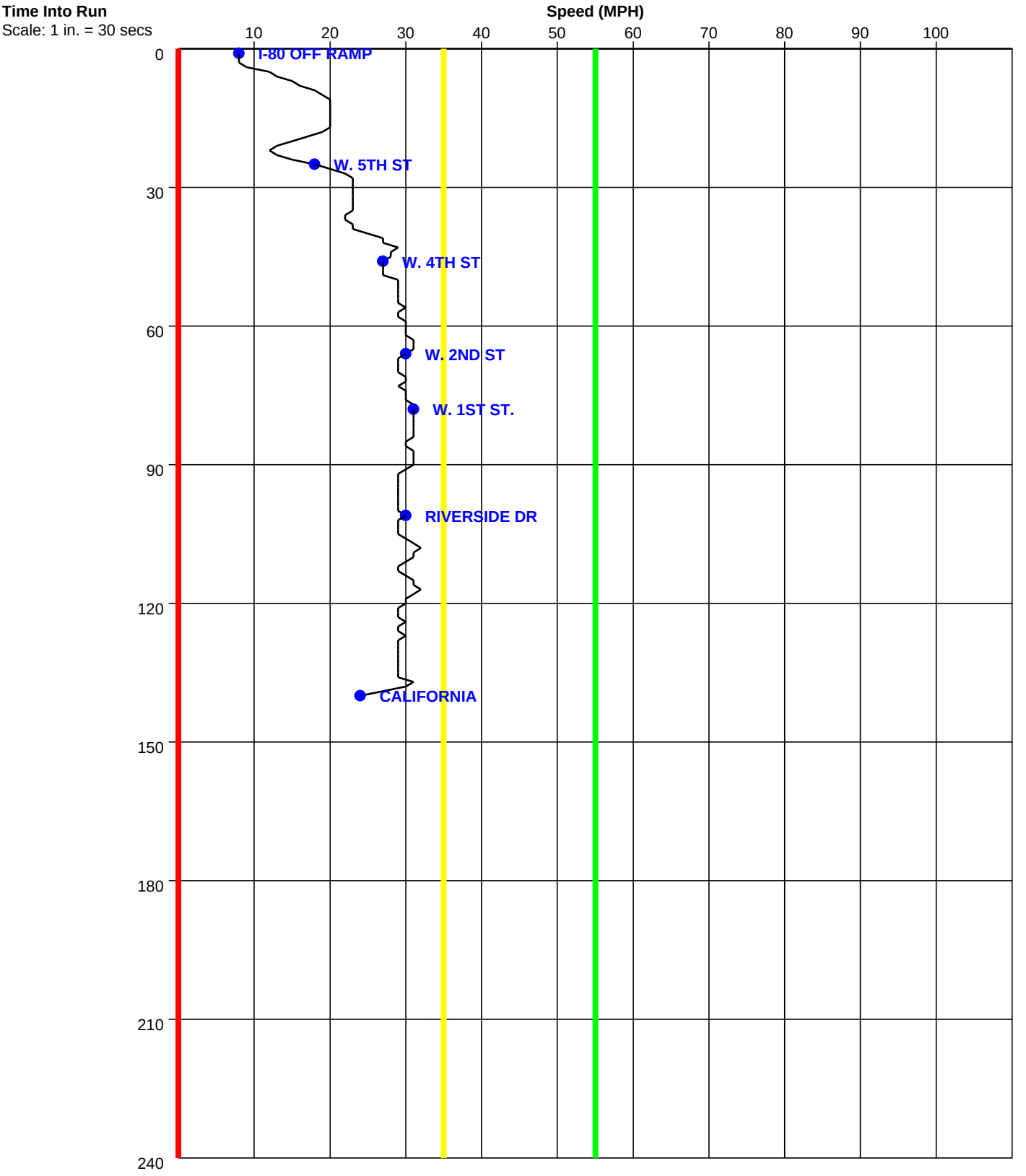
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 37**

Time-Based Speed Profile

Run : RENO AM-SB-001TN Start Time:06:57 (This is a Before Run)



Pacific Traffic Data Services

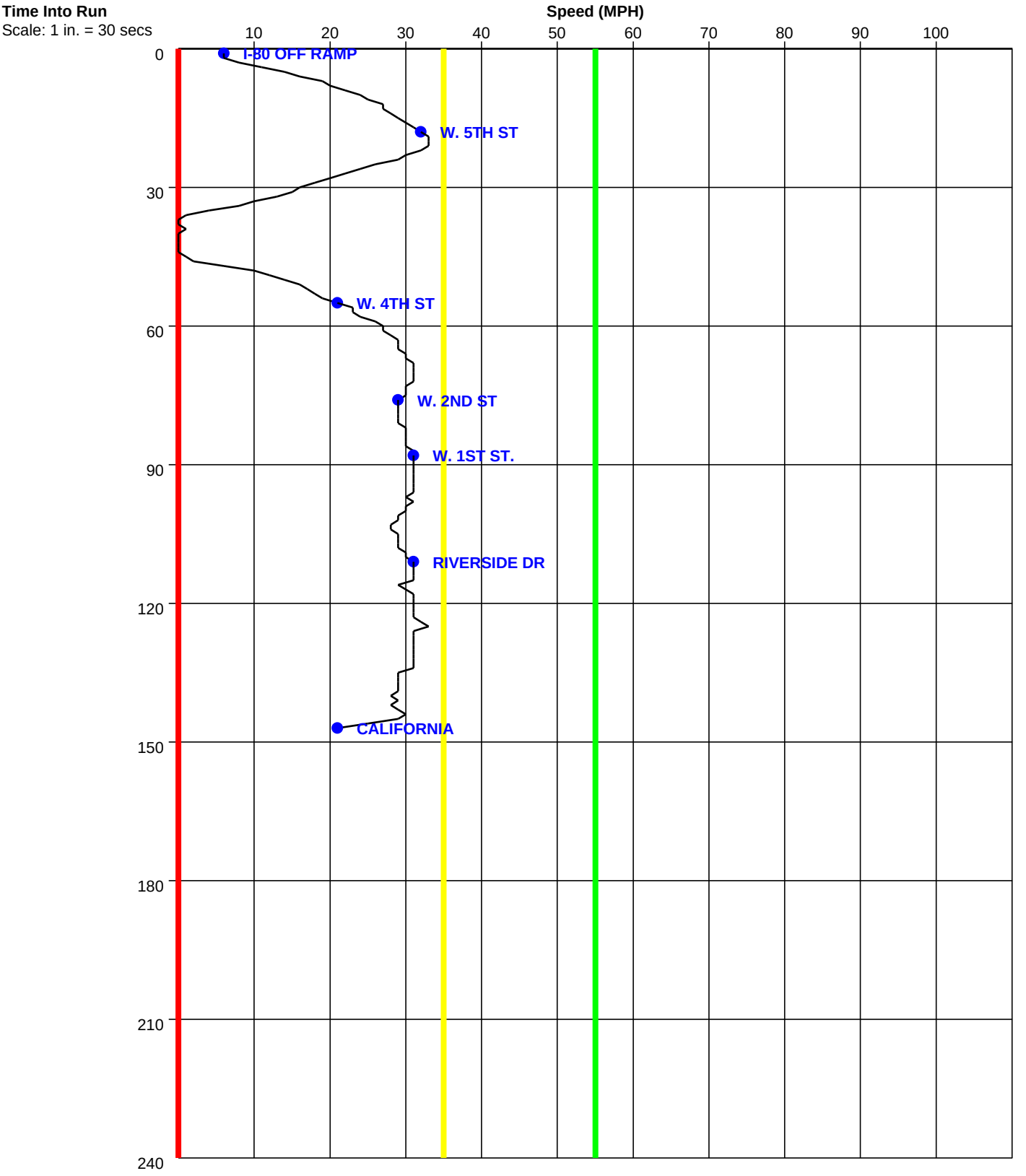
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 38**

Time-Based Speed Profile

Run : RENO AM-SB-002T Start Time:07:04 (This is a Before Run)



Pacific Traffic Data Services

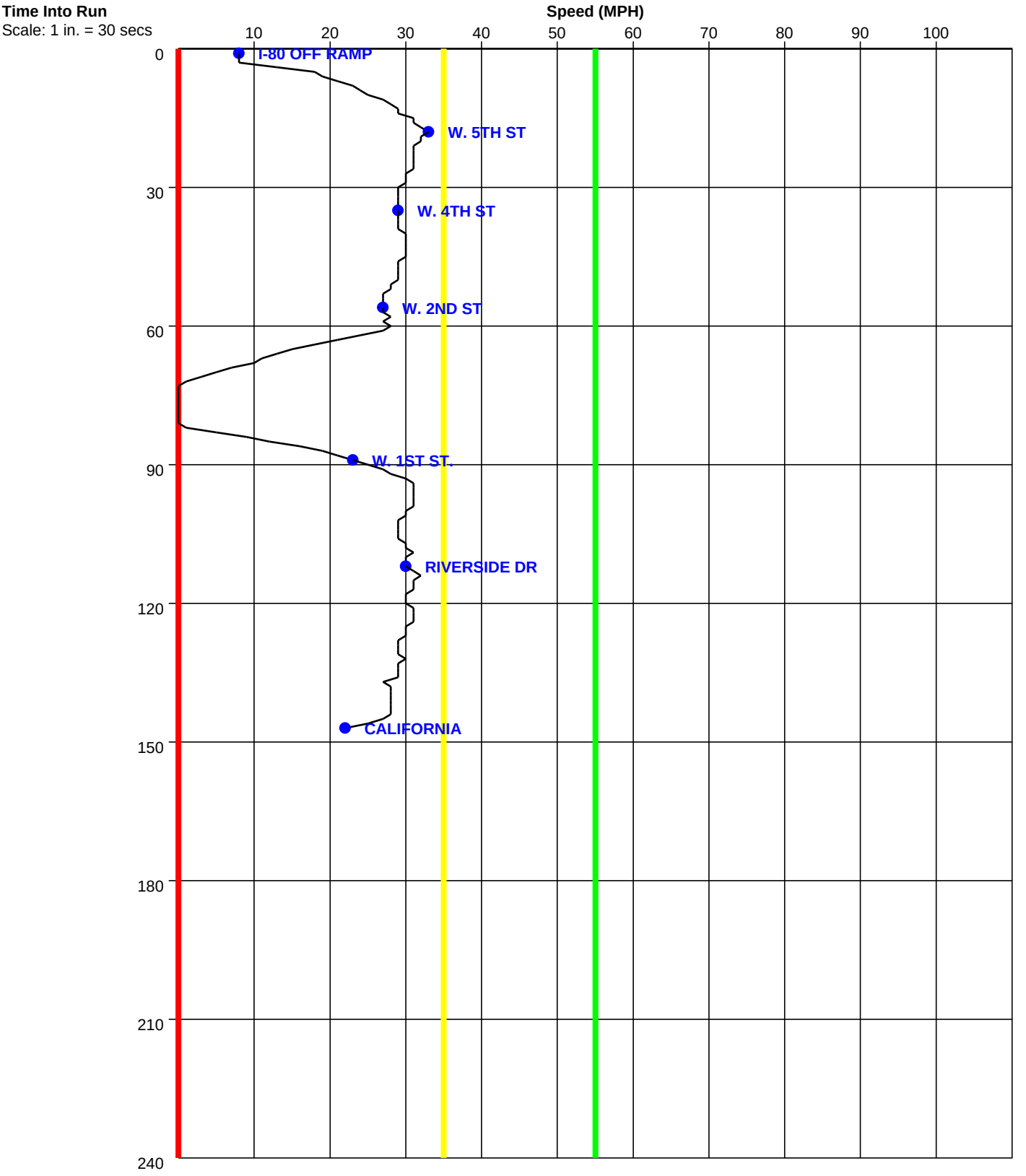
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 39**

Time-Based Speed Profile

Run : RENO AM-SB-003T Start Time:07:12 (This is a Before Run)



Pacific Traffic Data Services

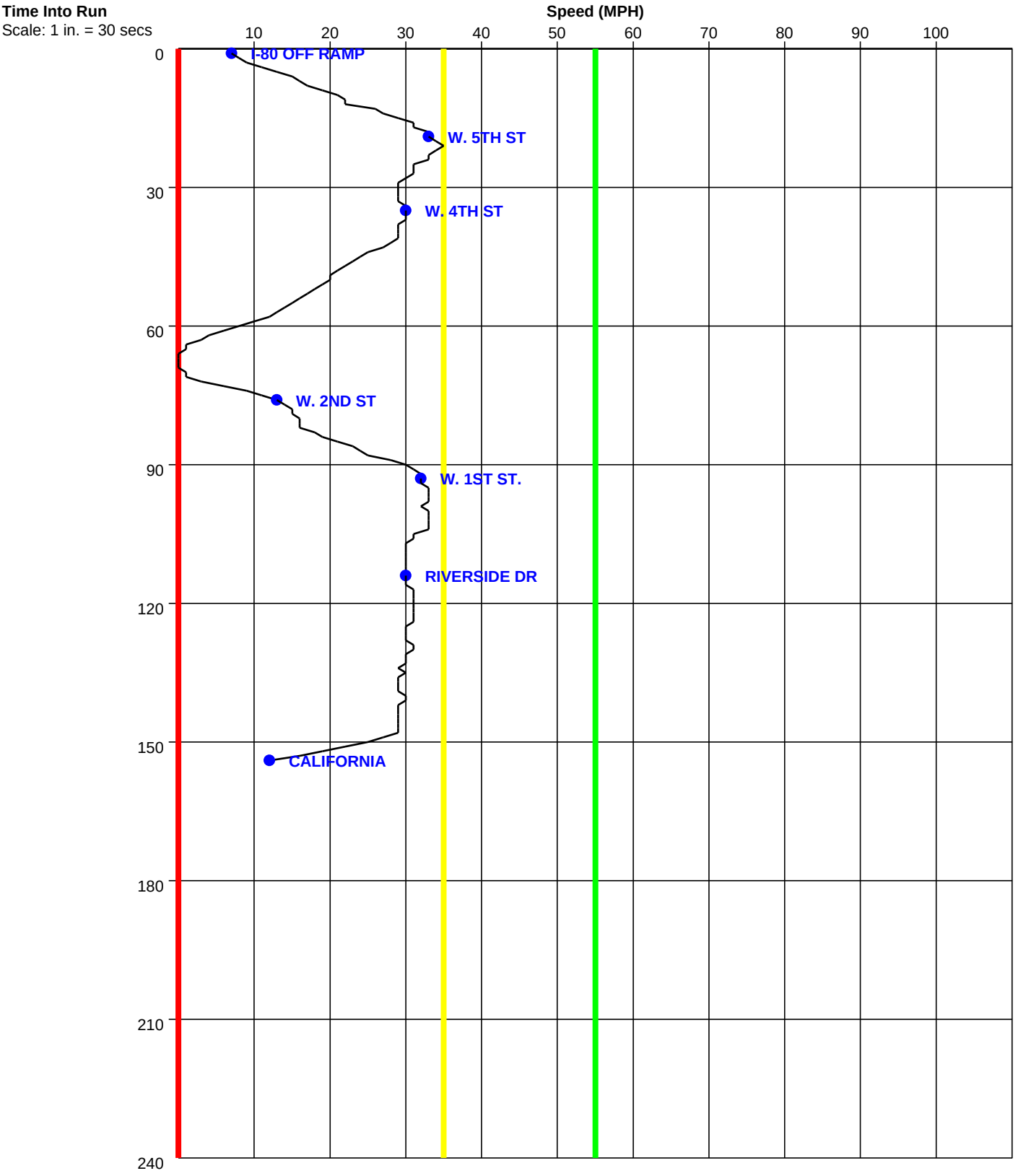
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 40**

Time-Based Speed Profile

Run : RENO AM-SB-004T Start Time:07:20 (This is a Before Run)



Pacific Traffic Data Services

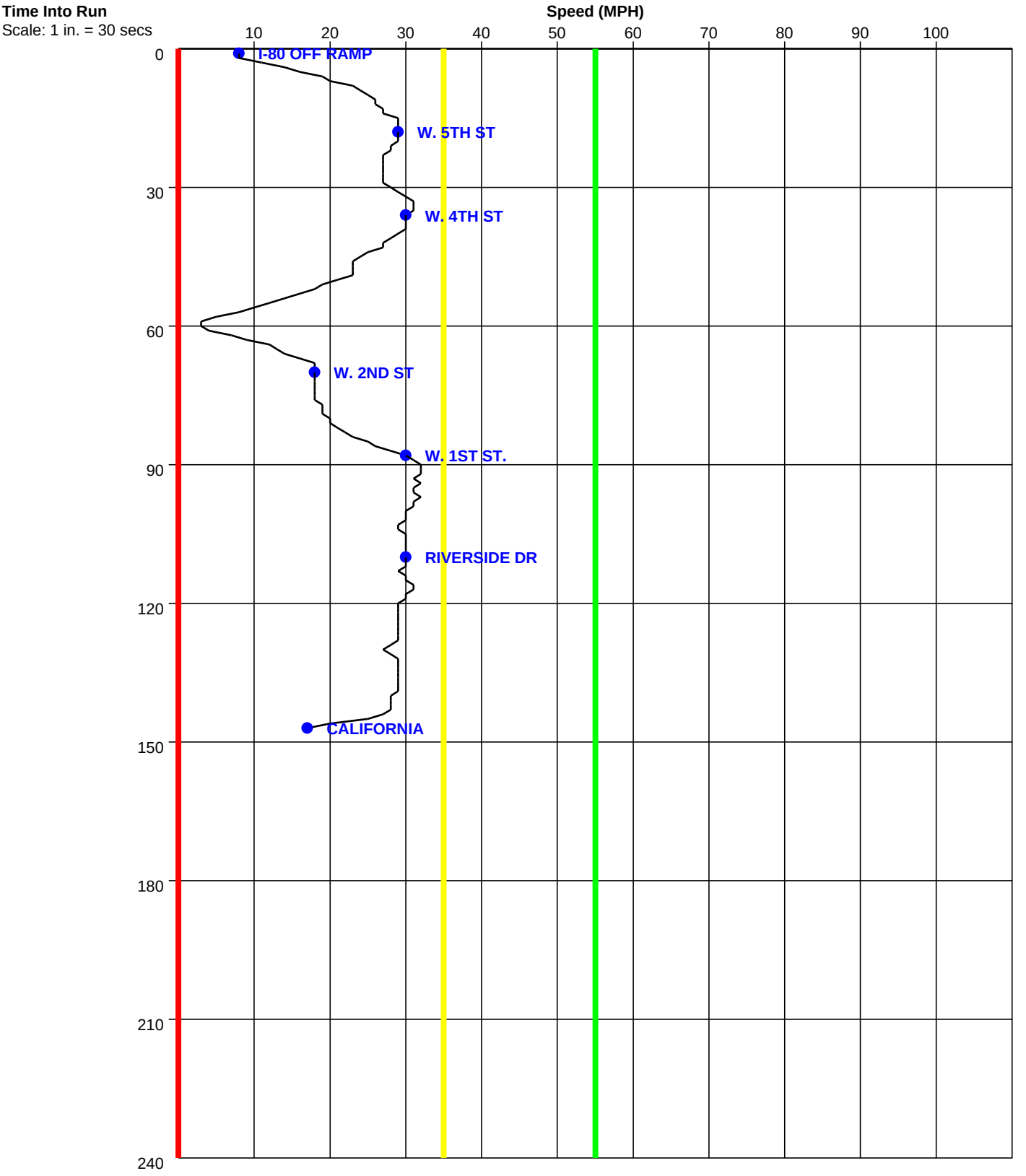
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 41**

Time-Based Speed Profile

Run : RENO AM-SB-005T Start Time:07:28 (This is a Before Run)



Pacific Traffic Data Services

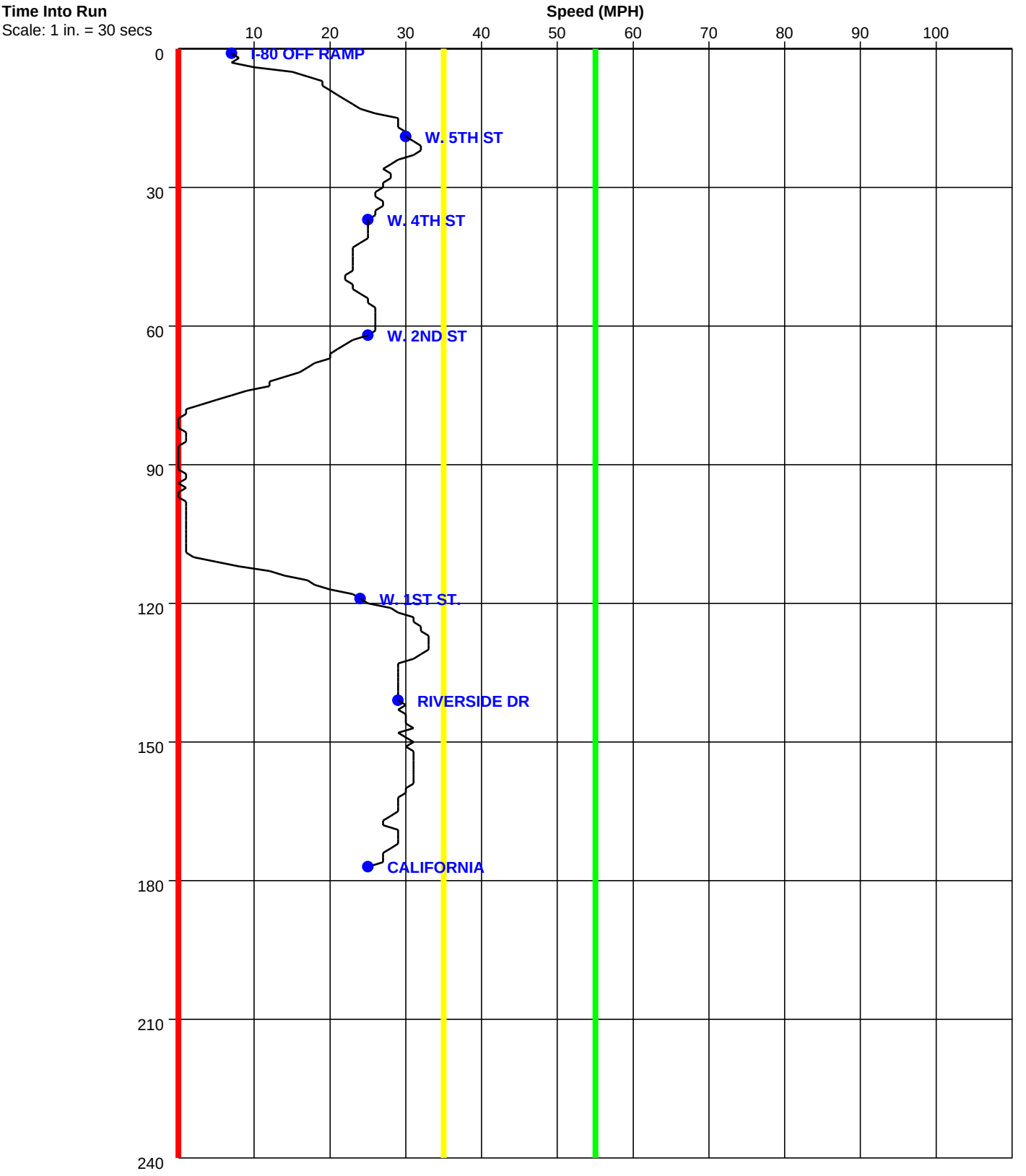
Reno Nv.

SB AM

Study Name : **RENO AM SB**
Study Date : **8/26/2013**
Page No. : **42**

Time-Based Speed Profile

Run : RENO AM-SB-006T Start Time:07:38 (This is a Before Run)



Pacific Traffic Data Services

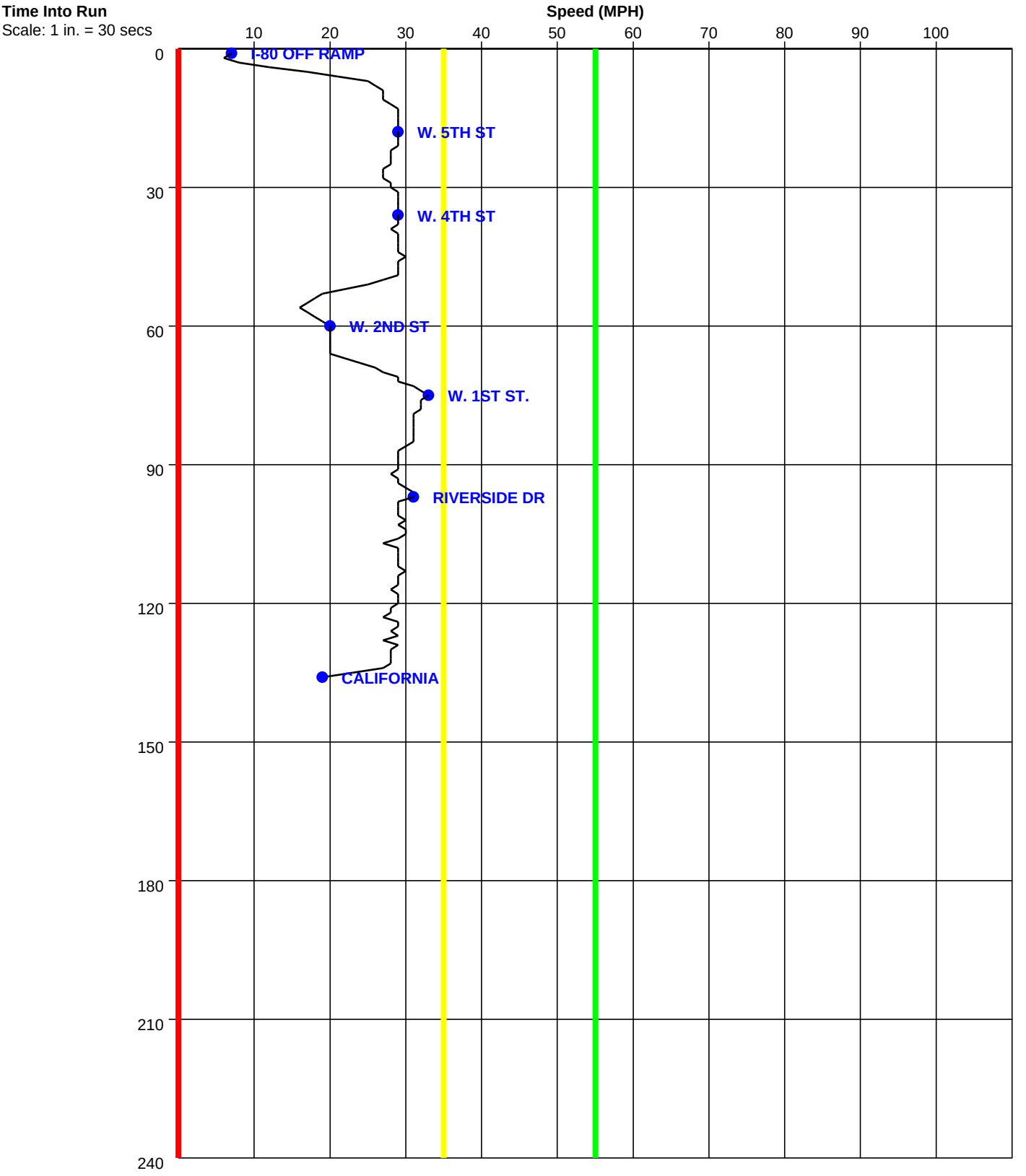
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 43**

Time-Based Speed Profile

Run : RENO AM-SB-007T Start Time:07:49 (This is a Before Run)



Pacific Traffic Data Services

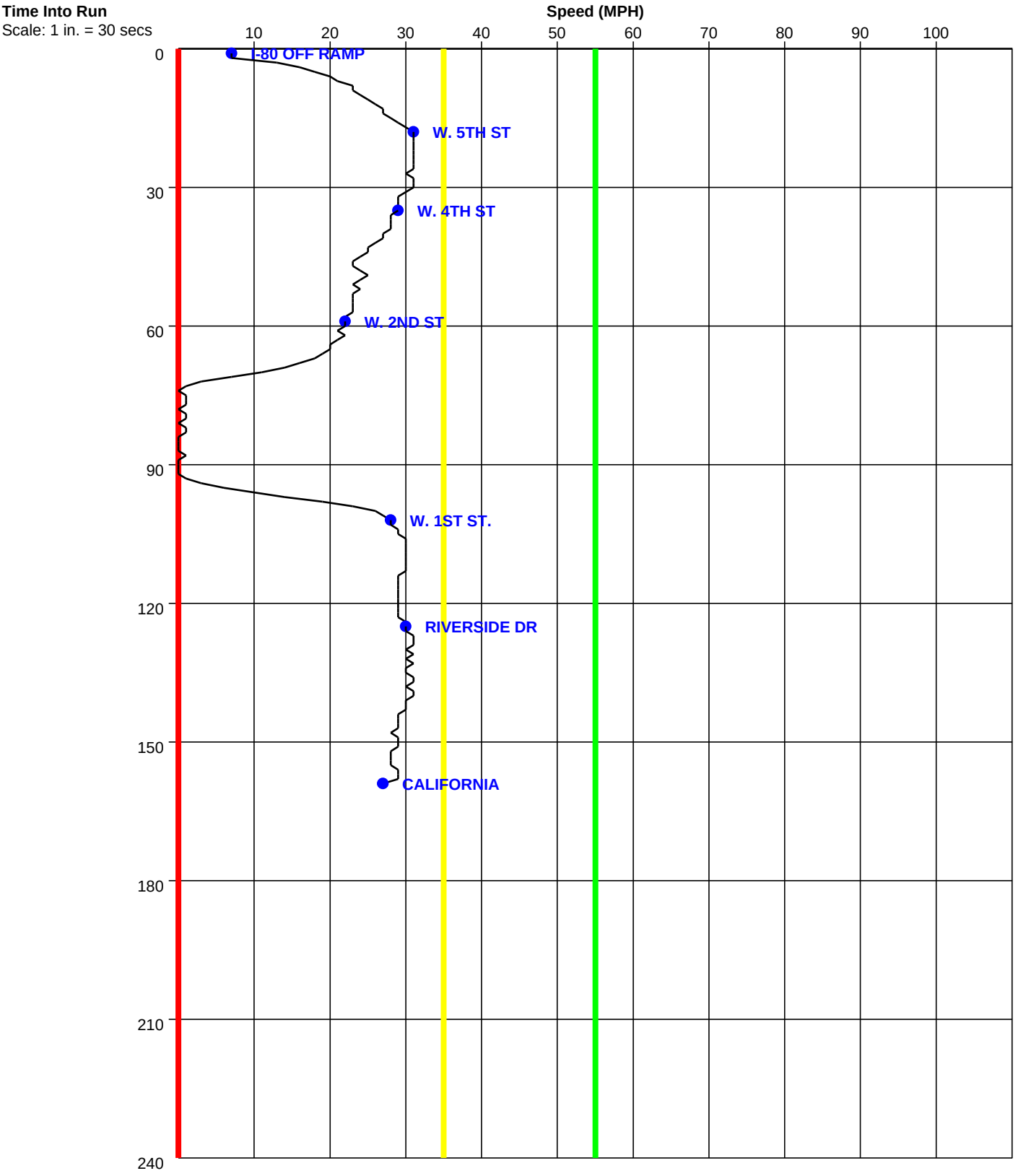
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 44**

Time-Based Speed Profile

Run : RENO AM-SB-008 Start Time:07:56 (This is a Before Run)



Pacific Traffic Data Services

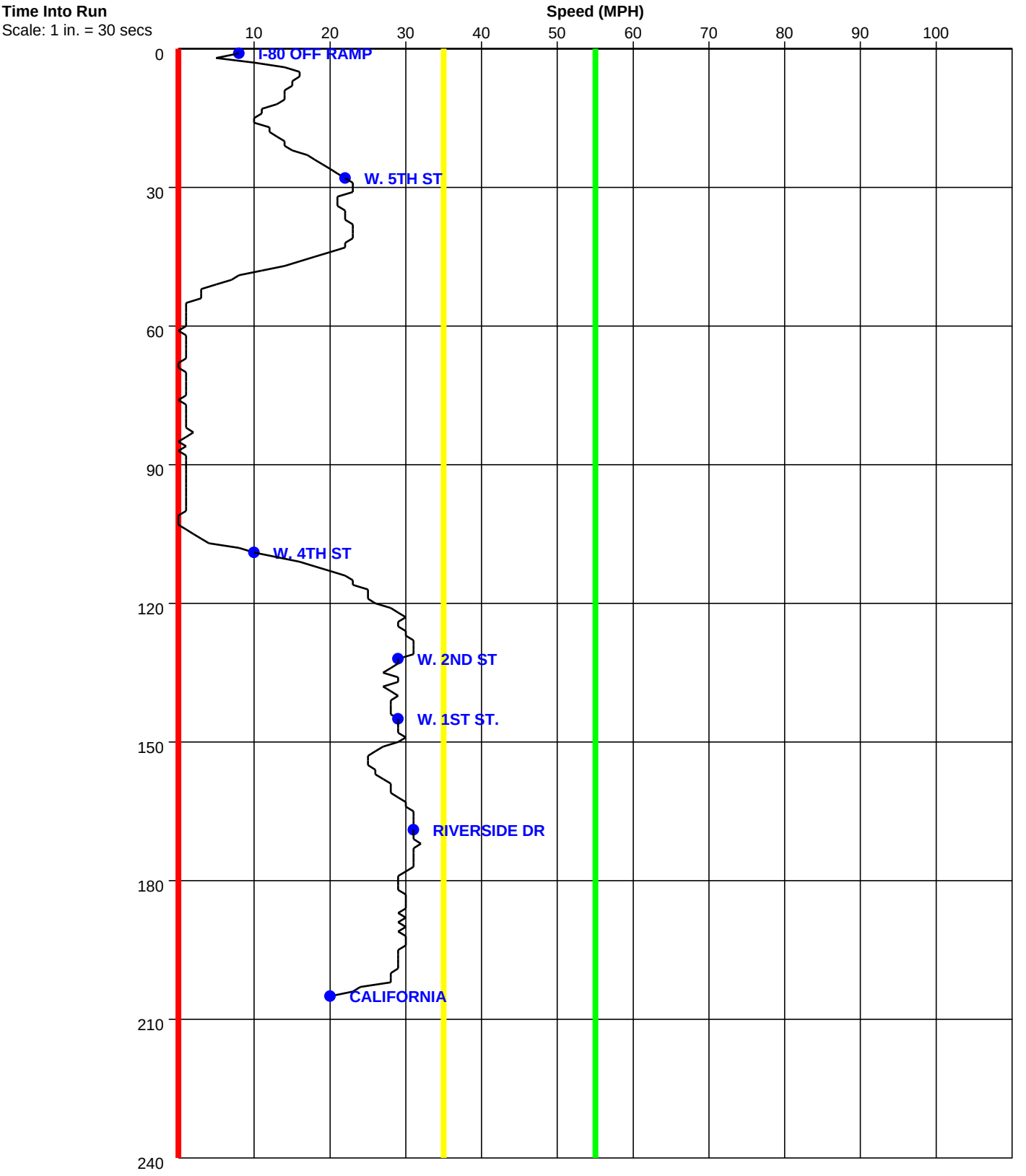
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 45**

Time-Based Speed Profile

Run : RENO AM-SB-009T Start Time:08:04 (This is a Before Run)



Pacific Traffic Data Services

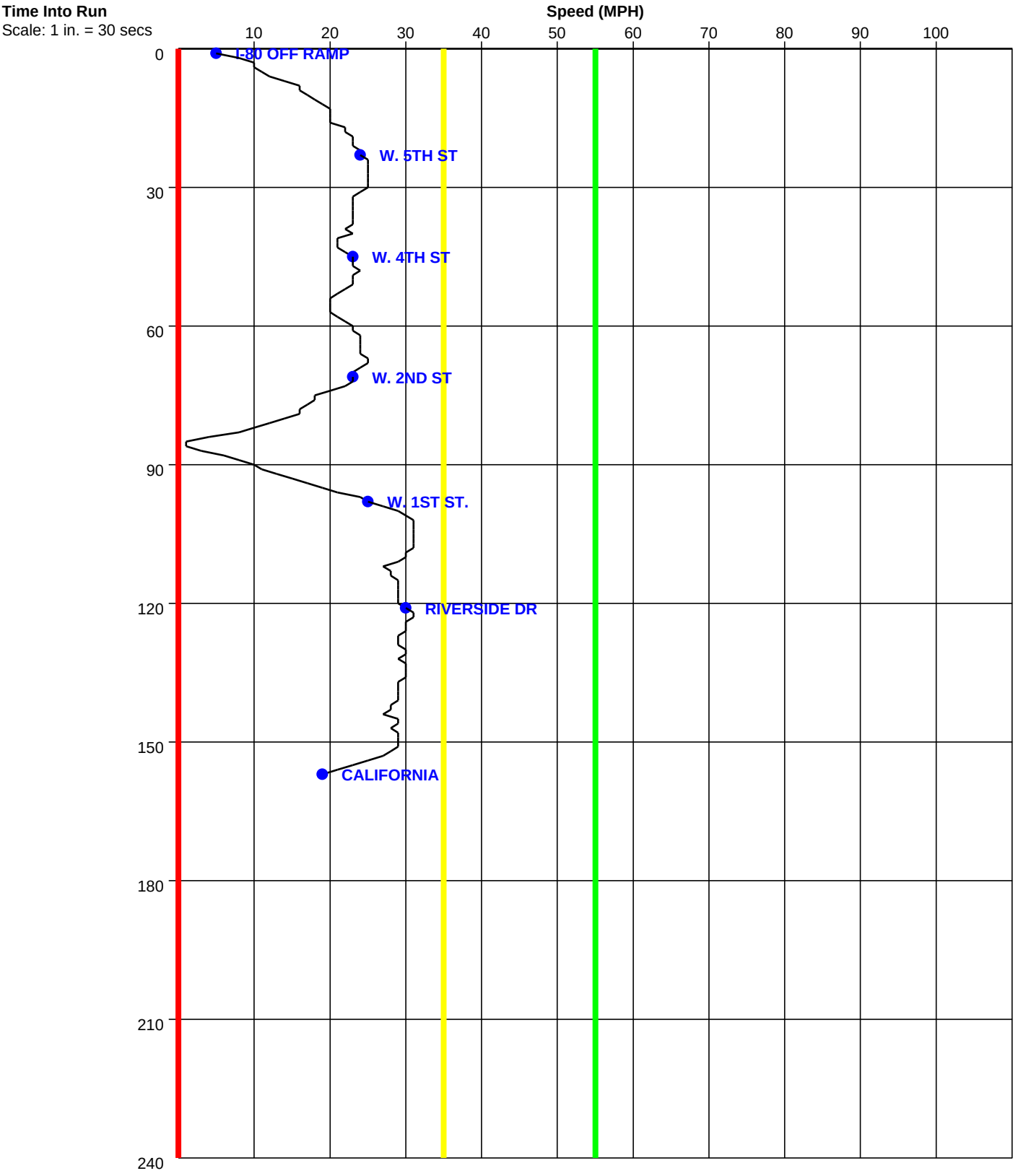
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 46**

Time-Based Speed Profile

Run : RENO AM-SB-010T Start Time:08:14 (This is a Before Run)



Pacific Traffic Data Services

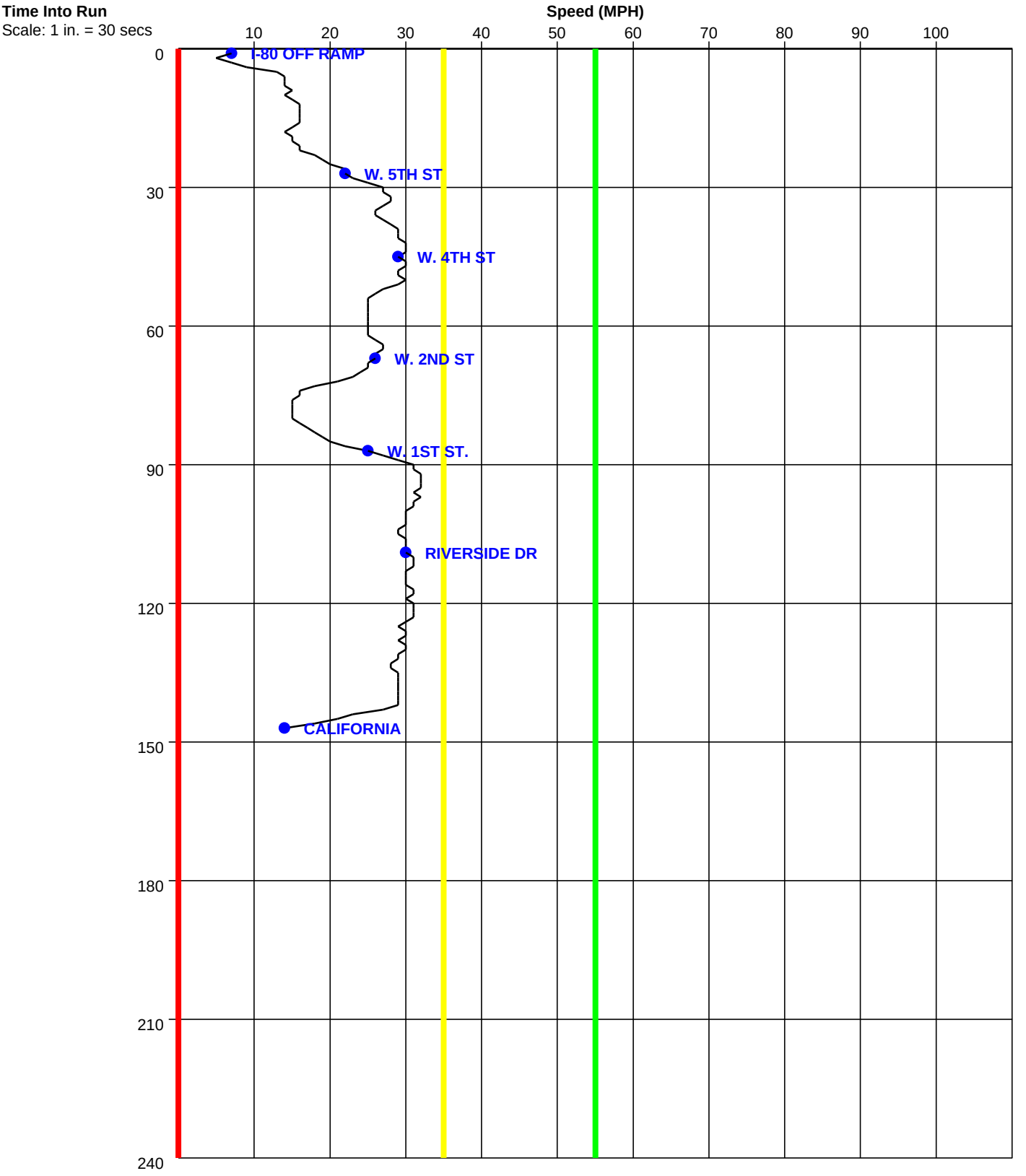
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 47**

Time-Based Speed Profile

Run : RENO AM-SB-011T Start Time:08:22 (This is a Before Run)



Pacific Traffic Data Services

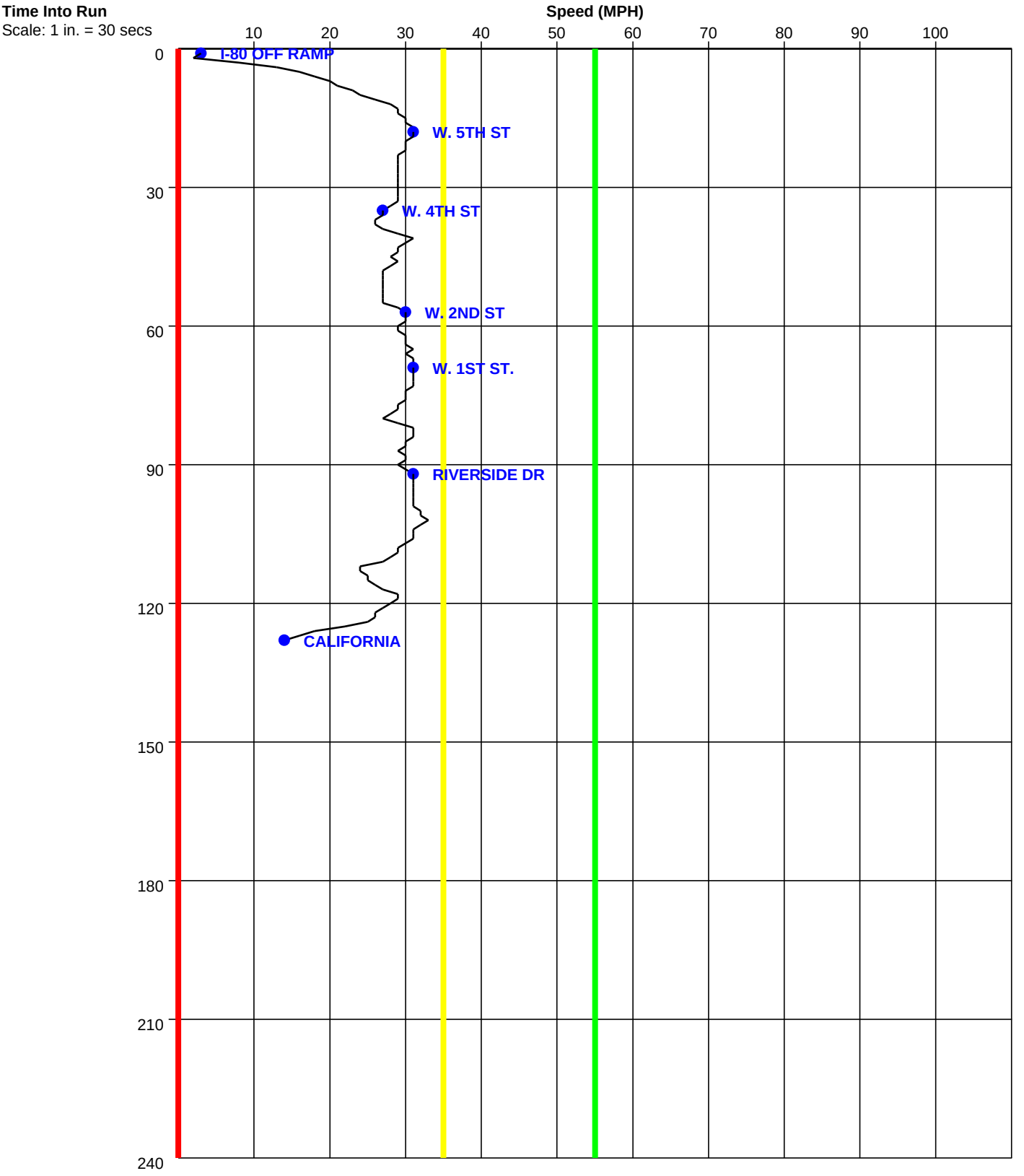
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 48**

Time-Based Speed Profile

Run : RENO AM-SB-012T Start Time:08:33 (This is a Before Run)



Pacific Traffic Data Services

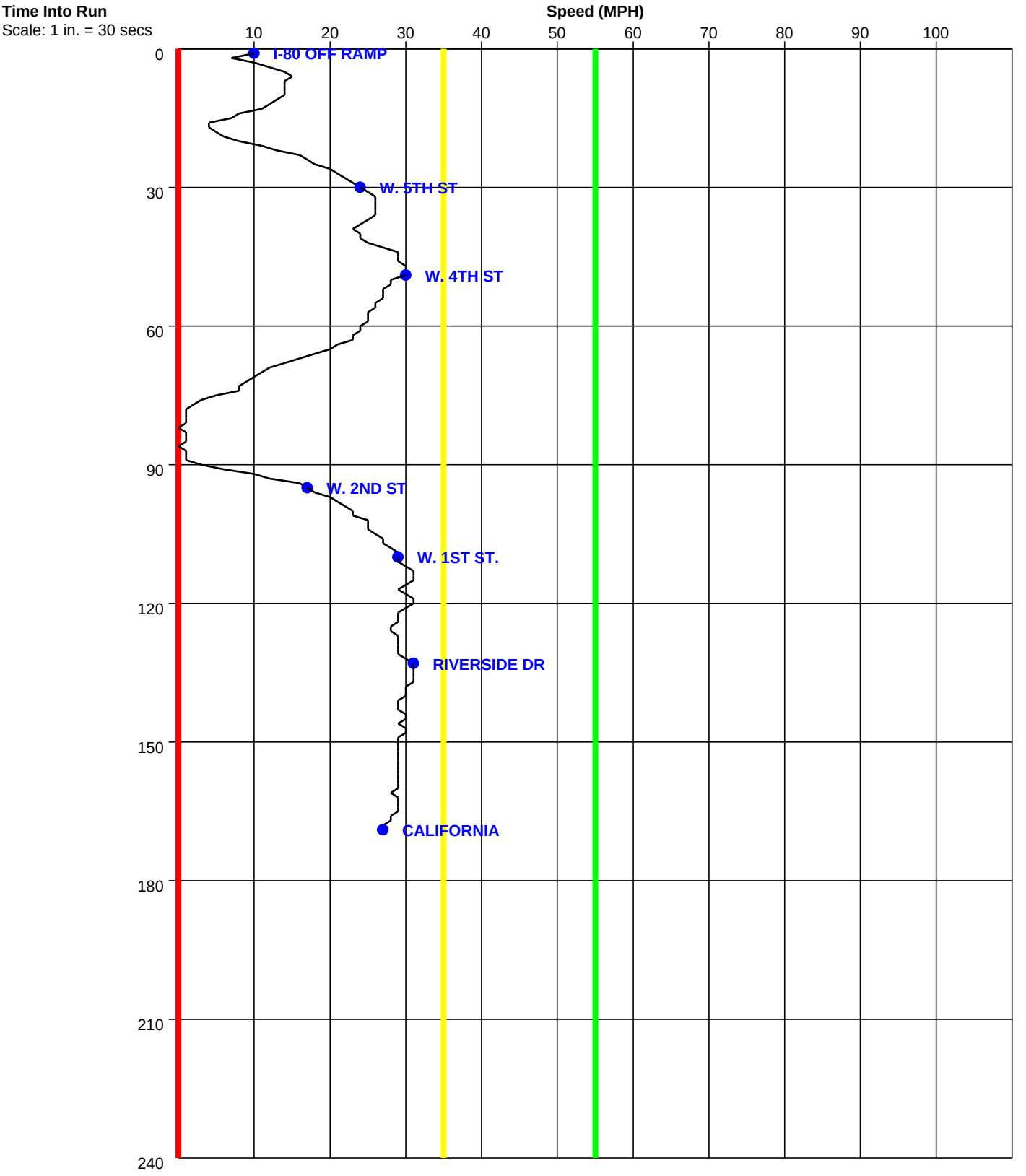
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 49**

Time-Based Speed Profile

Run : RENO AM-SB-013T Start Time:08:40 (This is a Before Run)



Pacific Traffic Data Services

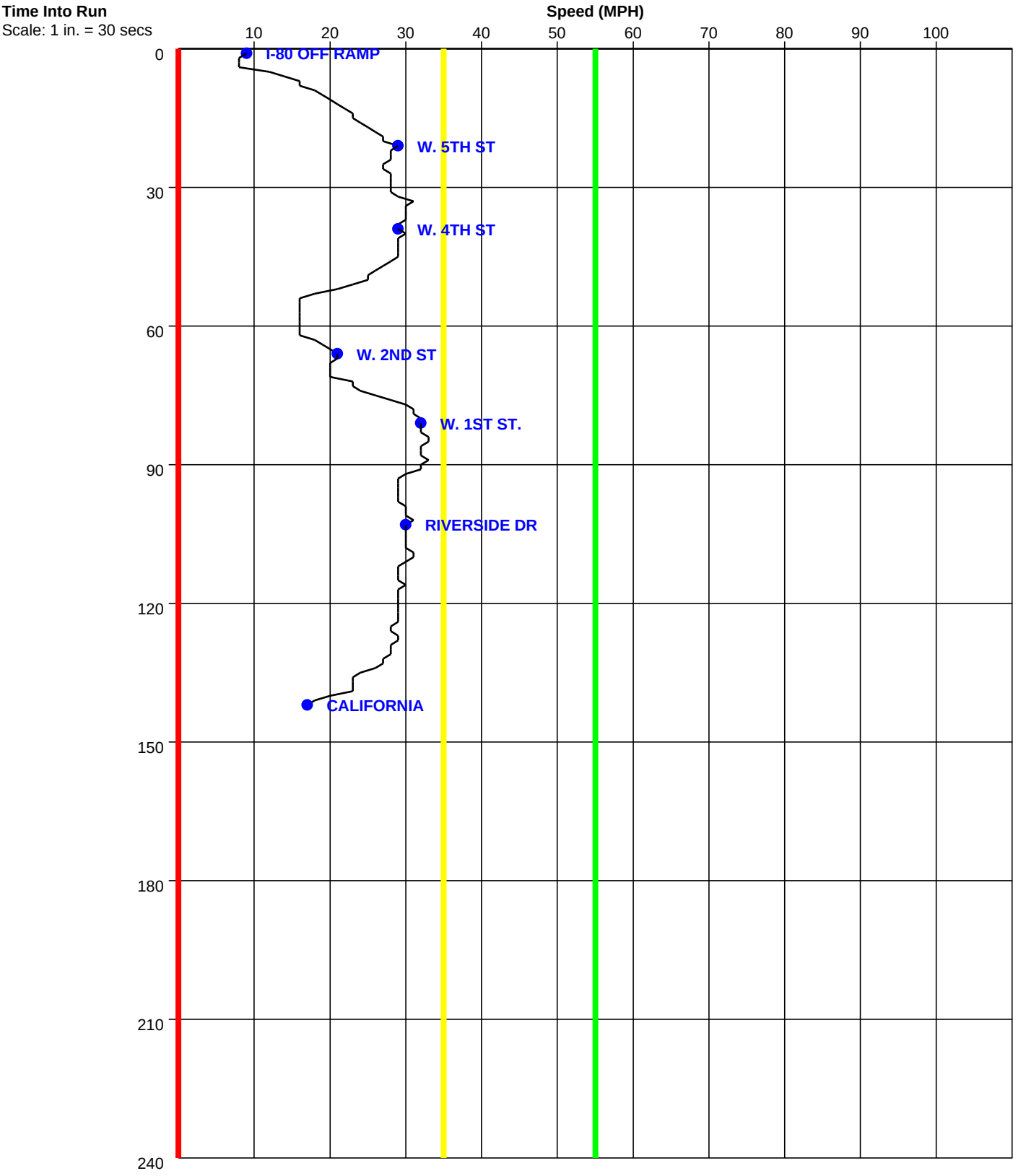
Reno Nv.

SB AM

Study Name **: RENO AM SB**
Study Date **: 8/26/2013**
Page No. **: 50**

Time-Based Speed Profile

Run : RENO AM-SB-014T Start Time:08:48 (This is a Before Run)



Pacific Traffic Data Services

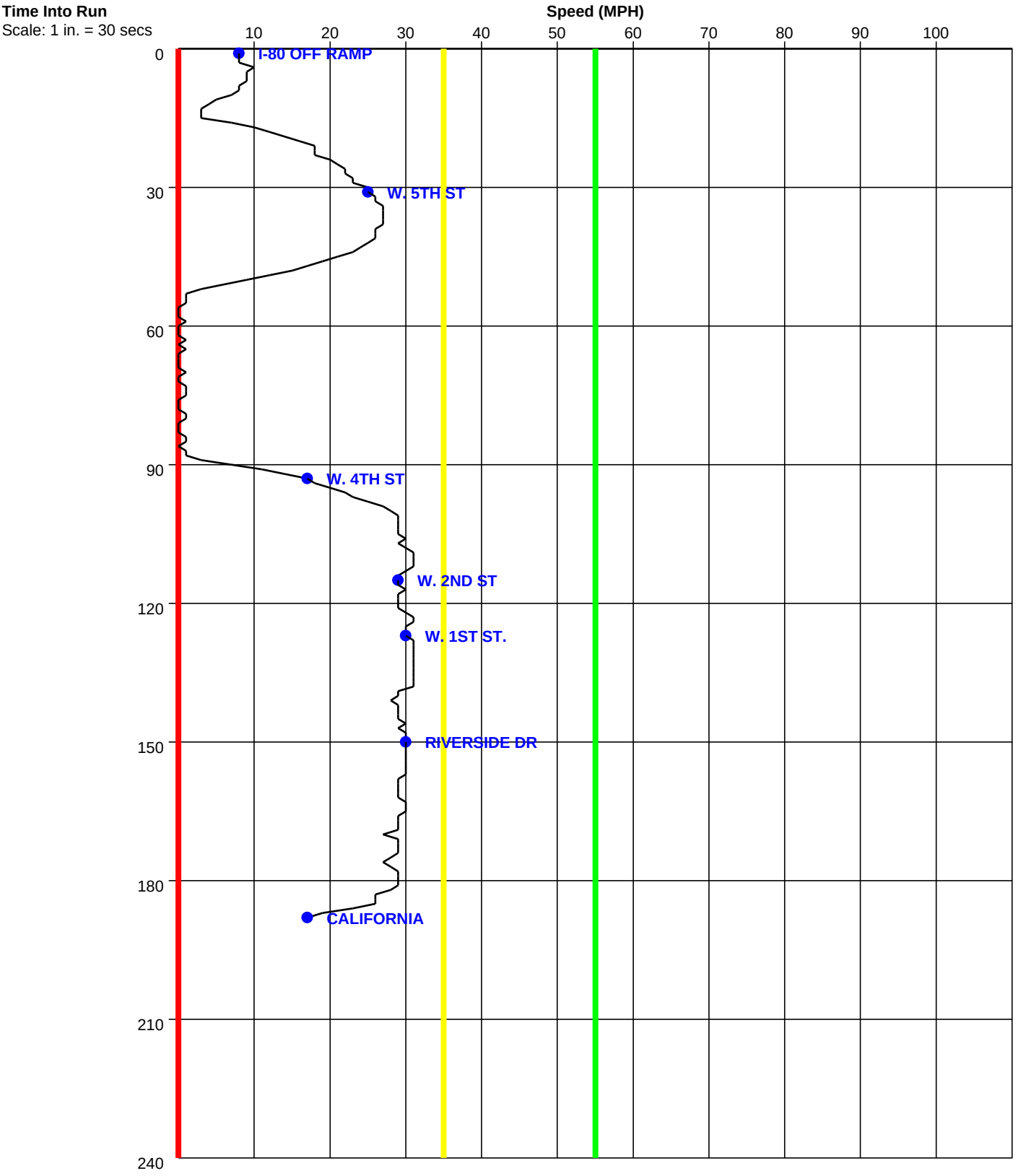
Reno Nv.

SB AM

Study Name : **RENO AM SB**
Study Date : **8/26/2013**
Page No. : **51**

Time-Based Speed Profile

Run : RENO AM-SB-015T Start Time:08:56 (This is a Before Run)



Pacific Traffic Data Services

Reno Nv.

THU NB PM

PC-Travel Reports for study: THU PM NB

Pacific Traffic
Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Study Summary

Runs Used in This Study

Run Title	Start Date	Start Time	Length	Before/ After	Run Type
RENO thurs PM-NB-002TN	08/22/13	16:17	5266	Before	Primary
RENO thurs PM-NB-003T	08/22/13	16:27	5227	Before	Secondary
RENO thurs PM-NB-004T	08/22/13	16:35	5227	Before	Secondary
RENO thurs PM-NB-005T	08/22/13	16:46	5293	Before	Secondary
RENO thurs PM-NB-006T	08/22/13	16:55	5287	Before	Secondary
RENO thurs PM-NB-007T	08/22/13	17:05	5237	Before	Secondary
RENO thurs PM-NB-008T	08/22/13	17:14	5162	Before	Secondary
RENO thurs PM-NB-009T	08/22/13	17:23	5247	Before	Secondary
RENO thurs PM-NB-010T	08/22/13	17:32	5168	Before	Secondary
RENO thurs PM-NB-011T	08/22/13	17:40	5247	Before	Secondary
RENO thurs PM-NB-012T	08/22/13	17:49	5173	Before	Secondary

Node Info

#	Len	Name
1	0	CALIFORNIA
2	1594	RIVERSIDE DR.
3	1019	W.1ST ST
4	533	W. 2ND ST
5	870	W. 4TH ST
6	739	W. 5TH ST
7	609	I-80 RAMPS

Length of Study Route = 5,364 feet

Notes:

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Overall Output Statistics

Node #	Length	Node	Travel Time	# of Stops	Avg Speed	Total Delay	Time <= 0 MPH	Time <= 35 MPH	Time <= 55 MPH
1	0	CALIFORNIA							
2	1594	RIVERSIDE DR.	41.4	0.1	26.3	4.7	0.0	41.3	41.4
3	1019	W.1ST ST	24.2	0.1	28.7	1.5	0.1	24.2	24.2
4	533	W. 2ND ST	27.7	0.4	13.1	15.5	3.2	27.7	27.7
5	870	W. 4TH ST	45.1	0.8	13.2	25.0	3.1	45.1	45.1
6	739	W. 5TH ST	30.9	0.3	16.3	13.5	4.3	30.9	30.9
7	609	I-80 RAMPS	16.2	0.1	25.7	4.8	0.5	15.2	15.2
Total	**5,364**		**185.5**	**1.7**	**19.7**	**65.0**	**11.1**	**184.4**	**184.5**

Stats based on 11 BEFORE runs.
Stops based on a Stop Speed of 5 MPH.
Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 4**

Fuel Consumption & Emissions

Node #	Length	Node Name	Fuel (gal)	HC (grams)	CO (grams)	NOx (grams)
1	0	CALIFORNIA				
2	1594	RIVERSIDE DR.	0.0171	1.8281	15.6054	1.2564
3	1019	W.1ST ST	0.0083	0.6995	7.2753	0.3137
4	533	W. 2ND ST	0.0074	0.7373	5.3919	0.3404
5	870	W. 4TH ST	0.0124	1.2722	9.9177	0.6188
6	739	W. 5TH ST	0.0097	1.0484	7.7140	0.6292
7	609	I-80 RAMPS	0.0043	0.3774	3.1428	0.1514
Total	**5,364**		**0.0591**	**5.9628**	**49.0472**	**3.3100**

Stats based on 11 BEFORE runs.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 5**

Detailed Statistics By Run

Travel Time (sec) by Section

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
			RENO thurs PM-NB-002TN	RENO thurs PM-NB-003T	RENO thurs PM-NB-004T	RENO thurs PM-NB-005T	RENO thurs PM-NB-006T	RENO thurs PM-NB-007T	RENO thurs PM-NB-008T	RENO thurs PM-NB-0
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	40	42	42	41	40	41	43	40
3	1019	W.1ST ST	22	22	25	22	23	33	23	28
4	533	W. 2ND ST	21	48	61	13	16	19	12	40
5	870	W. 4TH ST	62	50	23	72	27	25	44	61
6	739	W. 5TH ST	22	22	54	21	66	17	33	29
7	609	I-80 RAMPS	16	13	16	17	14	15	13	16
Totals	**5364**		**183**	**197**	**221**	**186**	**186**	**150**	**168**	**214**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 6**

Detailed Statistics By Run

Travel Time (sec) by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11
			RENO thurs PM-NB-010T	RENO thurs PM-NB-011T	RENO thurs PM-NB-012T
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	40	43	43
3	1019	W.1ST ST	24	22	22
4	533	W. 2ND ST	13	18	44
5	870	W. 4TH ST	33	38	61
6	739	W. 5TH ST	20	36	20
7	609	I-80 RAMPS	12	35	11
Totals	**5364**		**142**	**192**	**201**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Detailed Statistics By Run

Number of Stops by Section

RENO thurs PM-NB-002TN
RENO thurs PM-NB-003T
RENO thurs PM-NB-004T
RENO thurs PM-NB-005T
RENO thurs PM-NB-006T
RENO thurs PM-NB-007T
RENO thurs PM-NB-008T
RENO thurs PM-NB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	0	0	0	0	0	0	0	0
3	1019	W.1ST ST	0	0	0	0	0	1	0	0
4	533	W. 2ND ST	0	1	1	0	0	0	0	1
5	870	W. 4TH ST	1	1	0	1	1	0	1	1
6	739	W. 5TH ST	0	0	1	0	0	0	1	0
7	609	I-80 RAMPS	0	0	0	0	0	0	0	0
Totals	**5364**		**1**	**2**	**2**	**1**	**1**	**1**	**2**	**2**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Detailed Statistics By Run

Number of Stops by Section

Node #	Length	Node Name	Run #9 RENO thurs PM-NB-010T	Run #10 RENO thurs PM-NB-011T	Run #11 RENO thurs PM-NB-012T
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	0	1	0
3	1019	W.1ST ST	0	0	0
4	533	W. 2ND ST	0	0	1
5	870	W. 4TH ST	1	1	1
6	739	W. 5TH ST	0	1	0
7	609	I-80 RAMPS	0	1	0
Totals	**5364**		**1**	**4**	**2**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 9**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO thurs PM-NB-002TN
RENO thurs PM-NB-003T
RENO thurs PM-NB-004T
RENO thurs PM-NB-005T
RENO thurs PM-NB-006T
RENO thurs PM-NB-007T
RENO thurs PM-NB-008T
RENO thurs PM-NB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	27.5	26.3	26.2	27.0	27.2	26.9	25.4	27.2
3	1019	W.1ST ST	31.8	31.4	28.0	31.0	30.3	20.6	31.0	25.0
4	533	W. 2ND ST	16.9	7.3	5.7	28.0	22.3	19.8	30.3	9.1
5	870	W. 4TH ST	9.7	12.0	25.7	8.2	21.9	24.1	13.3	9.9
6	739	W. 5TH ST	22.6	24.0	9.5	24.7	7.9	28.9	15.1	17.1
7	609	I-80 RAMPS	23.0	24.7	20.6	21.4	26.8	22.6	22.1	21.9
Totals	**5364**		**19.8**	**18.2**	**16.2**	**19.5**	**19.5**	**24.0**	**21.1**	**16.8**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Detailed Statistics By Run

Average Speed (MPH) by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-NB-010T)	Run #10 (RENO thurs PM-NB-011T)	Run #11 (RENO thurs PM-NB-012T)
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	27.2	25.7	25.9
3	1019	W.1ST ST	29.9	31.7	31.1
4	533	W. 2ND ST	28.2	19.2	8.0
5	870	W. 4TH ST	17.3	16.0	9.9
6	739	W. 5TH ST	26.3	13.8	25.8
7	609	I-80 RAMPS	23.5	9.7	26.5
Totals	**5364**		**25.0**	**18.8**	**17.7**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 11**

Detailed Statistics By Run

Total Delay (sec) by Section

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
			RENO thurs PM-NB-002TN	RENO thurs PM-NB-003T	RENO thurs PM-NB-004T	RENO thurs PM-NB-005T	RENO thurs PM-NB-006T	RENO thurs PM-NB-007T	RENO thurs PM-NB-008T	RENO thurs PM-NB-0
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	3	5	5	4	4	4	7	4
3	1019	W.1ST ST	0	0	1	0	0	10	0	5
4	533	W. 2ND ST	9	36	49	0	4	6	0	28
5	870	W. 4TH ST	42	30	3	52	7	4	24	41
6	739	W. 5TH ST	5	4	37	3	49	0	16	12
7	609	I-80 RAMPS	4	2	5	4	1	4	3	4
Totals	**5364**		**63**	**77**	**100**	**63**	**65**	**28**	**50**	**94**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 12**

Detailed Statistics By Run

Total Delay (sec) by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-NB-010T)	Run #10 (RENO thurs PM-NB-011T)	Run #11 (RENO thurs PM-NB-012T)
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	4	6	6
3	1019	W.1ST ST	0	0	0
4	533	W. 2ND ST	0	6	32
5	870	W. 4TH ST	13	18	41
6	739	W. 5TH ST	2	19	2
7	609	I-80 RAMPS	2	23	1
Totals	**5364**		**21**	**72**	**82**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO thurs PM-NB-002TN
RENO thurs PM-NB-003T
RENO thurs PM-NB-004T
RENO thurs PM-NB-005T
RENO thurs PM-NB-006T
RENO thurs PM-NB-007T
RENO thurs PM-NB-008T
RENO thurs PM-NB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	0	0	0	0	0	0	0	0
3	1019	W.1ST ST	0	0	0	0	0	1	0	0
4	533	W. 2ND ST	0	6	19	0	0	0	0	8
5	870	W. 4TH ST	4	3	0	2	0	0	1	9
6	739	W. 5TH ST	0	0	18	0	25	0	3	0
7	609	I-80 RAMPS	0	0	0	0	0	0	0	0
Totals	**5364**		**4**	**9**	**37**	**2**	**25**	**1**	**4**	**17**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 14**

Detailed Statistics By Run

Time <= 0 MPH by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-NB-010T)	Run #10 (RENO thurs PM-NB-011T)	Run #11 (RENO thurs PM-NB-012T)
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	0	0	0
3	1019	W.1ST ST	0	0	0
4	533	W. 2ND ST	0	0	2
5	870	W. 4TH ST	0	0	15
6	739	W. 5TH ST	0	1	0
7	609	I-80 RAMPS	0	5	0
Totals	**5364**		**0**	**6**	**17**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 15**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO thurs PM-NB-002TN
RENO thurs PM-NB-003T
RENO thurs PM-NB-004T
RENO thurs PM-NB-005T
RENO thurs PM-NB-006T
RENO thurs PM-NB-007T
RENO thurs PM-NB-008T
RENO thurs PM-NB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	40	42	42	41	40	41	43	40
3	1019	W.1ST ST	22	22	25	22	23	33	23	28
4	533	W. 2ND ST	21	48	61	13	16	19	12	40
5	870	W. 4TH ST	62	50	23	72	27	25	44	61
6	739	W. 5TH ST	22	22	54	21	66	17	33	29
7	609	I-80 RAMPS	15	12	15	16	13	14	12	15
Totals	**5364**		**182**	**196**	**220**	**185**	**185**	**149**	**167**	**213**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 16**

Detailed Statistics By Run

Time <= 35 MPH by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-NB-010T)	Run #10 (RENO thurs PM-NB-011T)	Run #11 (RENO thurs PM-NB-012T)
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	40	43	42
3	1019	W.1ST ST	24	22	22
4	533	W. 2ND ST	13	18	44
5	870	W. 4TH ST	33	38	61
6	739	W. 5TH ST	20	36	20
7	609	I-80 RAMPS	11	34	10
Totals	**5364**		**141**	**191**	**199**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 17**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO thurs PM-NB-002TN
RENO thurs PM-NB-003T
RENO thurs PM-NB-004T
RENO thurs PM-NB-005T
RENO thurs PM-NB-006T
RENO thurs PM-NB-007T
RENO thurs PM-NB-008T
RENO thurs PM-NB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	CALIFORNIA								
2	1594	RIVERSIDE DR.	40	42	42	41	40	41	43	40
3	1019	W.1ST ST	22	22	25	22	23	33	23	28
4	533	W. 2ND ST	21	48	61	13	16	19	12	40
5	870	W. 4TH ST	62	50	23	72	27	25	44	61
6	739	W. 5TH ST	22	22	54	21	66	17	33	29
7	609	I-80 RAMPS	15	12	15	16	13	14	12	15
Totals	**5364**		**182**	**196**	**220**	**185**	**185**	**149**	**167**	**213**

Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO thurs PM-NB-010T
RENO thurs PM-NB-011T
RENO thurs PM-NB-012T

Node #	Length	Node Name	Run #9	Run #10	Run #11
1	0	CALIFORNIA			
2	1594	RIVERSIDE DR.	40	43	43
3	1019	W.1ST ST	24	22	22
4	533	W. 2ND ST	13	18	44
5	870	W. 4TH ST	33	38	61
6	739	W. 5TH ST	20	36	20
7	609	I-80 RAMPS	11	34	10
Totals	**5364**		**141**	**191**	**200**

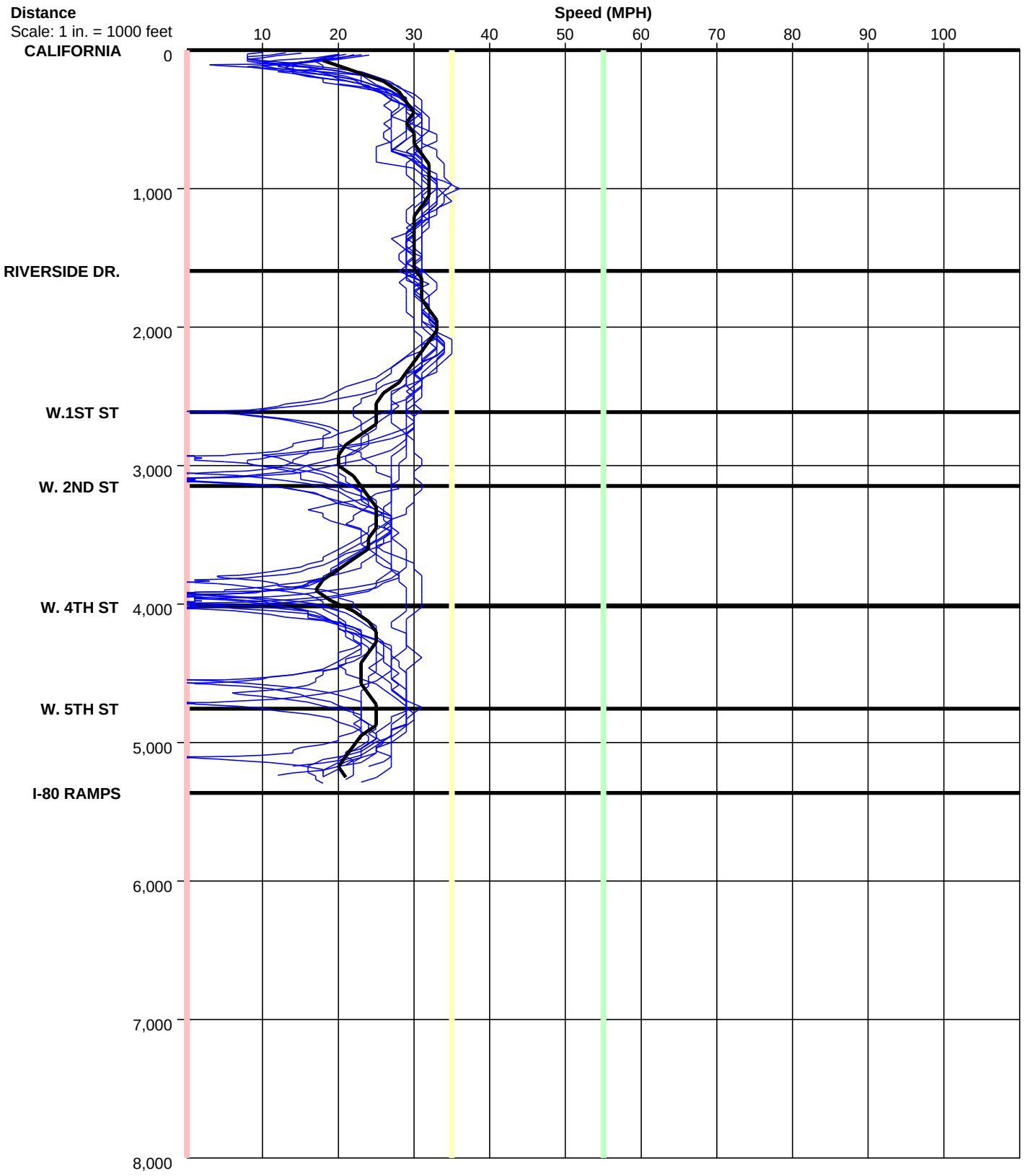
Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **19**

Speed/Distance Profiles of All Runs



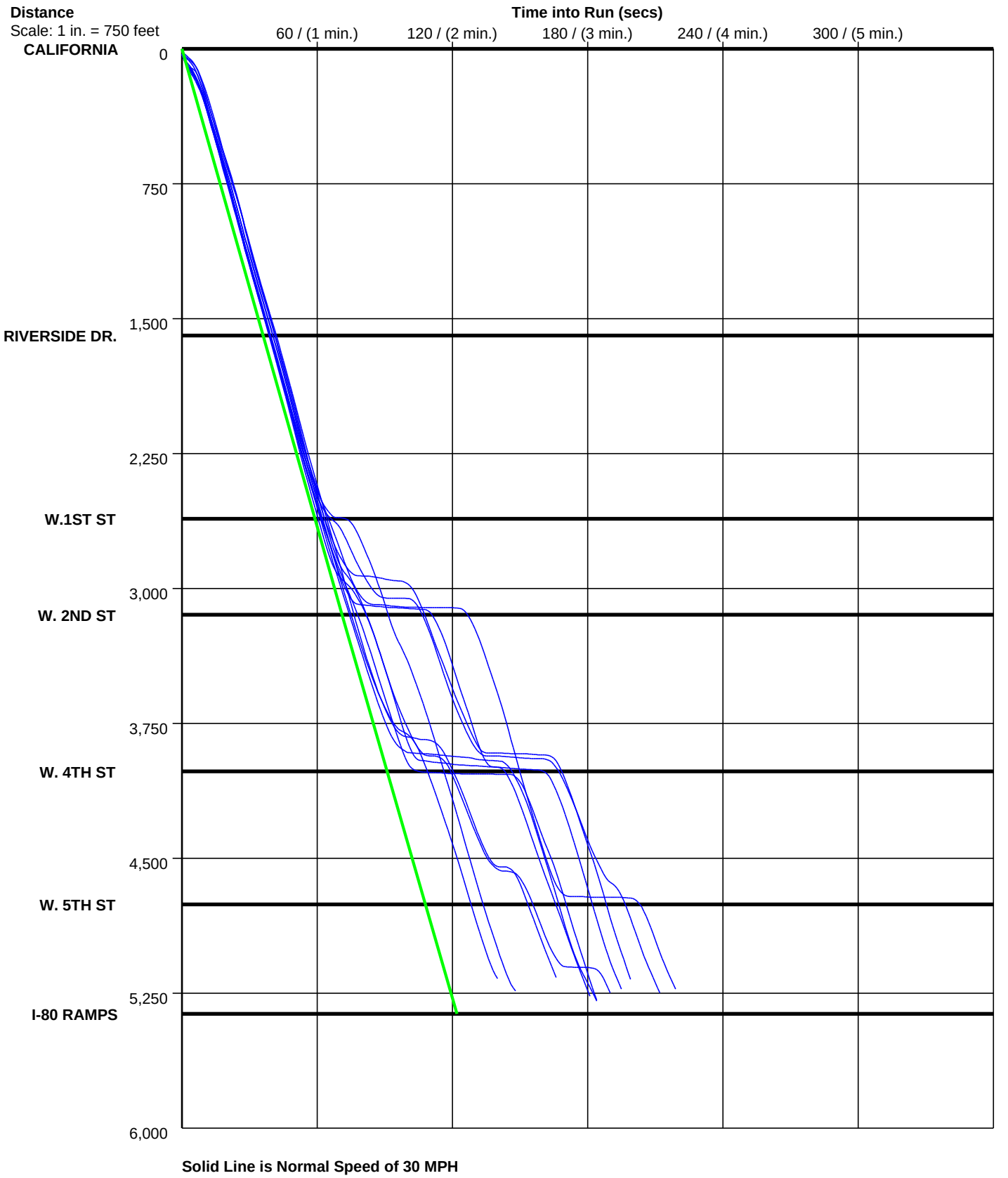
Pacific Traffic Data Services

Reno Nv.

THU NB PM

Study Name **: THU PM NB**
Study Date **: 8/22/2013**
Page No. **: 20**

Time/Space Trajectories of All Runs



Solid Line is Normal Speed of 30 MPH

Pacific Traffic Data Services

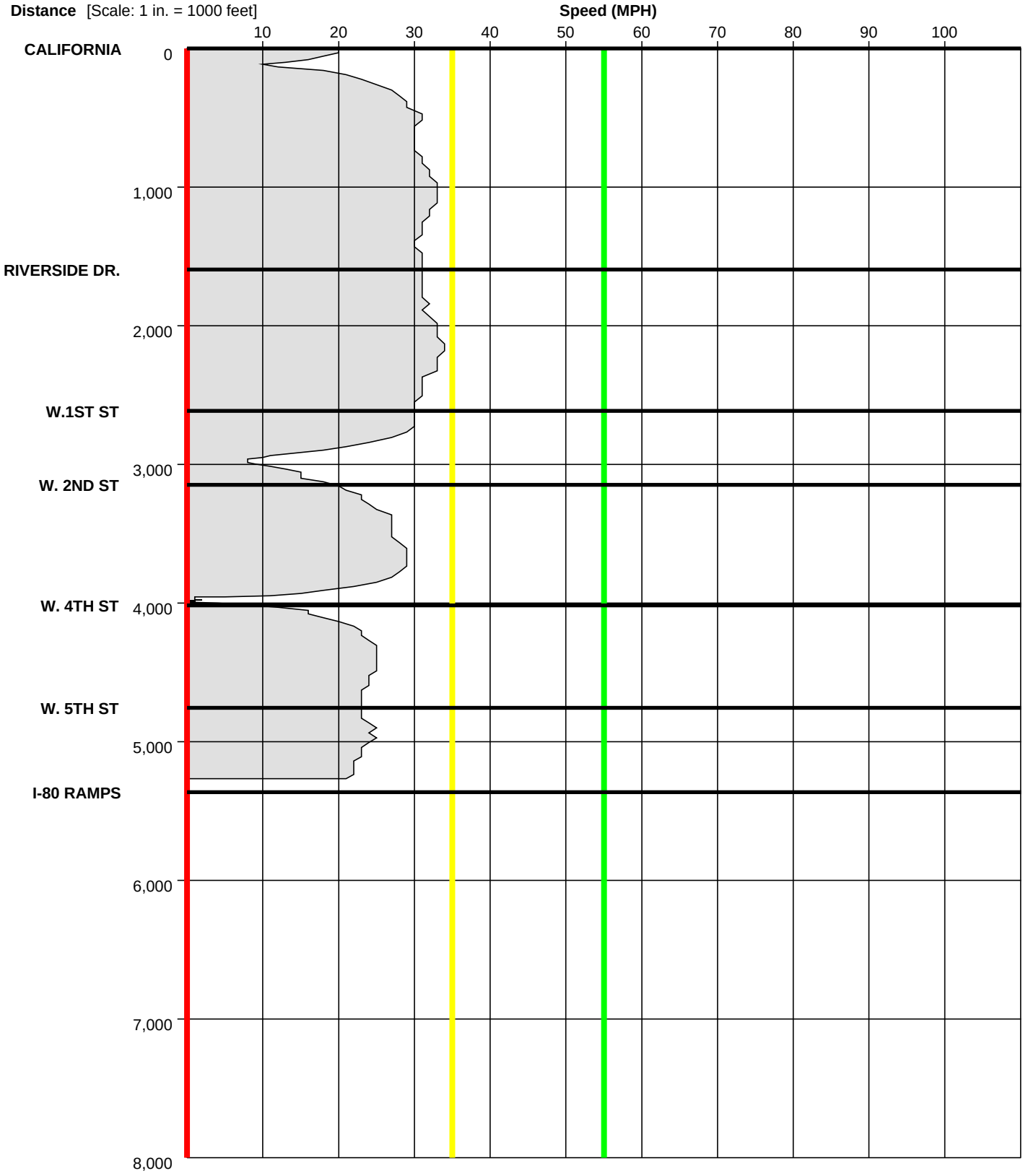
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **21**

Speed Profile

Run : RENO thurs PM-NB-002TN Start Time: 16:17 (This is a Before Run)



Pacific Traffic Data Services

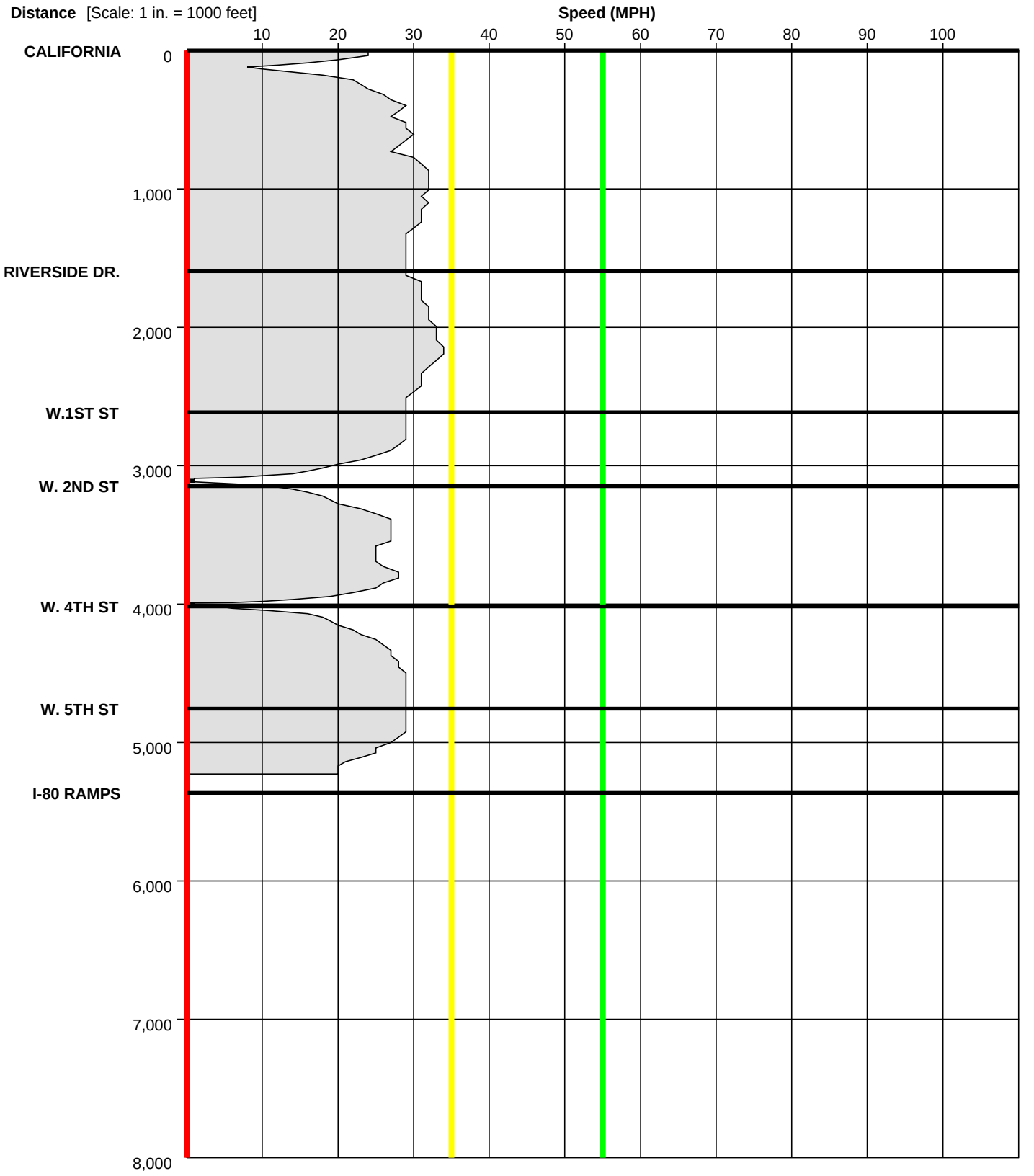
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **22**

Speed Profile

Run : RENO thurs PM-NB-003T Start Time: 16:27 (This is a Before Run)



Pacific Traffic Data Services

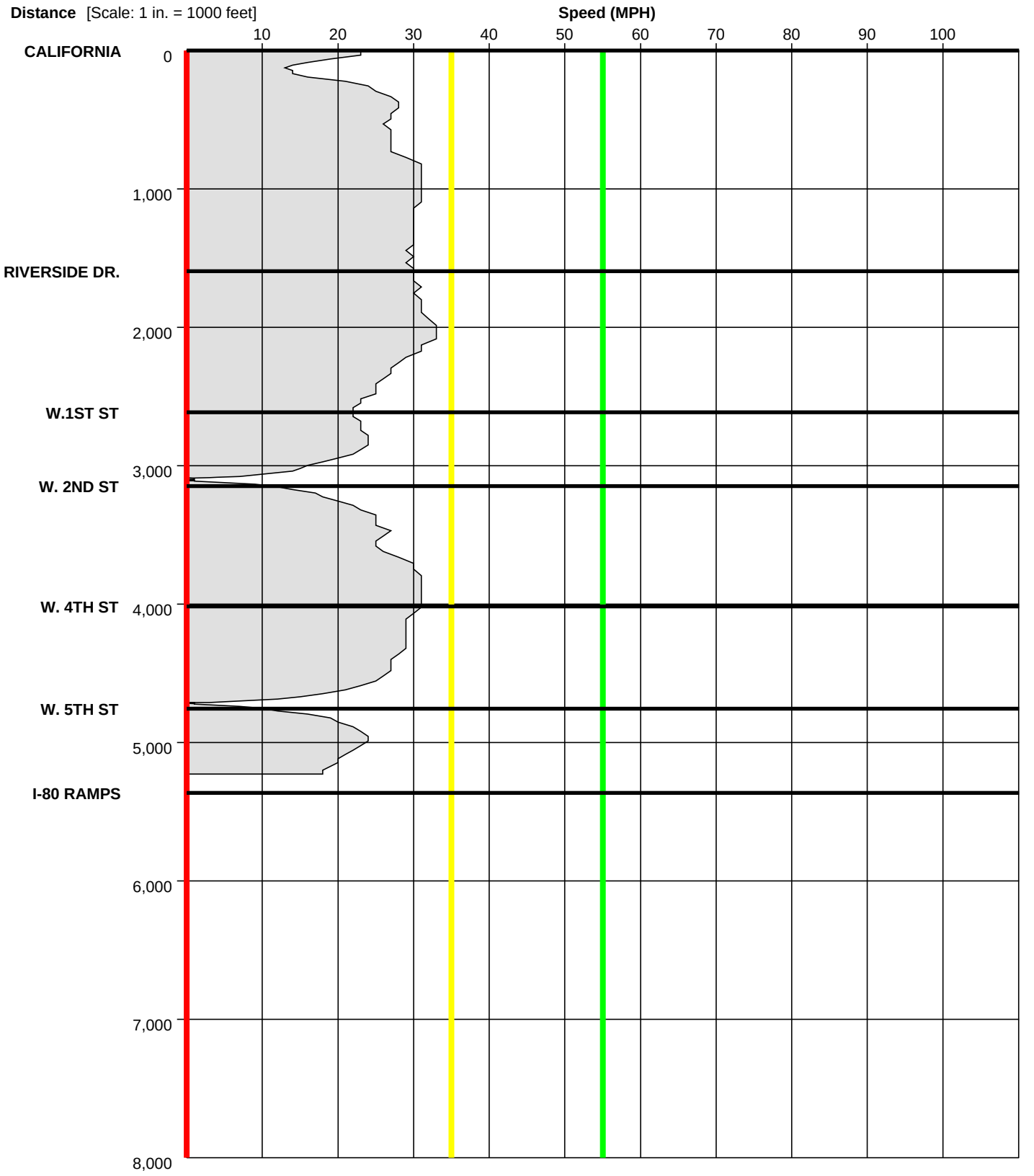
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **23**

Speed Profile

Run : RENO thurs PM-NB-004T Start Time: 16:35 (This is a Before Run)



Pacific Traffic Data Services

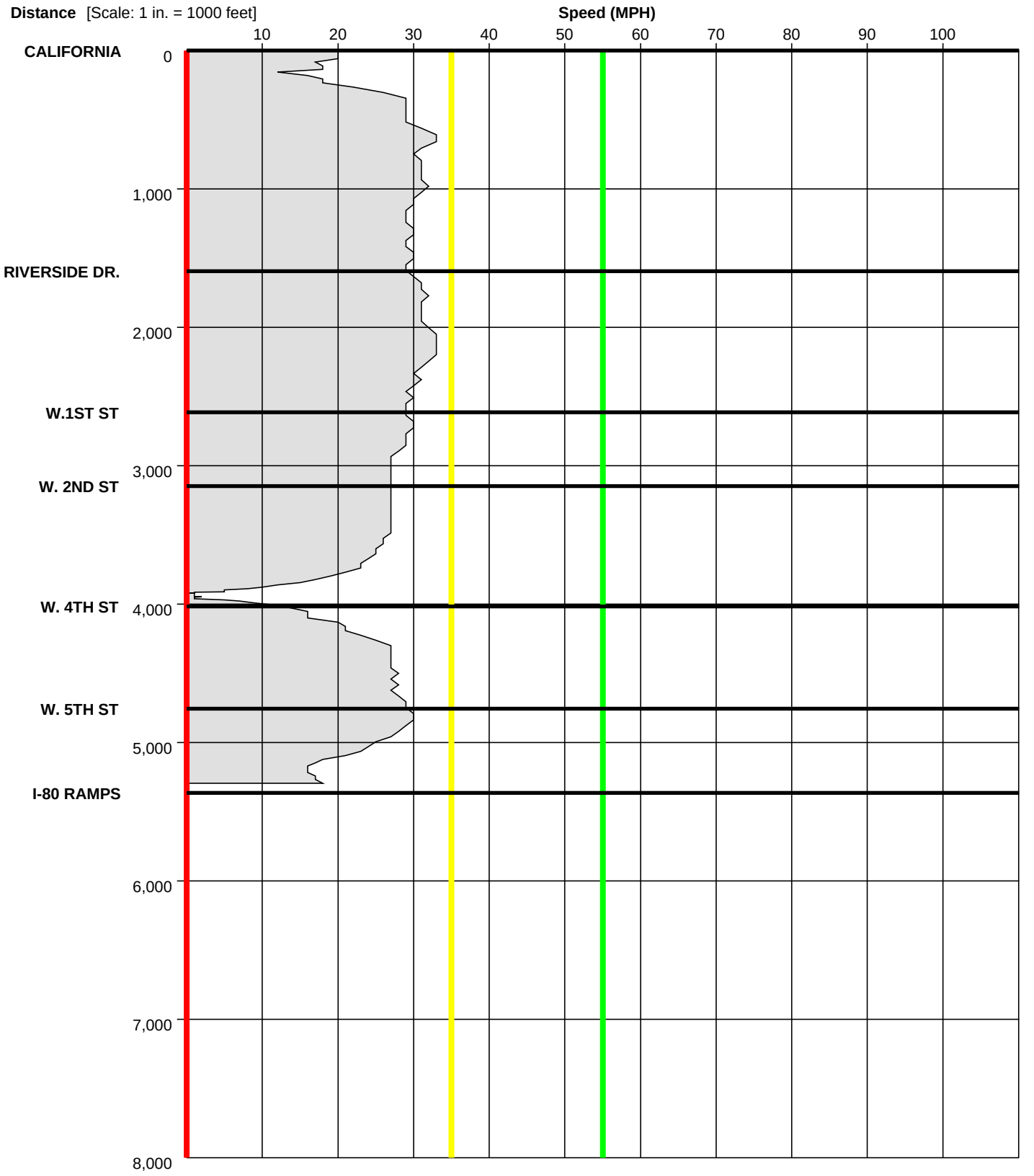
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **24**

Speed Profile

Run : RENO thurs PM-NB-005T Start Time: 16:46 (This is a Before Run)



Pacific Traffic Data Services

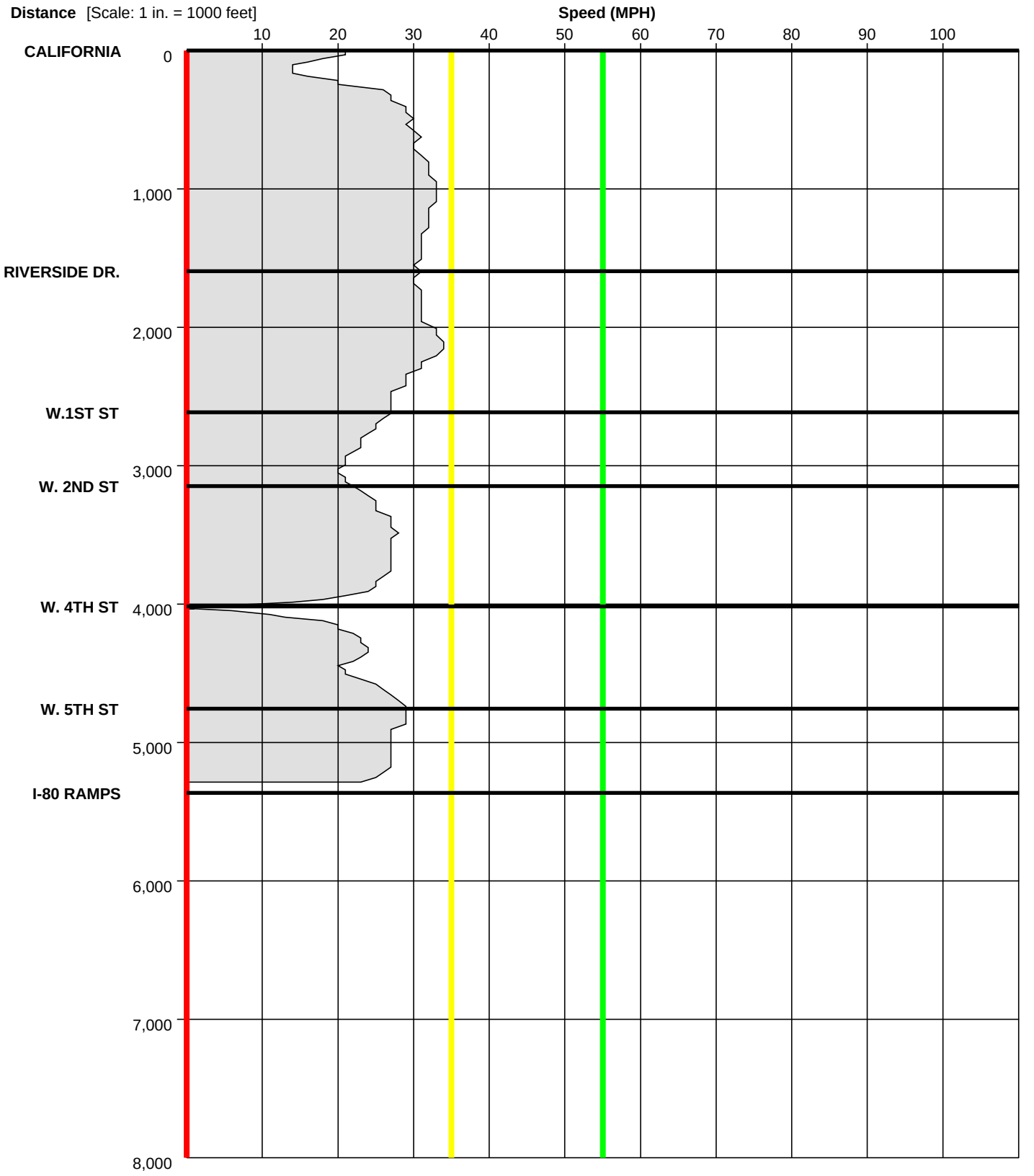
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **25**

Speed Profile

Run : RENO thurs PM-NB-006T Start Time: 16:55 (This is a Before Run)



Pacific Traffic Data Services

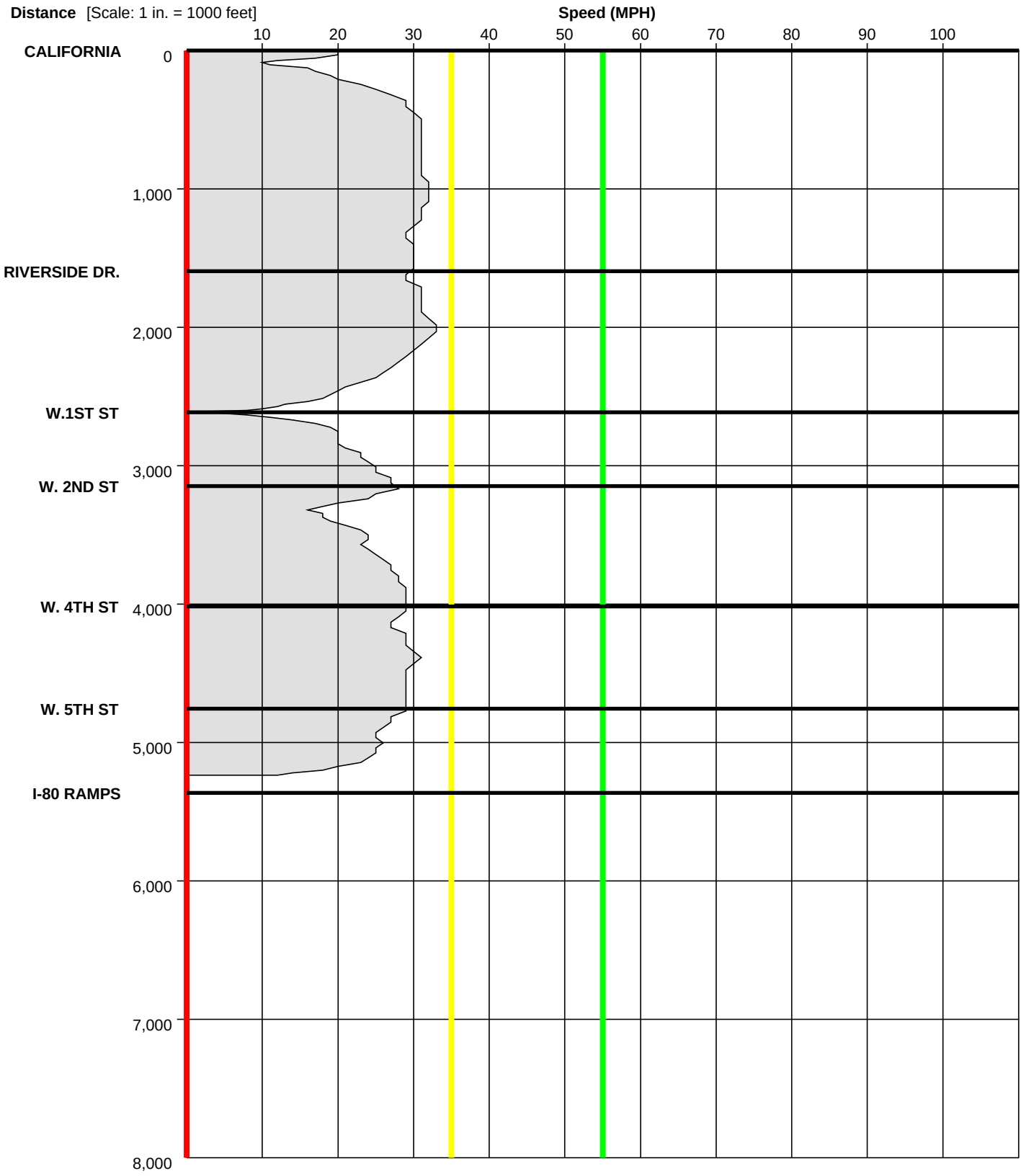
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **26**

Speed Profile

Run : RENO thurs PM-NB-007T Start Time: 17:05 (This is a Before Run)



Pacific Traffic Data Services

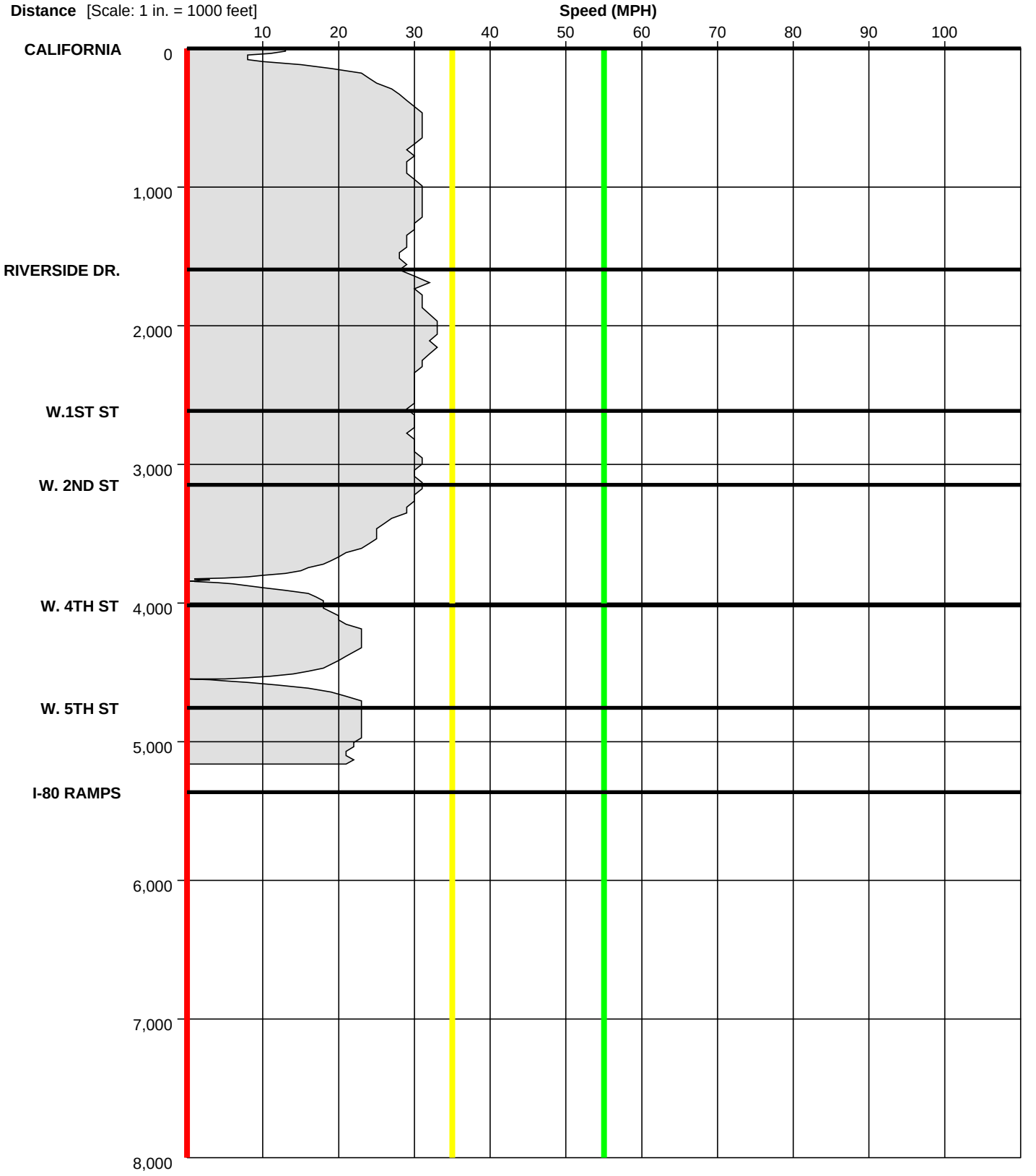
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **27**

Speed Profile

Run : RENO thurs PM-NB-008T Start Time: 17:14 (This is a Before Run)



Pacific Traffic Data Services

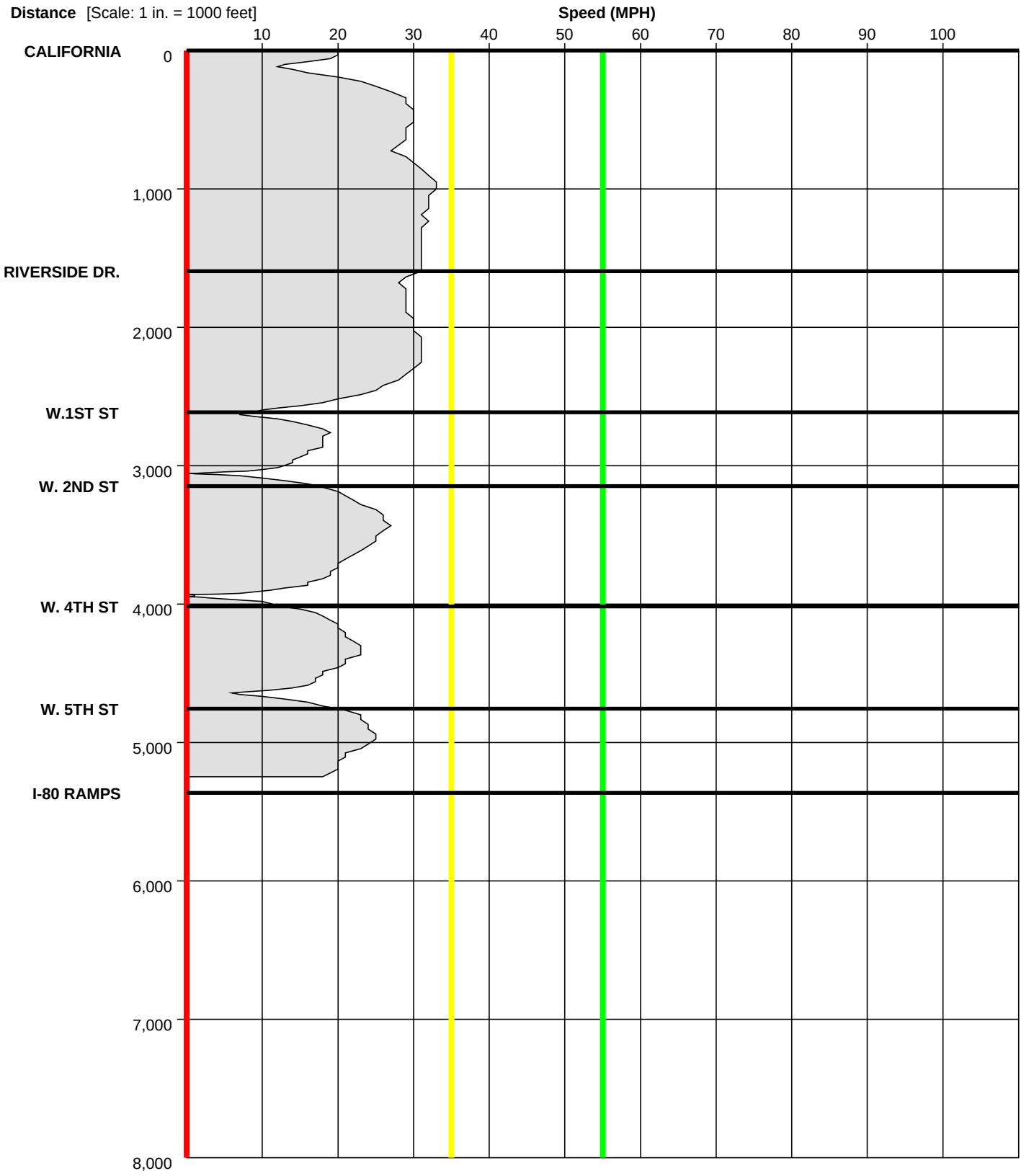
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **28**

Speed Profile

Run : RENO thurs PM-NB-009T Start Time: 17:23 (This is a Before Run)



Pacific Traffic Data Services

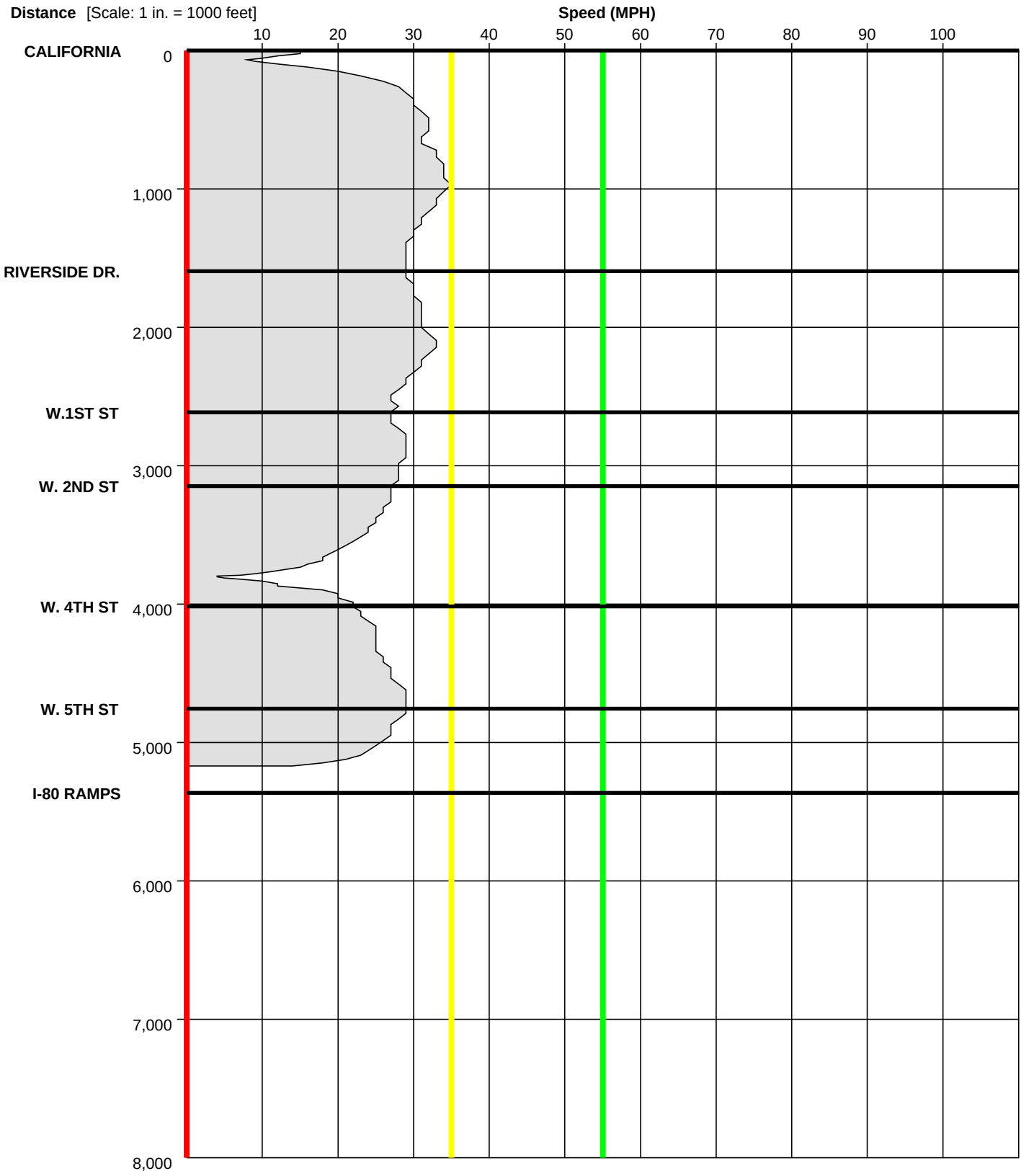
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **29**

Speed Profile

Run : RENO thurs PM-NB-010T Start Time: 17:32 (This is a Before Run)



Pacific Traffic Data Services

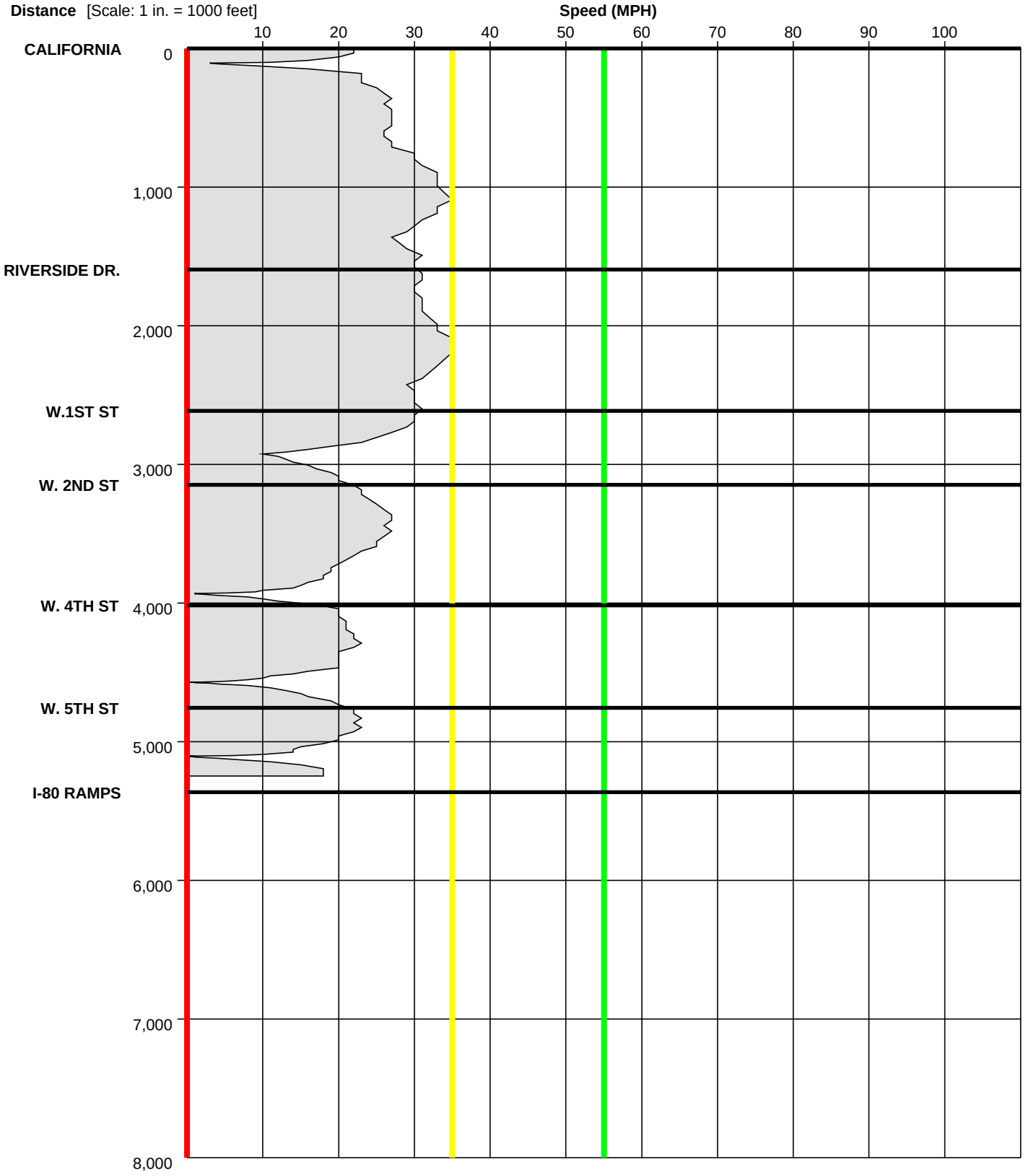
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **30**

Speed Profile

Run : RENO thurs PM-NB-011T Start Time: 17:40 (This is a Before Run)



Pacific Traffic Data Services

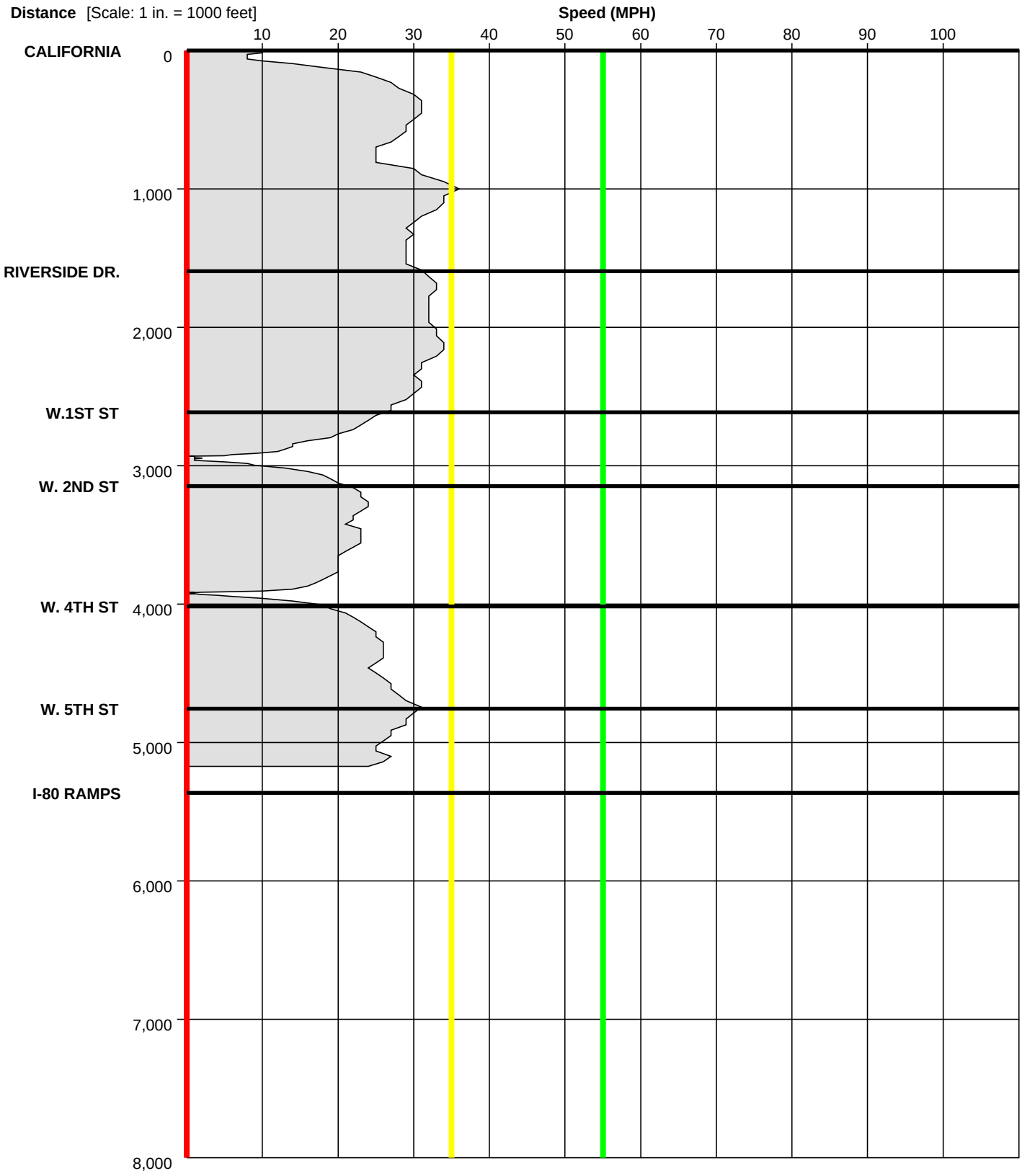
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **31**

Speed Profile

Run : RENO thurs PM-NB-012T Start Time: 17:49 (This is a Before Run)



Pacific Traffic Data Services

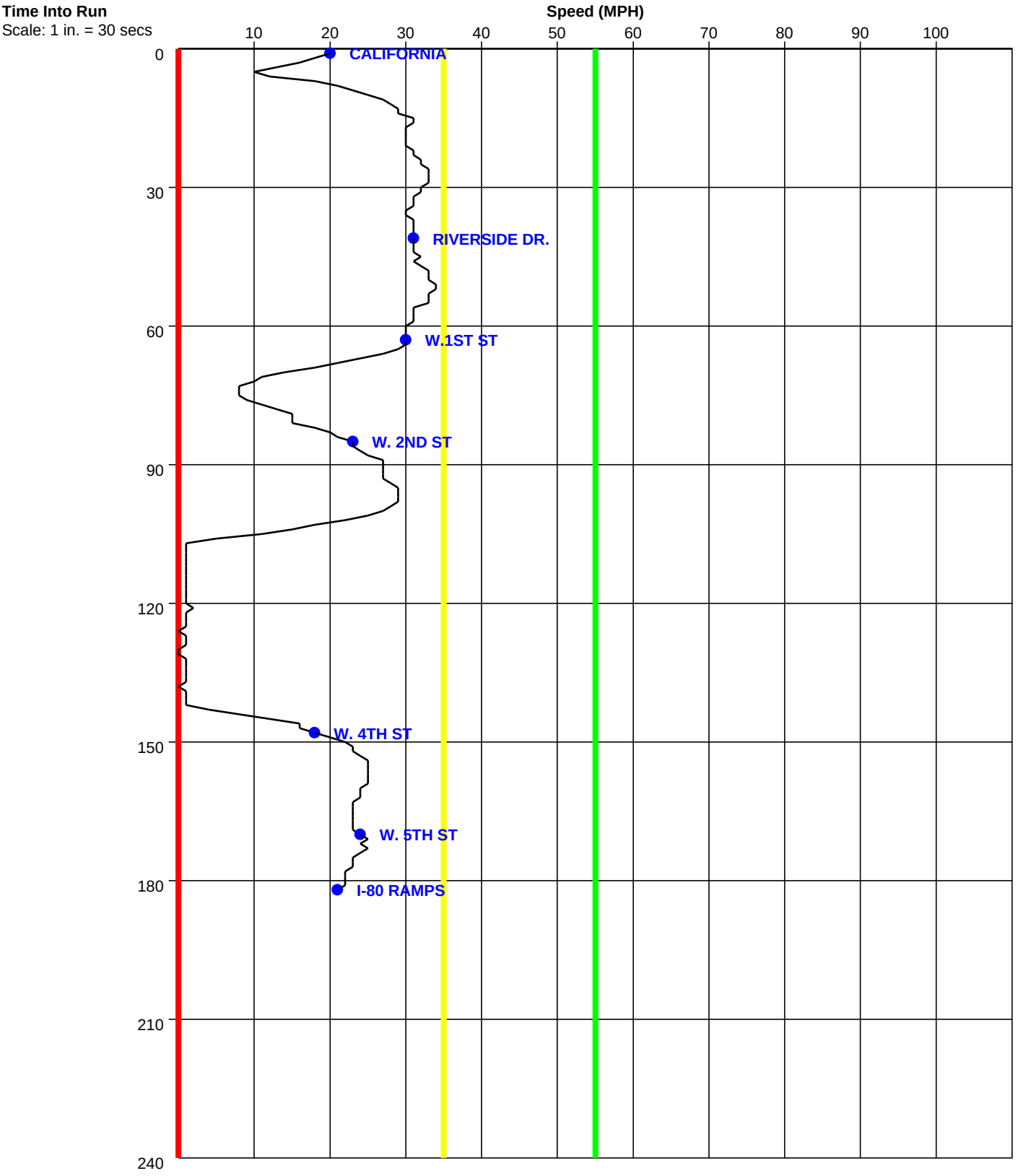
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **32**

Time-Based Speed Profile

Run : RENO thurs PM-NB-002TN Start Time:16:17 (This is a Before Run)



Pacific Traffic Data Services

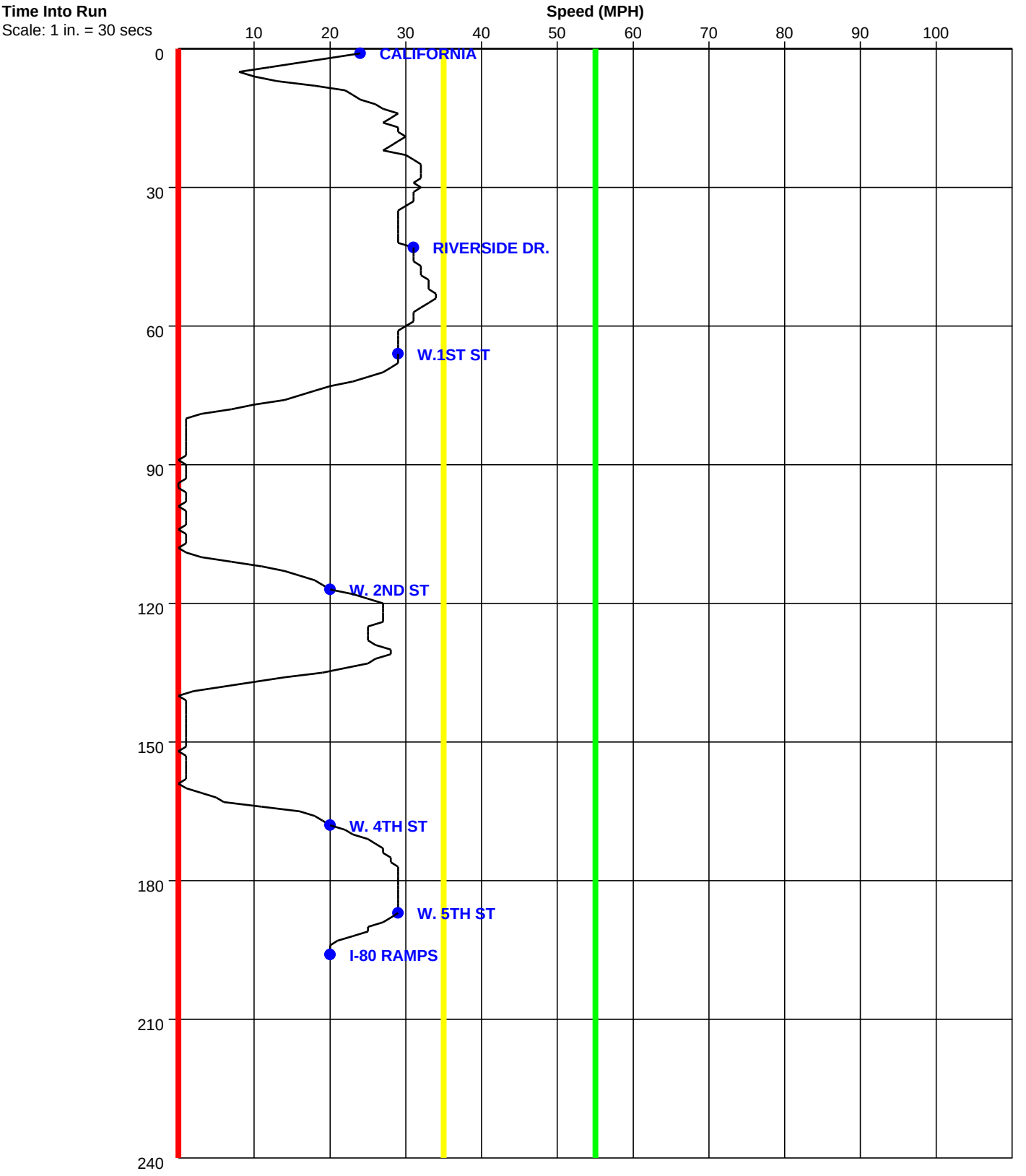
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **33**

Time-Based Speed Profile

Run : RENO thurs PM-NB-003T Start Time:16:27 (This is a Before Run)



Pacific Traffic Data Services

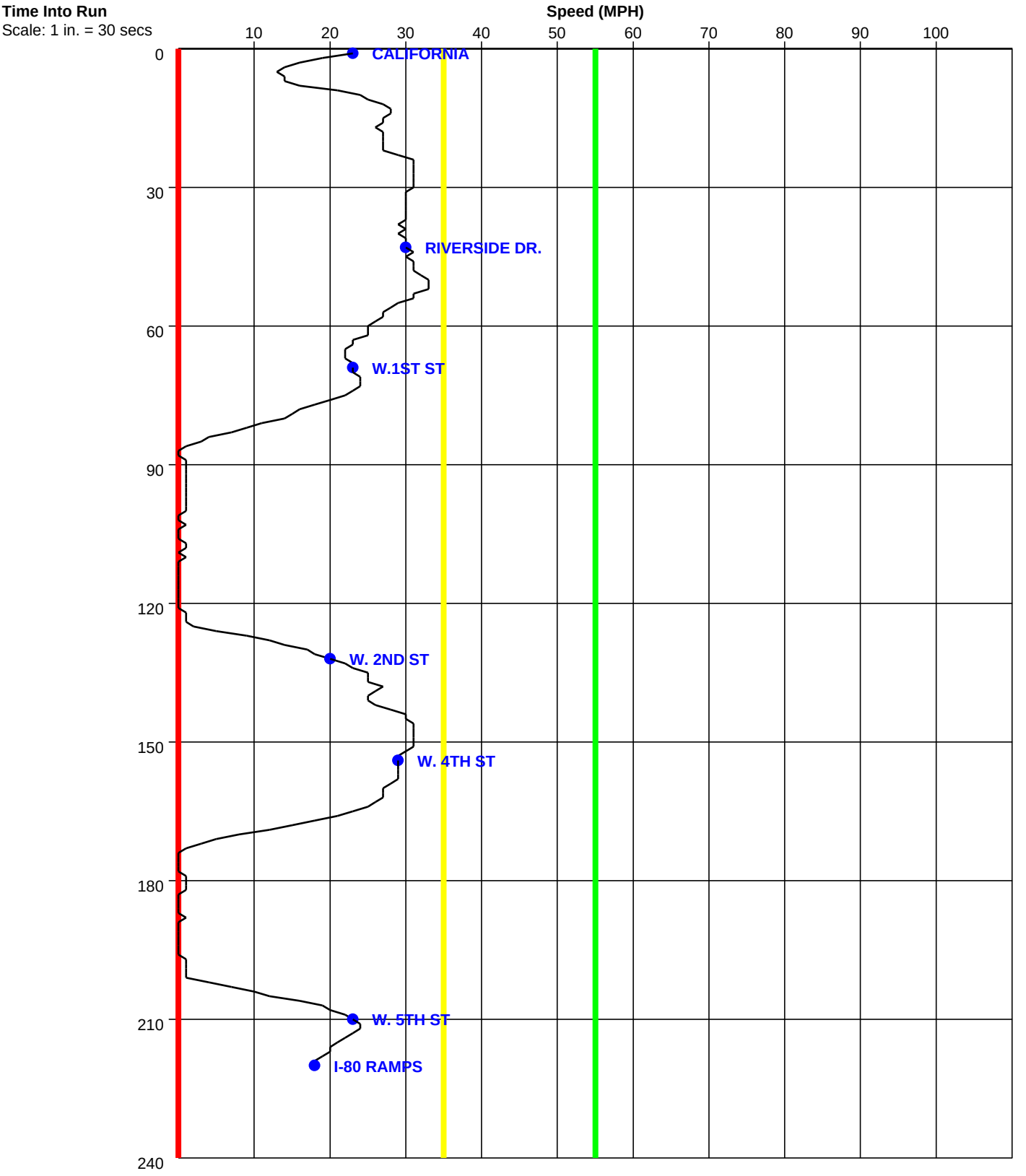
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **34**

Time-Based Speed Profile

Run : RENO thurs PM-NB-004T Start Time:16:35 (This is a Before Run)



Pacific Traffic Data Services

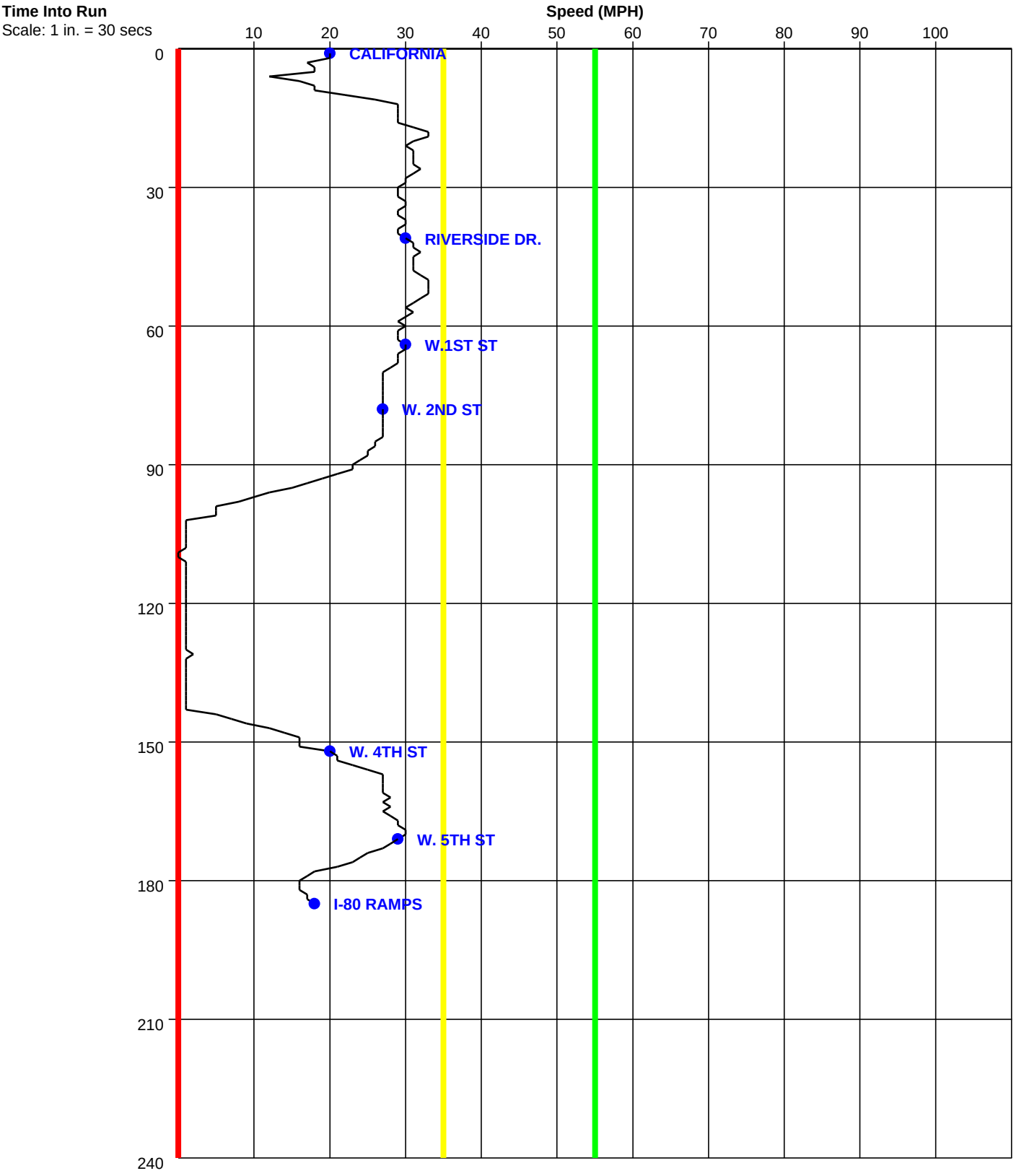
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **35**

Time-Based Speed Profile

Run : RENO thurs PM-NB-005T Start Time:16:46 (This is a Before Run)



Pacific Traffic Data Services

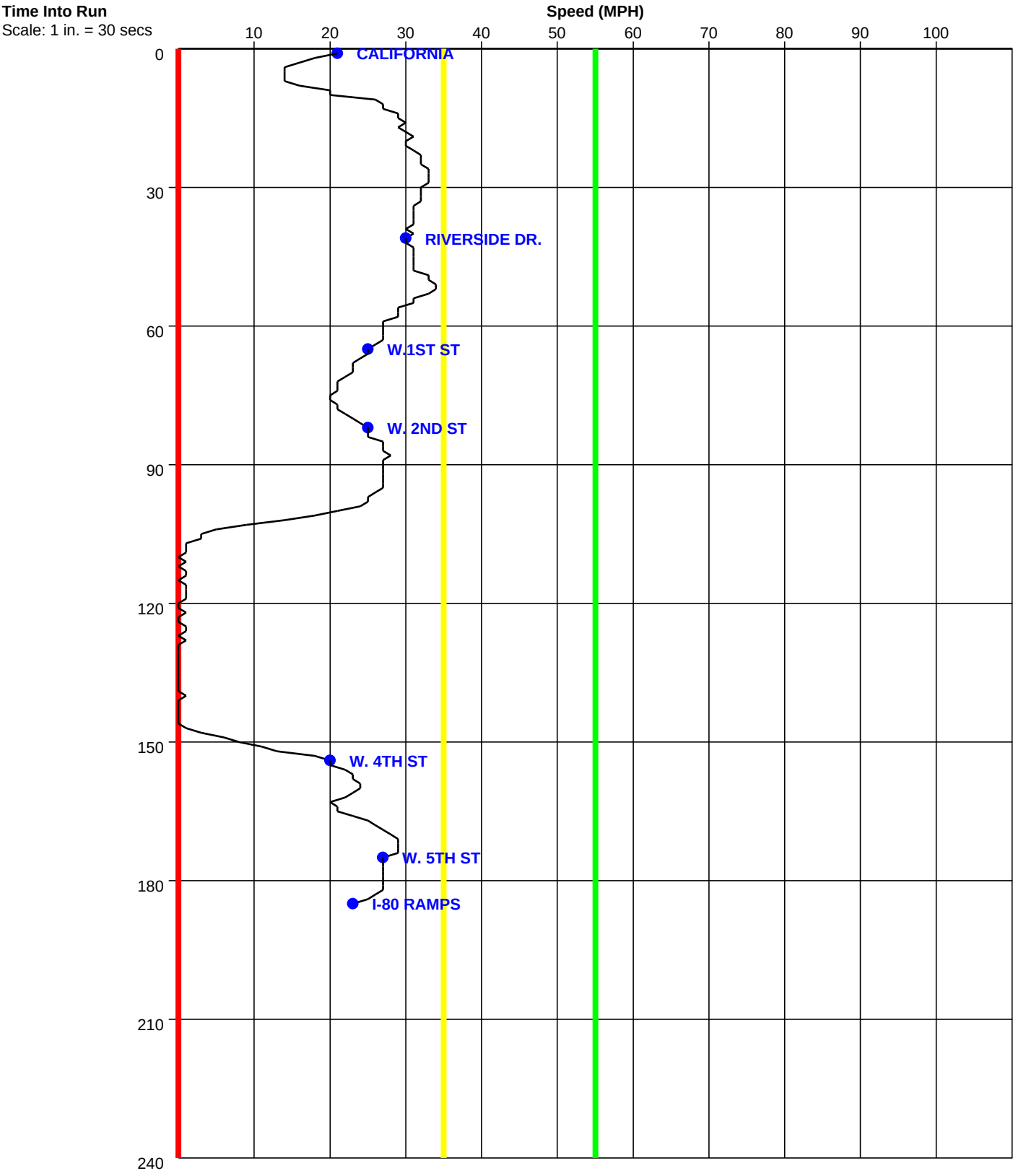
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **36**

Time-Based Speed Profile

Run : RENO thurs PM-NB-006T Start Time:16:55 (This is a Before Run)



Pacific Traffic Data Services

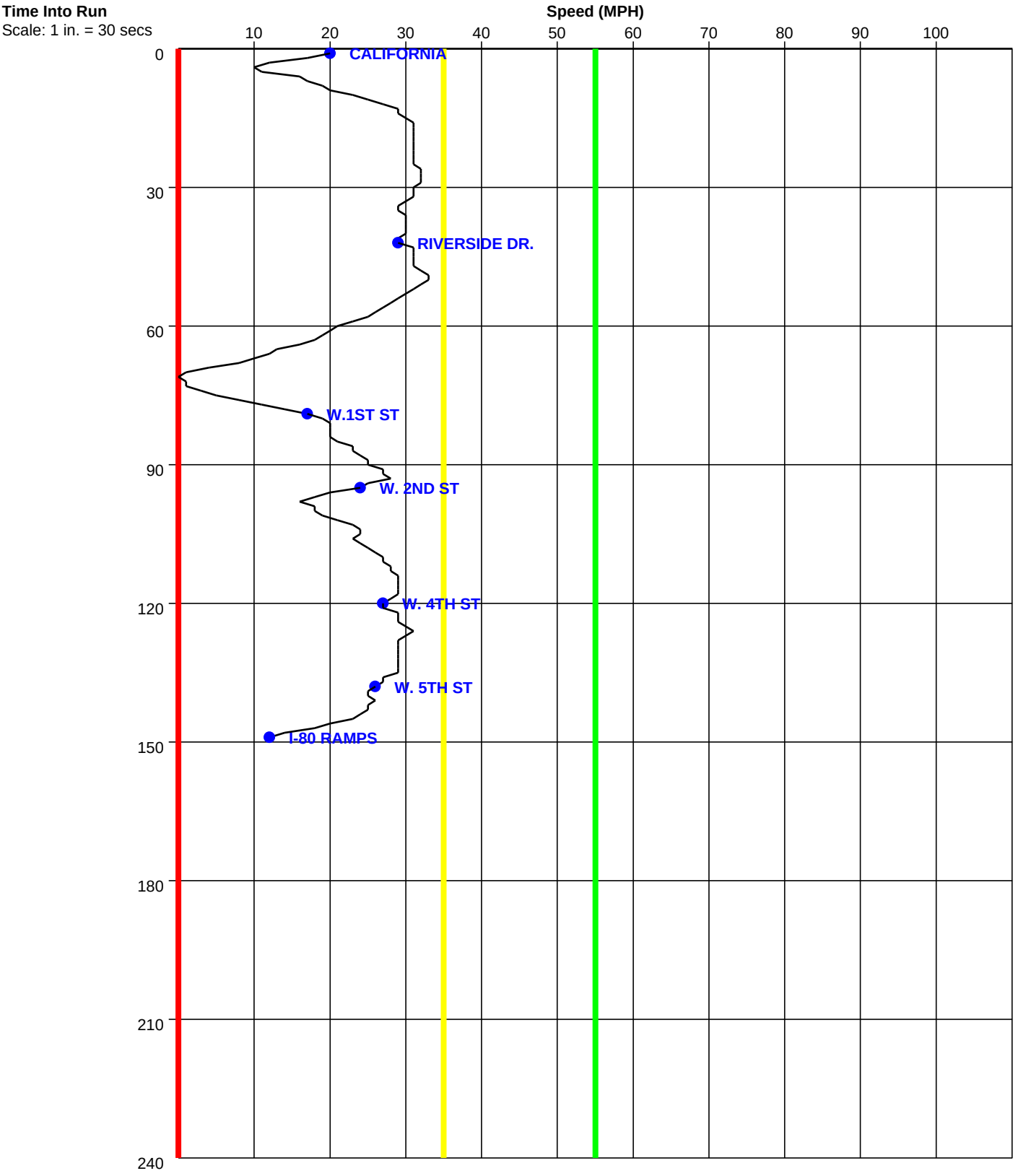
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **37**

Time-Based Speed Profile

Run : RENO thurs PM-NB-007T Start Time:17:05 (This is a Before Run)



Pacific Traffic Data Services

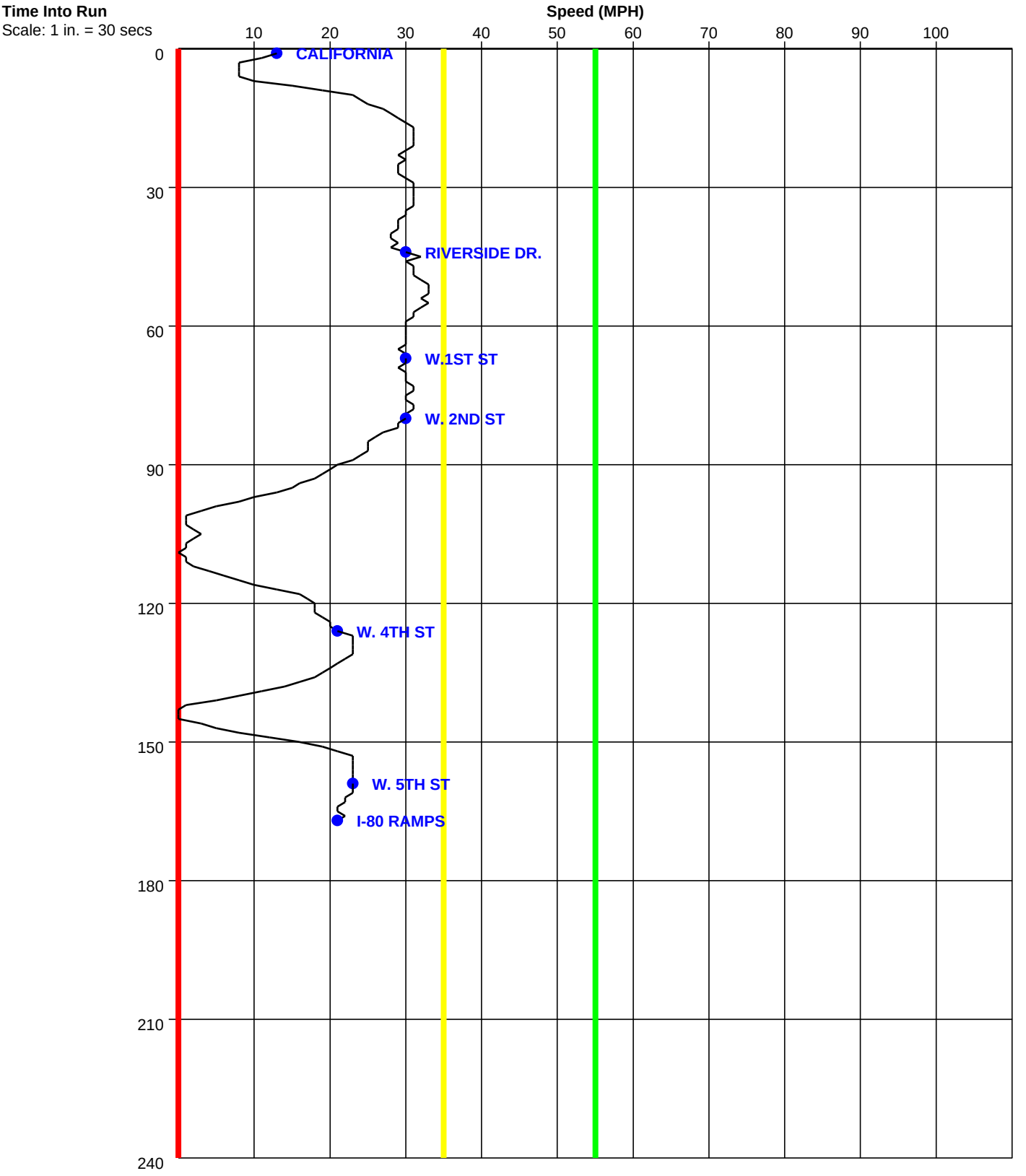
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **38**

Time-Based Speed Profile

Run : RENO thurs PM-NB-008T Start Time:17:14 (This is a Before Run)



Pacific Traffic Data Services

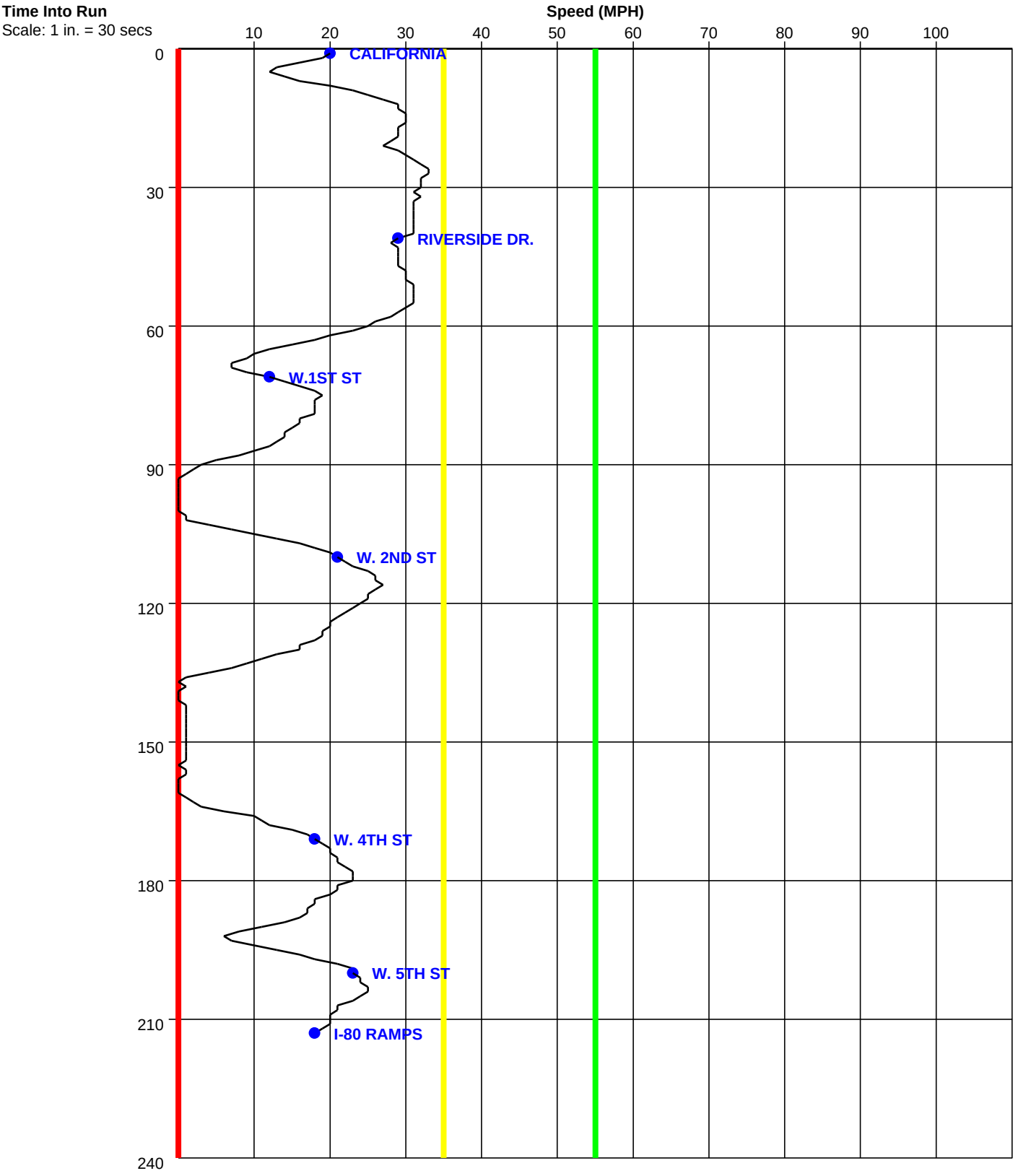
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **39**

Time-Based Speed Profile

Run : RENO thurs PM-NB-009T Start Time:17:23 (This is a Before Run)



Pacific Traffic Data Services

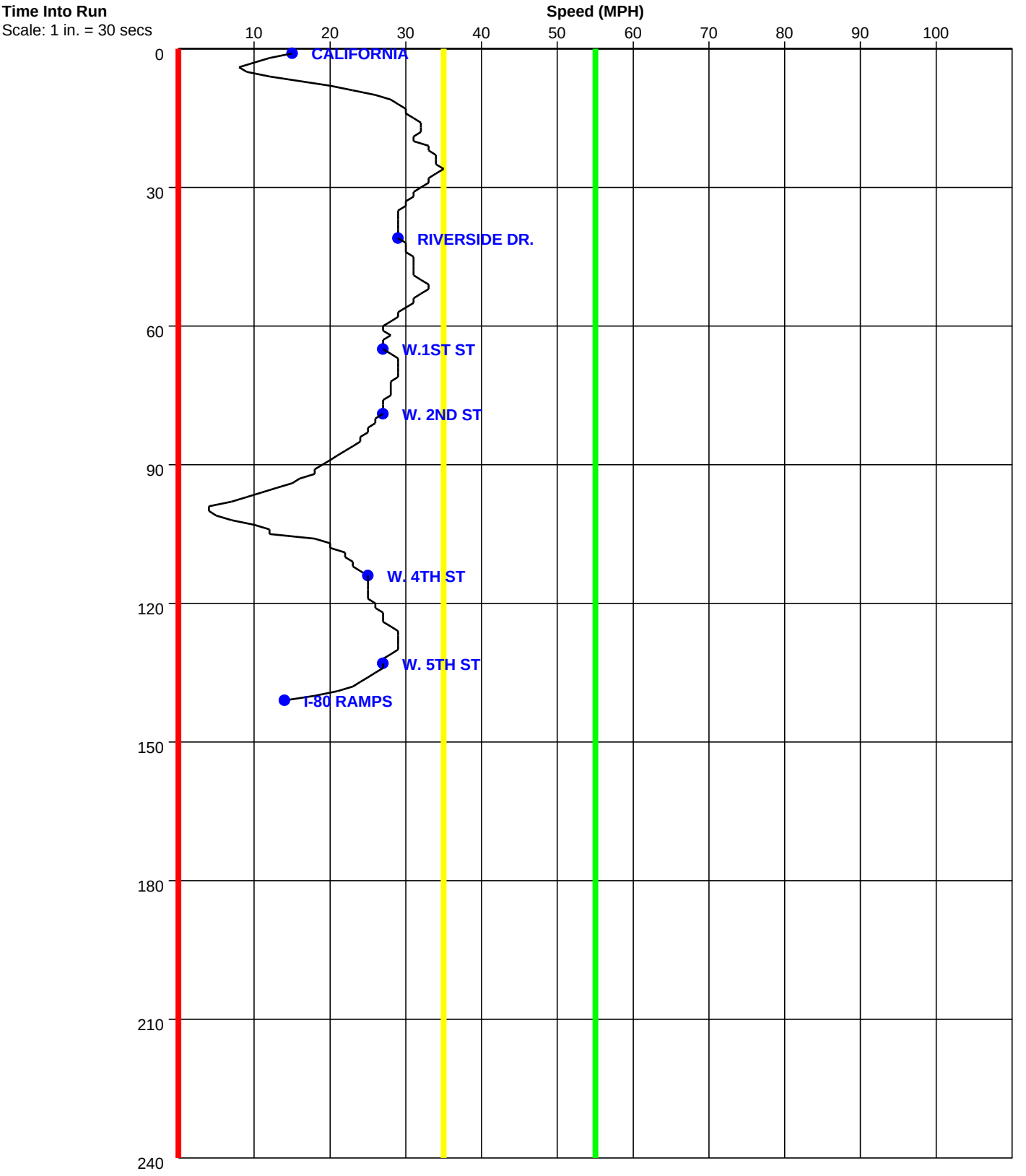
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **40**

Time-Based Speed Profile

Run : RENO thurs PM-NB-010T Start Time:17:32 (This is a Before Run)



Pacific Traffic Data Services

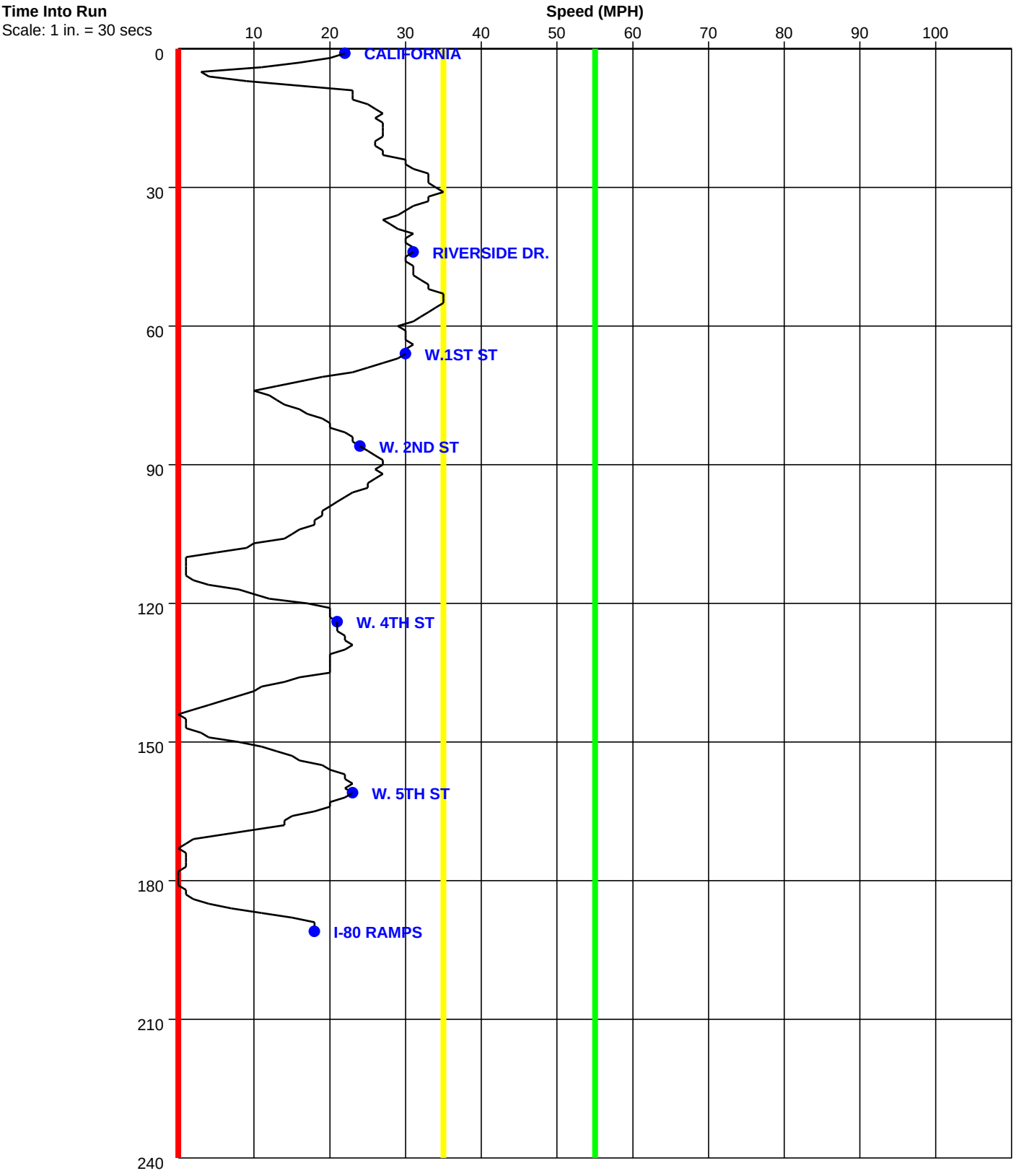
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **41**

Time-Based Speed Profile

Run : RENO thurs PM-NB-011T Start Time:17:40 (This is a Before Run)



Pacific Traffic Data Services

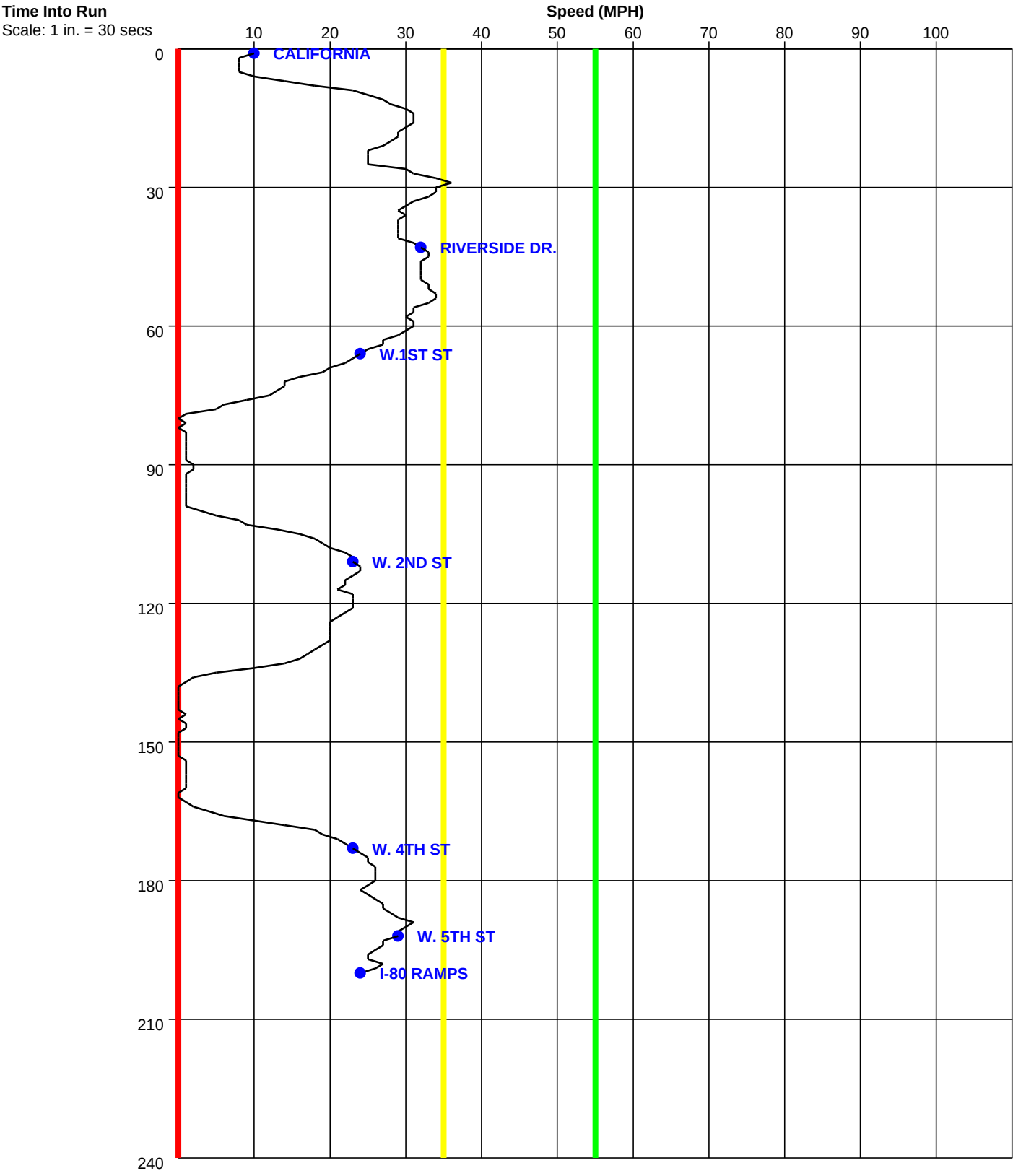
Reno Nv.

THU NB PM

Study Name : **THU PM NB**
Study Date : **8/22/2013**
Page No. : **42**

Time-Based Speed Profile

Run : RENO thurs PM-NB-012T Start Time:17:49 (This is a Before Run)



Pacific Traffic Data Services

Reno Nv.

THU SB PM

PC-Travel Reports for study: THU PM SB

Pacific Traffic
Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**

Study Summary

Runs Used in This Study

Run Title	Start Date	Start Time	Length	Before/ After	Run Type
RENO thurs PM-SB-001TN	08/22/13	16:13	5337	Before	Primary
RENO thurs PM-SB-002T	08/22/13	16:22	5306	Before	Secondary
RENO thurs PM-SB-003T	08/22/13	16:31	5409	Before	Secondary
RENO thurs PM-SB-004T	08/22/13	16:40	5212	Before	Secondary
RENO thurs PM-SB-005T	08/22/13	16:50	5411	Before	Secondary
RENO thurs PM-SB-006T	08/22/13	17:00	5208	Before	Secondary
RENO thurs PM-SB-007T	08/22/13	17:08	5262	Before	Secondary
RENO thurs PM-SB-008T	08/22/13	17:18	5247	Before	Secondary
RENO thurs PM-SB-009T	08/22/13	17:28	5232	Before	Secondary
RENO thurs PM-SB-010T	08/22/13	17:36	5241	Before	Secondary
RENO thurs PM-SB-011T	08/22/13	17:44	5200	Before	Secondary
RENO thurs PM-SB-012T	08/22/13	17:54	5397	Before	Secondary

Node Info

#	Len	Name
1	0	I-80 OFF RAMP
2	542	W. 5TH ST
3	725	W. 4TH ST
4	857	W. 2ND ST
5	524	W. 1ST ST.
6	966	RIVERSIDE DR
7	1780	CALIFORNIA

Length of Study Route = 5,394 feet

Notes:

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 3**

Overall Output Statistics

Node #	Length	Node	Travel Time	# of Stops	Avg Speed	Total Delay	Time <= 0 MPH	Time <= 35 MPH	Time <= 55 MPH
1	0	I-80 OFF RAMP							
2	542	W. 5TH ST	19.1	0.1	19.4	6.5	0.1	19.1	19.1
3	725	W. 4TH ST	23.6	0.2	21.0	7.2	2.1	23.6	23.6
4	857	W. 2ND ST	22.1	0.0	26.5	2.3	0.1	22.1	22.1
5	524	W. 1ST ST.	21.8	0.5	16.4	9.8	3.3	21.8	21.8
6	966	RIVERSIDE DR	26.8	0.1	24.6	5.3	0.6	26.2	26.8
7	1780	CALIFORNIA	38.9	0.0	31.2	0.8	0.0	38.2	38.2
Total	**5,394**		**152.3**	**0.8**	**24.2**	**31.8**	**6.2**	**150.9**	**151.5**

Stats based on 12 BEFORE runs.
Stops based on a Stop Speed of 5 MPH.
Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 4**

Fuel Consumption & Emissions

Node #	Length	Node Name	Fuel (gal)	HC (grams)	CO (grams)	NOx (grams)
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	0.0084	1.0245	6.2919	0.8313
3	725	W. 4TH ST	0.0073	0.7056	6.3640	0.3473
4	857	W. 2ND ST	0.0074	0.6758	6.2175	0.3380
5	524	W. 1ST ST.	0.0064	0.6259	5.1771	0.3058
6	966	RIVERSIDE DR	0.0099	0.9784	8.6001	0.5822
7	1780	CALIFORNIA	0.0134	1.1432	11.7225	0.5342
Total	**5,394**		**0.0528**	**5.1534**	**44.3731**	**2.9390**

Stats based on 12 BEFORE runs.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 5**

Detailed Statistics By Run

Travel Time (sec) by Section

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
			RENO thurs PM-SB-001TN	RENO thurs PM-SB-002T	RENO thurs PM-SB-003T	RENO thurs PM-SB-004T	RENO thurs PM-SB-005T	RENO thurs PM-SB-006T	RENO thurs PM-SB-007T	RENO thurs PM-SB-0
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	24	16	19	24	18	17	21
3	725	W. 4TH ST	50	20	15	59	23	18	17	15
4	857	W. 2ND ST	35	21	21	22	19	24	19	20
5	524	W. 1ST ST.	40	12	20	12	14	12	40	13
6	966	RIVERSIDE DR	21	21	24	21	45	20	23	21
7	1780	CALIFORNIA	39	39	40	39	41	40	40	38
Totals	**5394**		**209**	**137**	**136**	**172**	**166**	**132**	**156**	**128**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 6**

Detailed Statistics By Run

Travel Time (sec) by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	18	15	17	16
3	725	W. 4TH ST	17	16	16	17
4	857	W. 2ND ST	20	20	23	21
5	524	W. 1ST ST.	12	28	45	14
6	966	RIVERSIDE DR	20	22	24	59
7	1780	CALIFORNIA	39	37	35	40
Totals	**5394**		**126**	**138**	**160**	**167**

RENO thurs PM-SB-009T
RENO thurs PM-SB-010T
RENO thurs PM-SB-011T
RENO thurs PM-SB-012T

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 7**

Detailed Statistics By Run

Number of Stops by Section

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
			RENO thurs PM-SB-001TN	RENO thurs PM-SB-002T	RENO thurs PM-SB-003T	RENO thurs PM-SB-004T	RENO thurs PM-SB-005T	RENO thurs PM-SB-006T	RENO thurs PM-SB-007T	RENO thurs PM-SB-0
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	0	0	0	0	0	0	0	1
3	725	W. 4TH ST	1	0	0	1	0	0	0	0
4	857	W. 2ND ST	0	0	0	0	0	0	0	0
5	524	W. 1ST ST.	1	0	1	0	0	0	1	0
6	966	RIVERSIDE DR	0	0	0	0	1	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0	0
Totals	**5394**		**2**	**0**	**1**	**1**	**1**	**0**	**1**	**1**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 8**

Detailed Statistics By Run

Number of Stops by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-SB-009T)	Run #10 (RENO thurs PM-SB-010T)	Run #11 (RENO thurs PM-SB-011T)	Run #12 (RENO thurs PM-SB-012T)
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	0	0	0	0
3	725	W. 4TH ST	0	0	0	0
4	857	W. 2ND ST	0	0	0	0
5	524	W. 1ST ST.	0	1	1	1
6	966	RIVERSIDE DR	0	0	0	0
7	1780	CALIFORNIA	0	0	0	0
Totals	**5394**		**0**	**1**	**1**	**1**

Stops based on a Stop Speed of 5 MPH.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 9**

Detailed Statistics By Run

Average Speed (MPH) by Section

RENO thurs PM-SB-001TN
RENO thurs PM-SB-002T
RENO thurs PM-SB-003T
RENO thurs PM-SB-004T
RENO thurs PM-SB-005T
RENO thurs PM-SB-006T
RENO thurs PM-SB-007T
RENO thurs PM-SB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	16.0	15.5	23.1	19.8	16.0	22.0	22.6	18.0
3	725	W. 4TH ST	9.7	24.6	33.1	8.5	21.9	26.7	28.8	32.3
4	857	W. 2ND ST	17.0	28.3	28.5	27.0	30.2	25.0	30.6	29.2
5	524	W. 1ST ST.	8.9	30.0	17.1	30.4	25.2	30.7	8.9	27.9
6	966	RIVERSIDE DR	31.4	31.1	27.4	30.4	14.6	32.3	28.9	31.0
7	1780	CALIFORNIA	30.6	30.2	30.6	28.3	29.7	27.4	28.6	30.1
Totals	**5394**		**17.5**	**26.6**	**27.1**	**20.8**	**22.2**	**27.2**	**23.2**	**28.2**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 10**

Detailed Statistics By Run

Average Speed (MPH) by Section

Node #	Length	Node Name	Run #9 (RENO thurs PM-SB-009T)	Run #10 (RENO thurs PM-SB-010T)	Run #11 (RENO thurs PM-SB-011T)	Run #12 (RENO thurs PM-SB-012T)
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	22.1	24.9	23.0	23.0
3	725	W. 4TH ST	28.6	30.7	30.4	29.2
4	857	W. 2ND ST	28.7	29.3	25.3	29.0
5	524	W. 1ST ST.	29.8	13.1	8.0	23.7
6	966	RIVERSIDE DR	32.9	29.5	28.0	11.3
7	1780	CALIFORNIA	28.8	30.7	31.0	30.0
Totals	**5394**		**28.5**	**26.1**	**22.3**	**22.0**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 11**

Detailed Statistics By Run

Total Delay (sec) by Section

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
			RENO thurs PM-SB-001TN	RENO thurs PM-SB-002T	RENO thurs PM-SB-003T	RENO thurs PM-SB-004T	RENO thurs PM-SB-005T	RENO thurs PM-SB-006T	RENO thurs PM-SB-007T	RENO thurs PM-SB-0
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	11	12	4	7	11	5	4	8
3	725	W. 4TH ST	34	3	0	42	6	1	0	0
4	857	W. 2ND ST	15	1	1	2	0	4	0	0
5	524	W. 1ST ST.	28	0	8	0	2	0	28	1
6	966	RIVERSIDE DR	0	0	2	0	23	0	1	0
7	1780	CALIFORNIA	0	0	0	2	0	3	2	0
Totals	**5394**		**88**	**16**	**15**	**53**	**42**	**13**	**35**	**9**

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 12**

Detailed Statistics By Run

Total Delay (sec) by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	5	3	4	4
3	725	W. 4TH ST	0	0	0	0
4	857	W. 2ND ST	0	0	3	1
5	524	W. 1ST ST.	0	16	33	2
6	966	RIVERSIDE DR	0	0	1	37
7	1780	CALIFORNIA	2	0	0	0
Totals	**5394**		**7**	**19**	**41**	**44**

RENO thurs PM-SB-009T
RENO thurs PM-SB-010T
RENO thurs PM-SB-011T
RENO thurs PM-SB-012T

Total Delay based on a Normal Speed of 30 MPH.

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 13**

Detailed Statistics By Run

Time <= 0 MPH by Section

RENO thurs PM-SB-001TN
RENO thurs PM-SB-002T
RENO thurs PM-SB-003T
RENO thurs PM-SB-004T
RENO thurs PM-SB-005T
RENO thurs PM-SB-006T
RENO thurs PM-SB-007T
RENO thurs PM-SB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	0	0	0	0	1	0	0	0
3	725	W. 4TH ST	2	0	0	23	0	0	0	0
4	857	W. 2ND ST	1	0	0	0	0	0	0	0
5	524	W. 1ST ST.	15	0	0	0	0	0	13	0
6	966	RIVERSIDE DR	0	0	0	0	5	0	0	0
7	1780	CALIFORNIA	0	0	0	0	0	0	0	0
Totals	**5394**		**18**	**0**	**0**	**23**	**6**	**0**	**13**	**0**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 14**

Detailed Statistics By Run

Time <= 0 MPH by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12
			RENO thurs PM-SB-009T	RENO thurs PM-SB-010T	RENO thurs PM-SB-011T	RENO thurs PM-SB-012T
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	0	0	0	0
3	725	W. 4TH ST	0	0	0	0
4	857	W. 2ND ST	0	0	0	0
5	524	W. 1ST ST.	0	5	7	0
6	966	RIVERSIDE DR	0	0	0	2
7	1780	CALIFORNIA	0	0	0	0
Totals	**5394**		**0**	**5**	**7**	**2**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 15**

Detailed Statistics By Run

Time <= 35 MPH by Section

RENO thurs PM-SB-001TN
RENO thurs PM-SB-002T
RENO thurs PM-SB-003T
RENO thurs PM-SB-004T
RENO thurs PM-SB-005T
RENO thurs PM-SB-006T
RENO thurs PM-SB-007T
RENO thurs PM-SB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	24	16	19	24	18	17	21
3	725	W. 4TH ST	50	20	15	59	23	18	17	15
4	857	W. 2ND ST	35	21	21	22	19	24	19	20
5	524	W. 1ST ST.	40	12	20	12	14	12	40	13
6	966	RIVERSIDE DR	21	21	19	21	45	20	23	21
7	1780	CALIFORNIA	38	38	40	38	41	39	39	37
Totals	**5394**		**208**	**136**	**131**	**171**	**166**	**131**	**155**	**127**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 16**

Detailed Statistics By Run

Time <= 35 MPH by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12
			RENO thurs PM-SB-009T	RENO thurs PM-SB-010T	RENO thurs PM-SB-011T	RENO thurs PM-SB-012T
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	18	15	17	16
3	725	W. 4TH ST	17	16	16	17
4	857	W. 2ND ST	20	20	23	21
5	524	W. 1ST ST.	12	28	45	14
6	966	RIVERSIDE DR	18	22	24	59
7	1780	CALIFORNIA	38	36	34	40
Totals	**5394**		**123**	**137**	**159**	**167**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 17**

Detailed Statistics By Run

Time <= 55 MPH by Section

RENO thurs PM-SB-001TN
RENO thurs PM-SB-002T
RENO thurs PM-SB-003T
RENO thurs PM-SB-004T
RENO thurs PM-SB-005T
RENO thurs PM-SB-006T
RENO thurs PM-SB-007T
RENO thurs PM-SB-0

Node #	Length	Node Name	Run #1	Run #2	Run #3	Run #4	Run #5	Run #6	Run #7	Run #8
1	0	I-80 OFF RAMP								
2	542	W. 5TH ST	24	24	16	19	24	18	17	21
3	725	W. 4TH ST	50	20	15	59	23	18	17	15
4	857	W. 2ND ST	35	21	21	22	19	24	19	20
5	524	W. 1ST ST.	40	12	20	12	14	12	40	13
6	966	RIVERSIDE DR	21	21	24	21	45	20	23	21
7	1780	CALIFORNIA	38	38	40	38	41	39	39	37
Totals	**5394**		**208**	**136**	**136**	**171**	**166**	**131**	**155**	**127**

Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name **: THU PM SB**
Study Date **: 8/22/2013**
Page No. **: 18**

Detailed Statistics By Run

Time <= 55 MPH by Section

Node #	Length	Node Name	Run #9	Run #10	Run #11	Run #12
			RENO thurs PM-SB-009T	RENO thurs PM-SB-010T	RENO thurs PM-SB-011T	RENO thurs PM-SB-012T
1	0	I-80 OFF RAMP				
2	542	W. 5TH ST	18	15	17	16
3	725	W. 4TH ST	17	16	16	17
4	857	W. 2ND ST	20	20	23	21
5	524	W. 1ST ST.	12	28	45	14
6	966	RIVERSIDE DR	20	22	24	59
7	1780	CALIFORNIA	38	36	34	40
Totals	**5394**		**125**	**137**	**159**	**167**

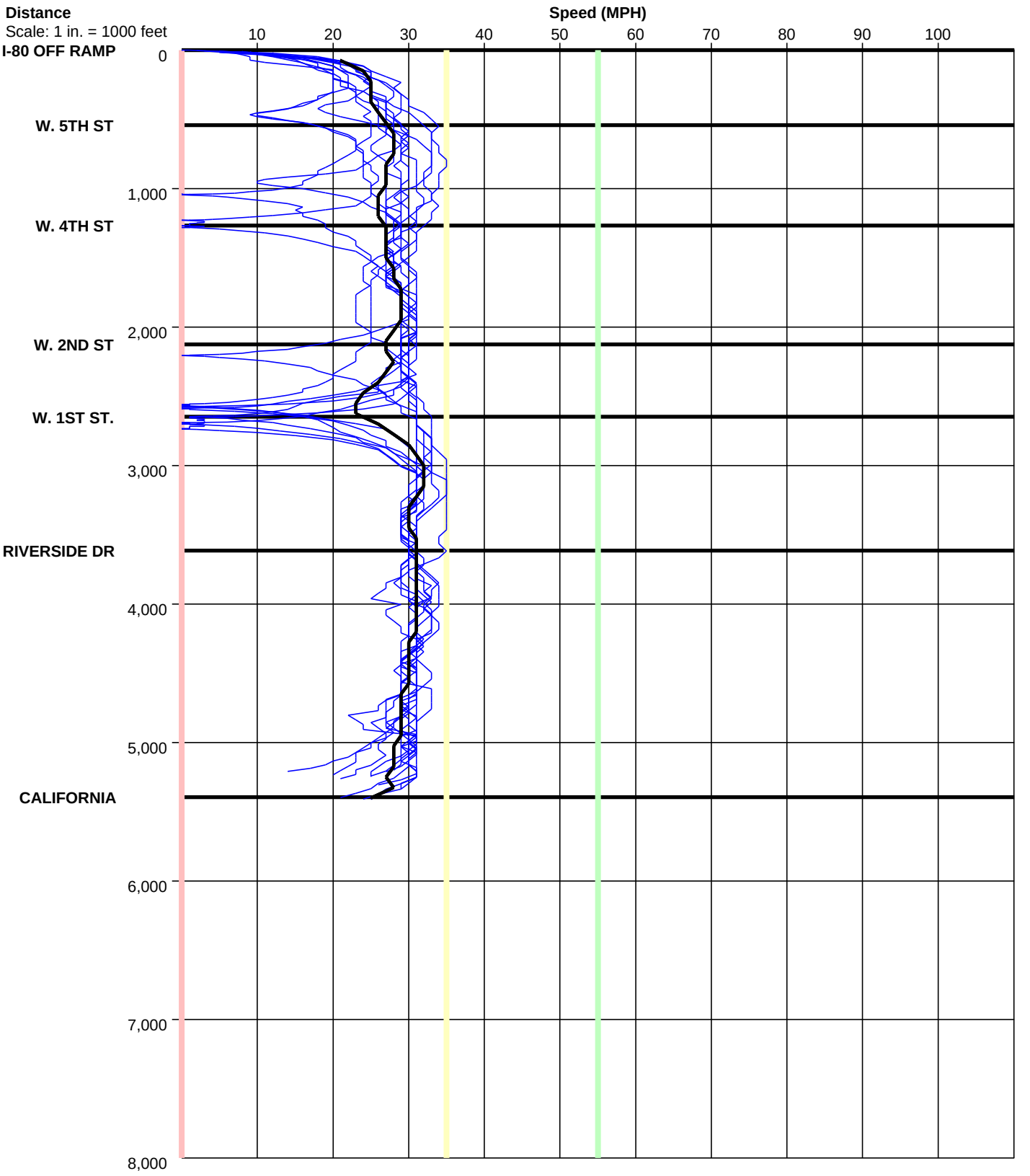
Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **19**

Speed/Distance Profiles of All Runs



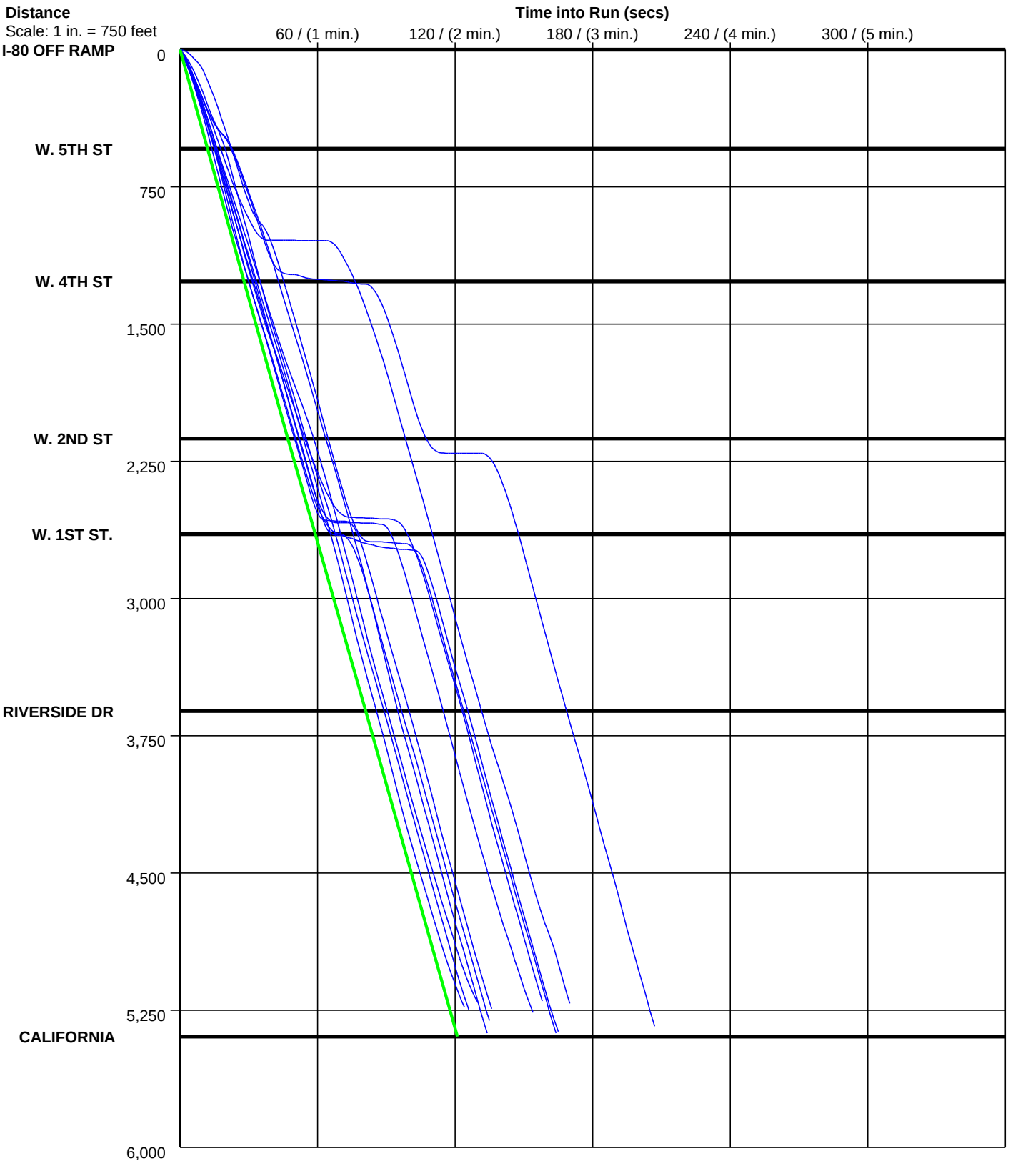
Pacific Traffic Data Services

Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **20**

Time/Space Trajectories of All Runs



Solid Line is Normal Speed of 30 MPH

Pacific Traffic Data Services

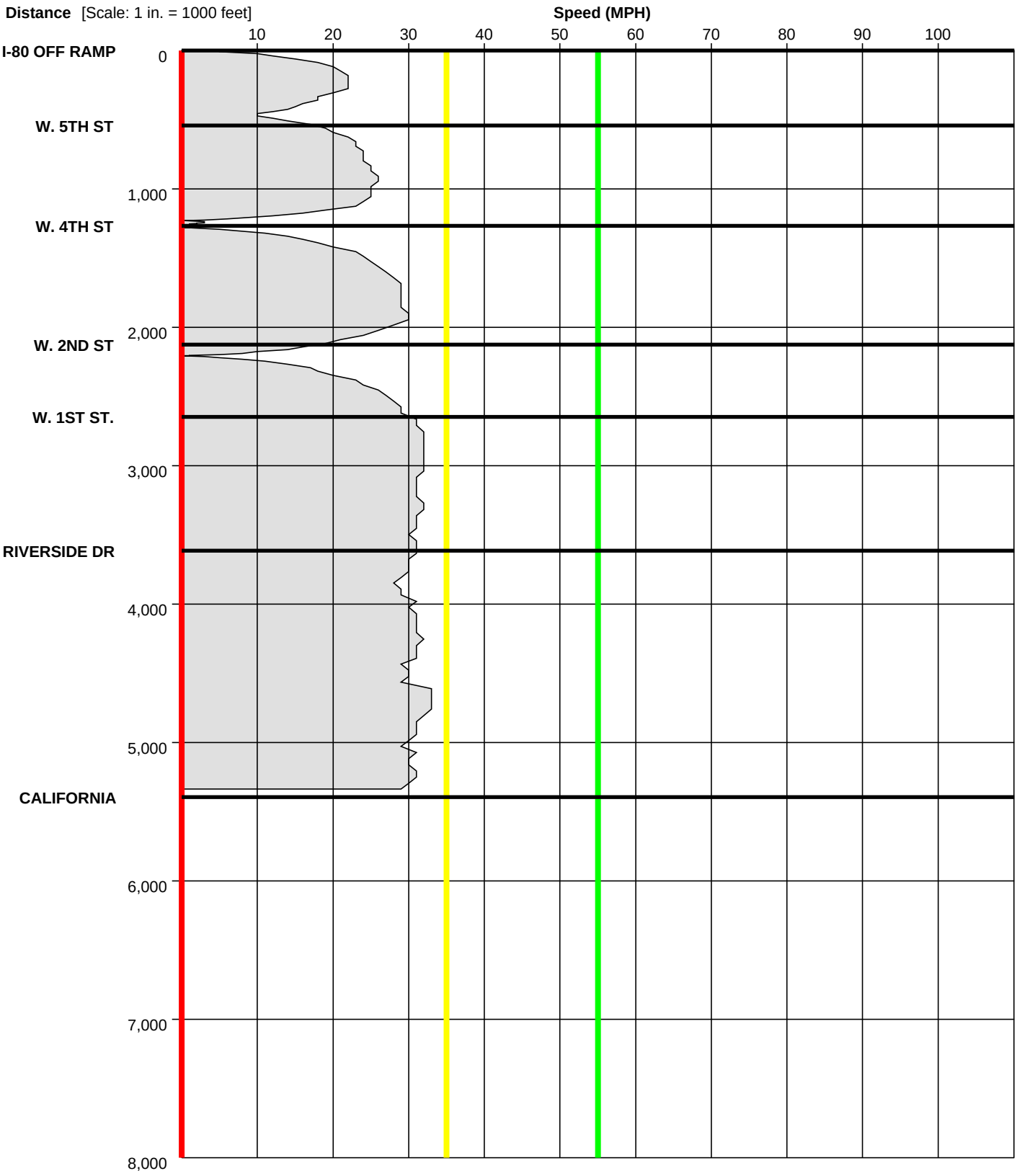
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **21**

Speed Profile

Run : RENO thurs PM-SB-001TN Start Time: 16:13 (This is a Before Run)



Pacific Traffic Data Services

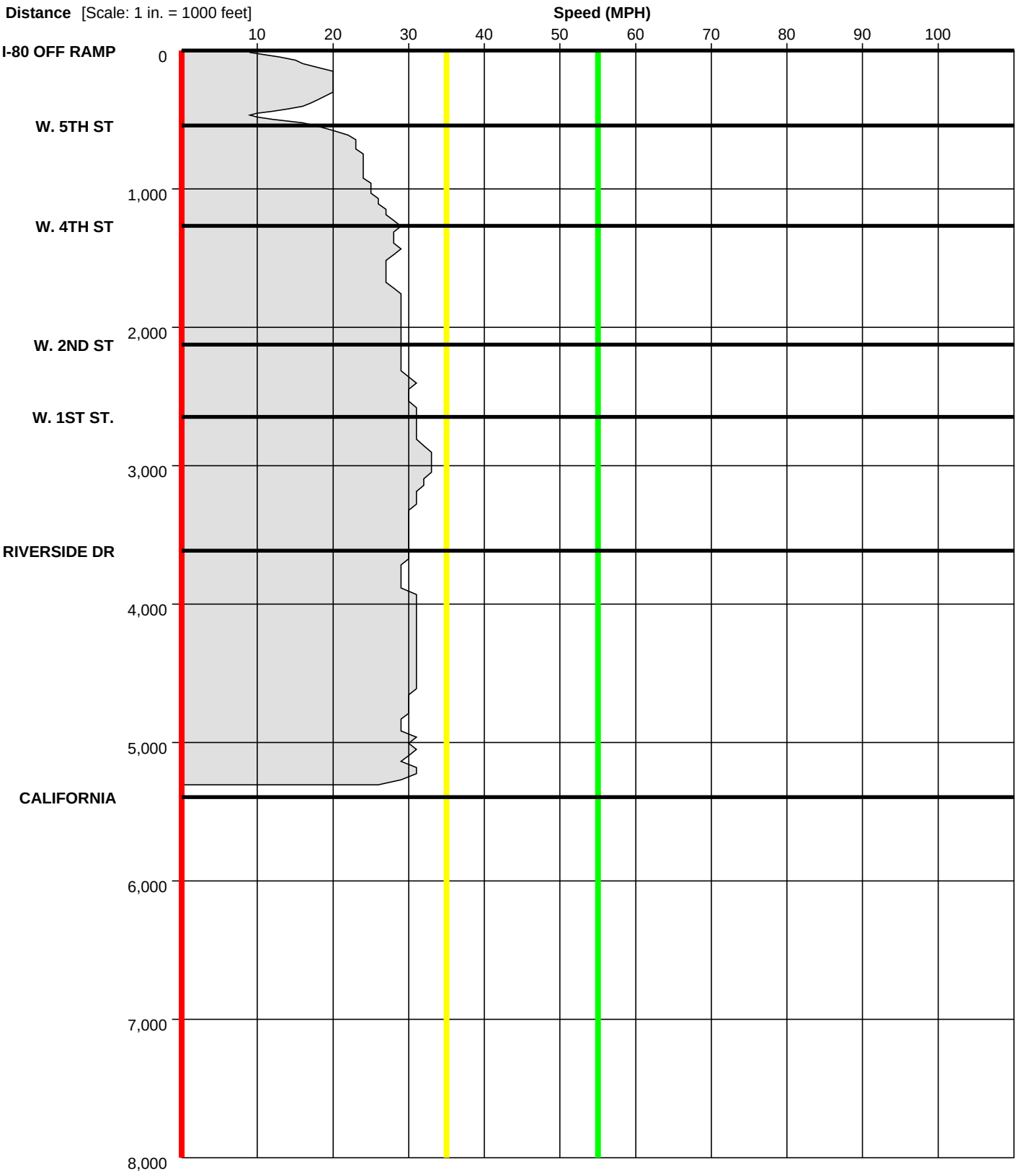
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **22**

Speed Profile

Run : RENO thurs PM-SB-002T Start Time: 16:22 (This is a Before Run)



Pacific Traffic Data Services

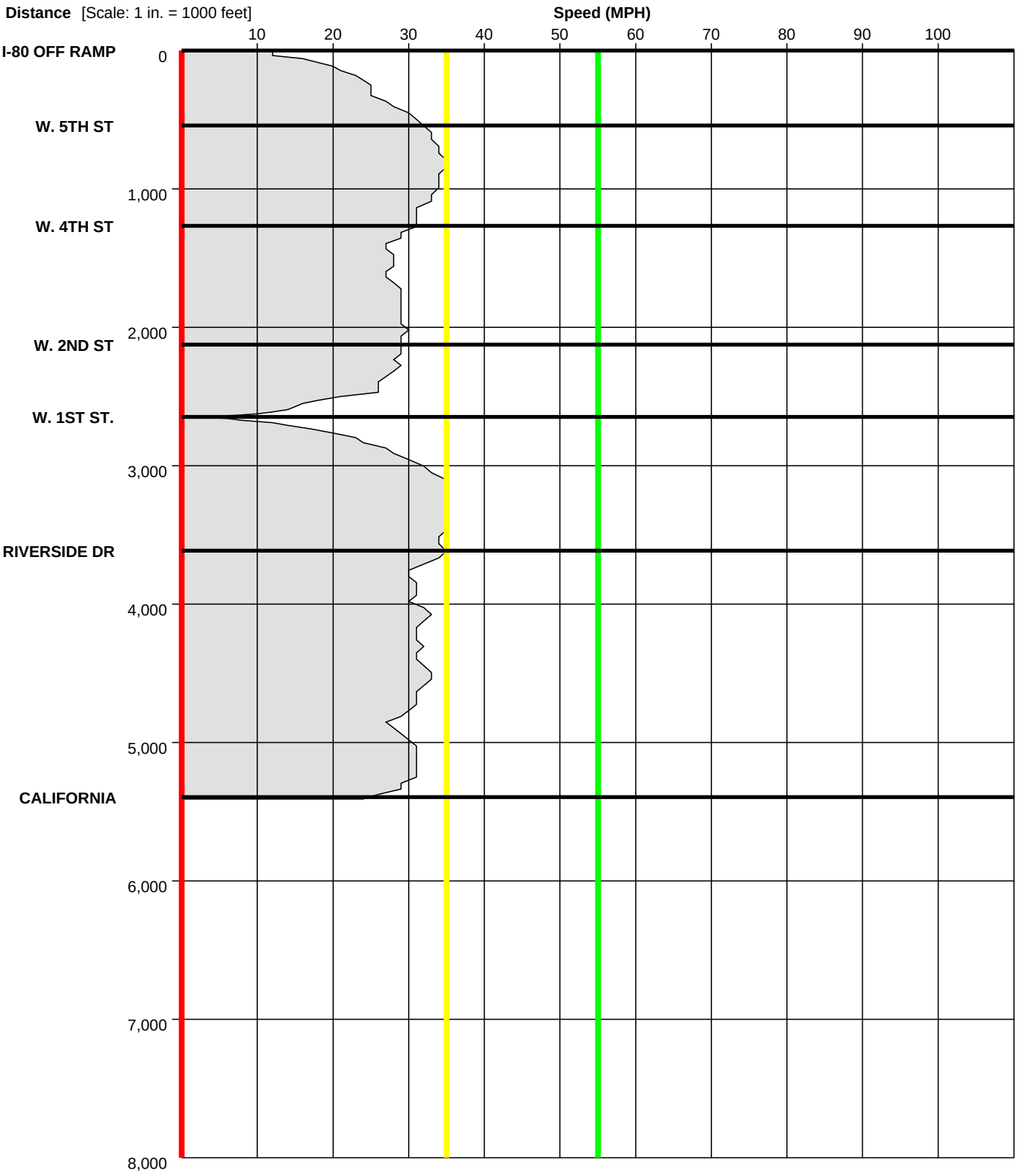
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **23**

Speed Profile

Run : RENO thurs PM-SB-003T Start Time: 16:31 (This is a Before Run)



Pacific Traffic Data Services

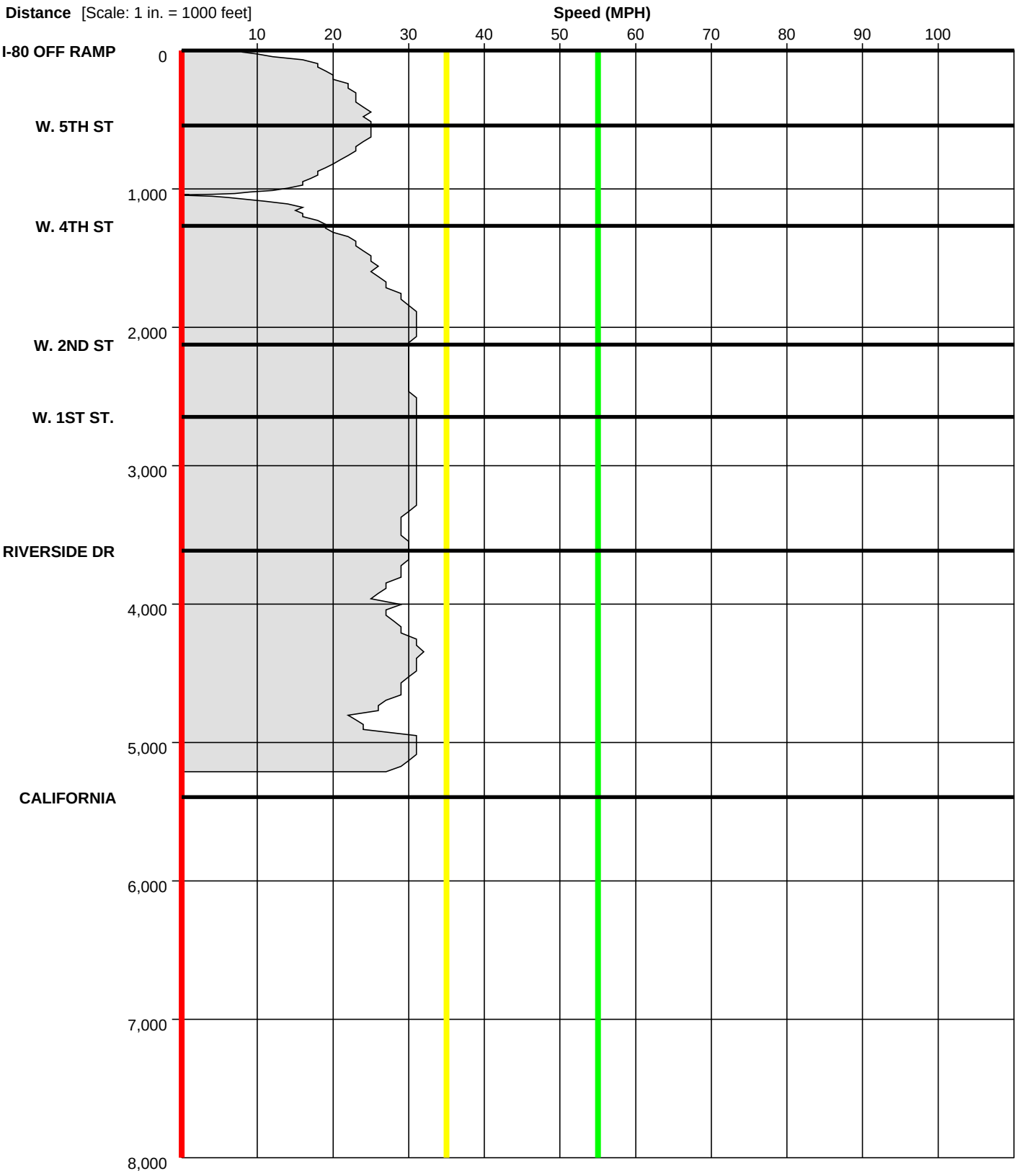
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **24**

Speed Profile

Run : RENO thurs PM-SB-004T Start Time: 16:40 (This is a Before Run)



Pacific Traffic Data Services

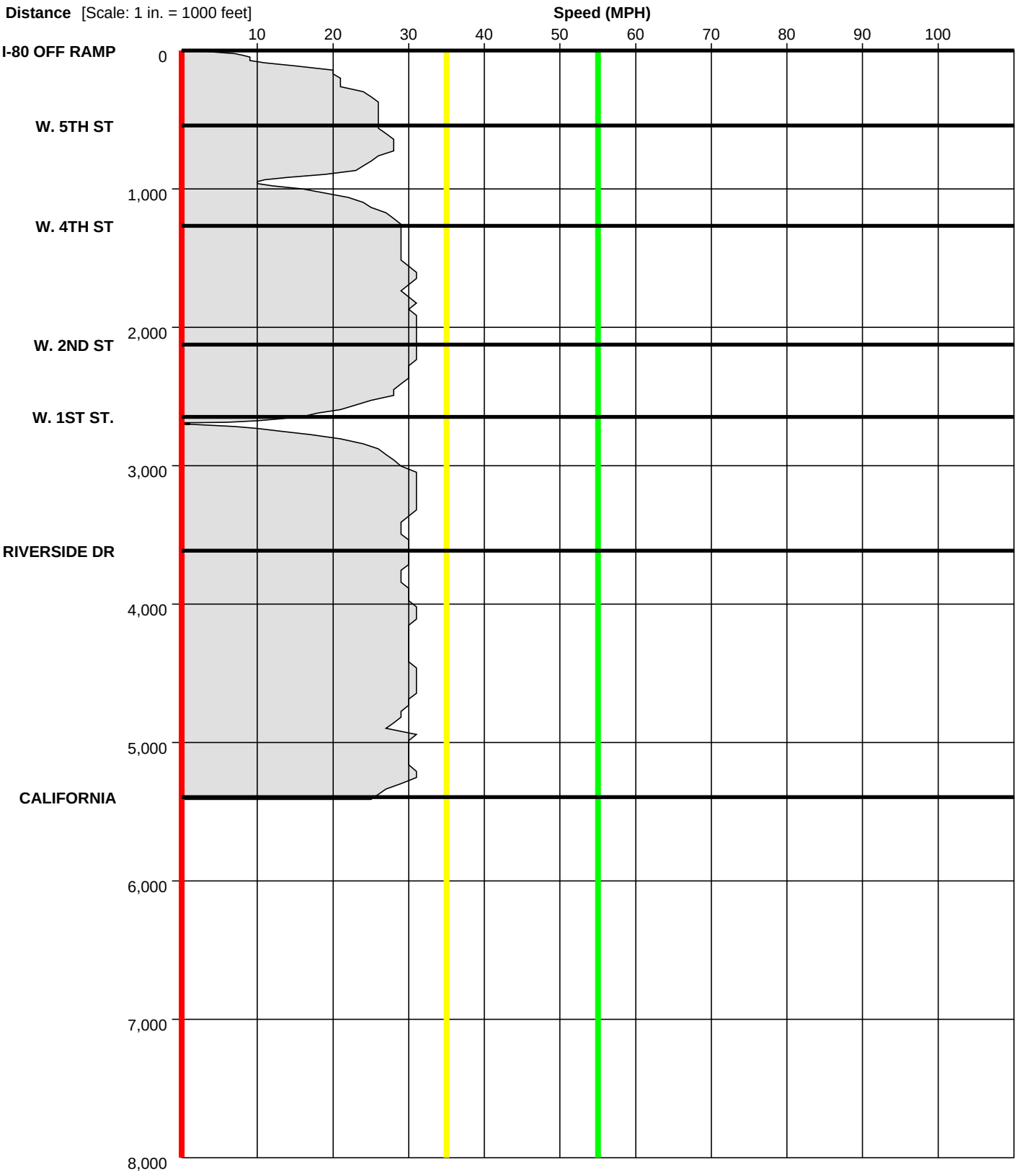
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **25**

Speed Profile

Run : RENO thurs PM-SB-005T Start Time: 16:50 (This is a Before Run)



Pacific Traffic Data Services

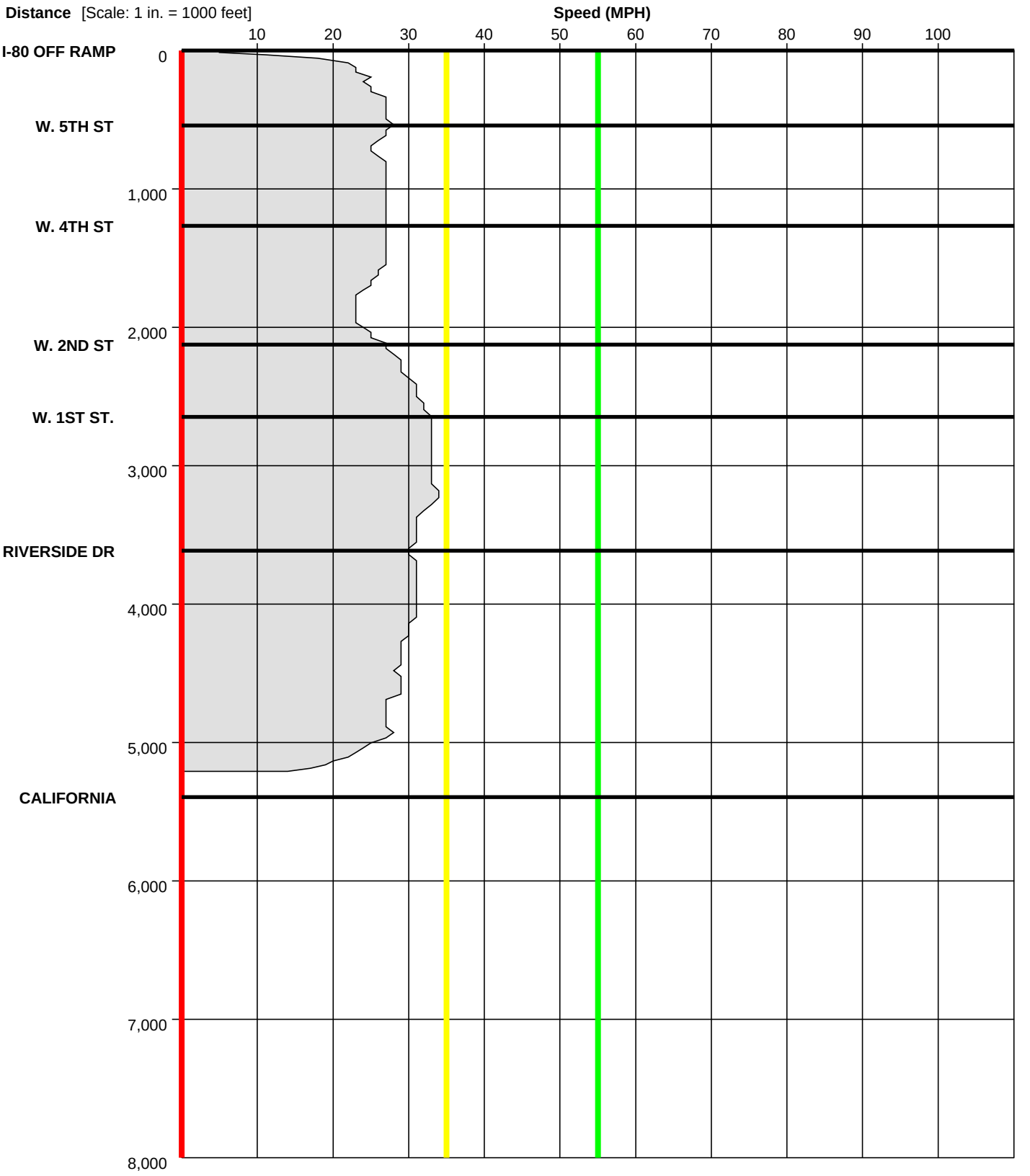
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **26**

Speed Profile

Run : RENO thurs PM-SB-006T Start Time: 17:00 (This is a Before Run)



Pacific Traffic Data Services

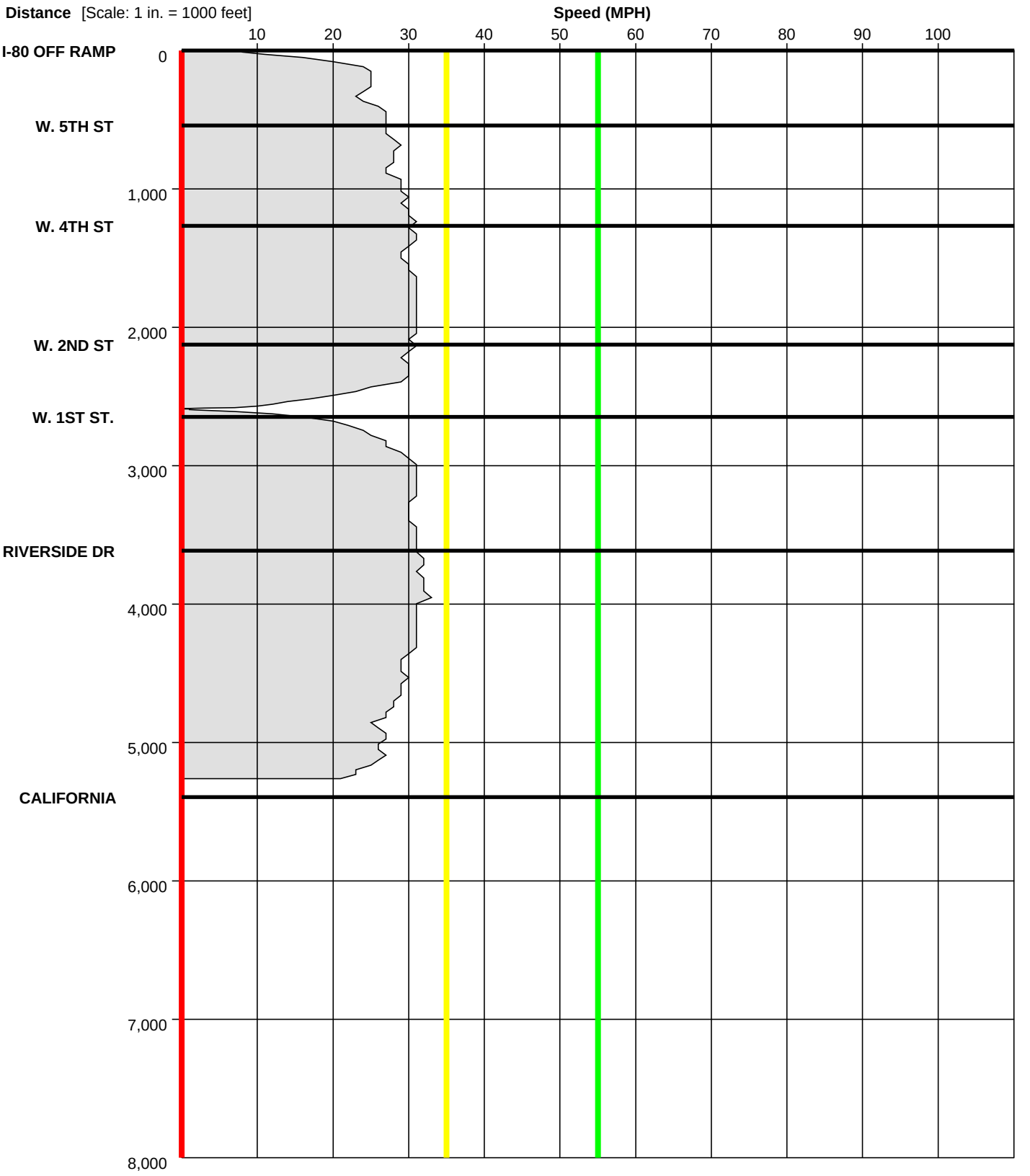
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **27**

Speed Profile

Run : RENO thurs PM-SB-007T Start Time: 17:08 (This is a Before Run)



Pacific Traffic Data Services

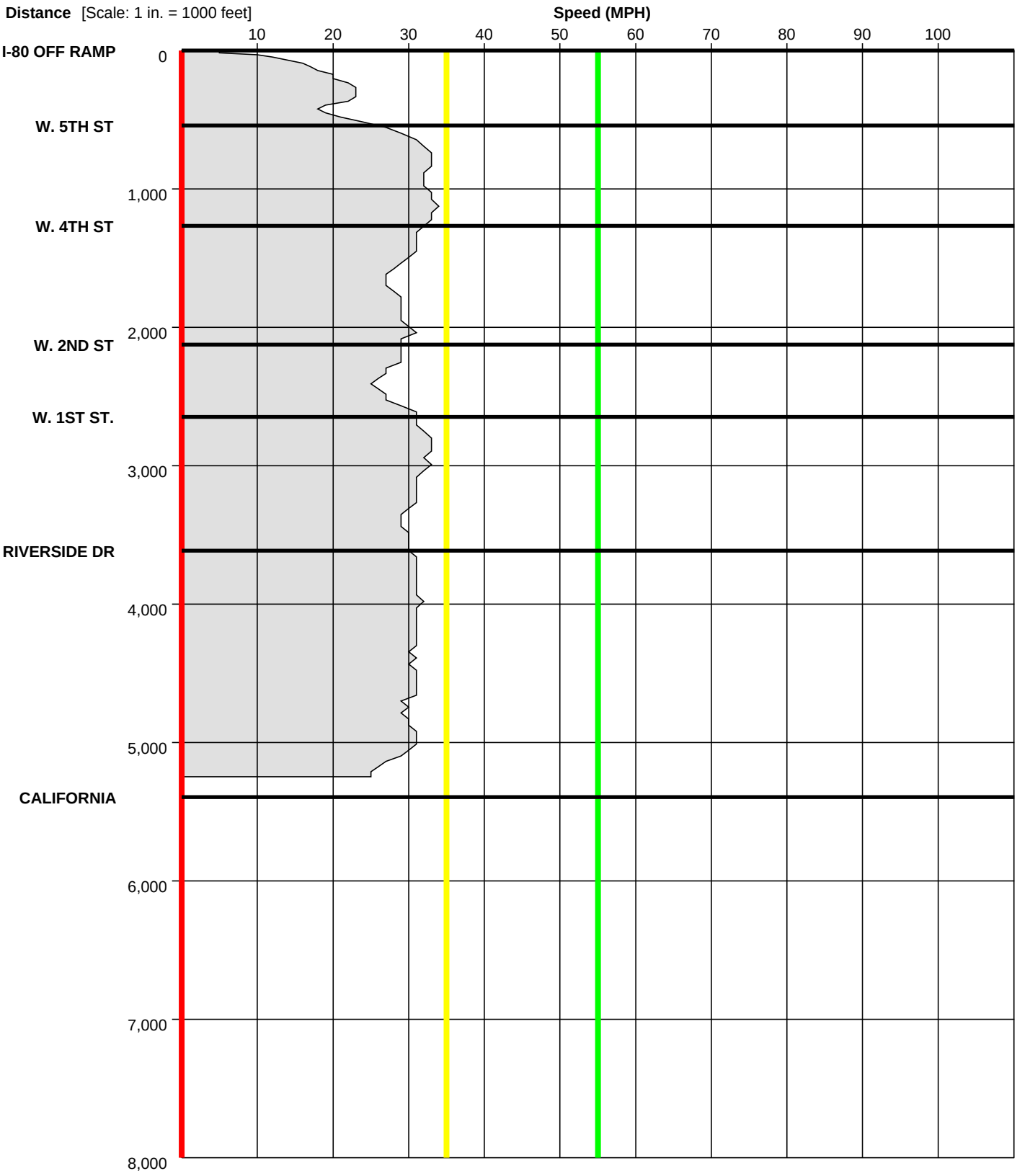
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **28**

Speed Profile

Run : RENO thurs PM-SB-008T Start Time: 17:18 (This is a Before Run)



Pacific Traffic Data Services

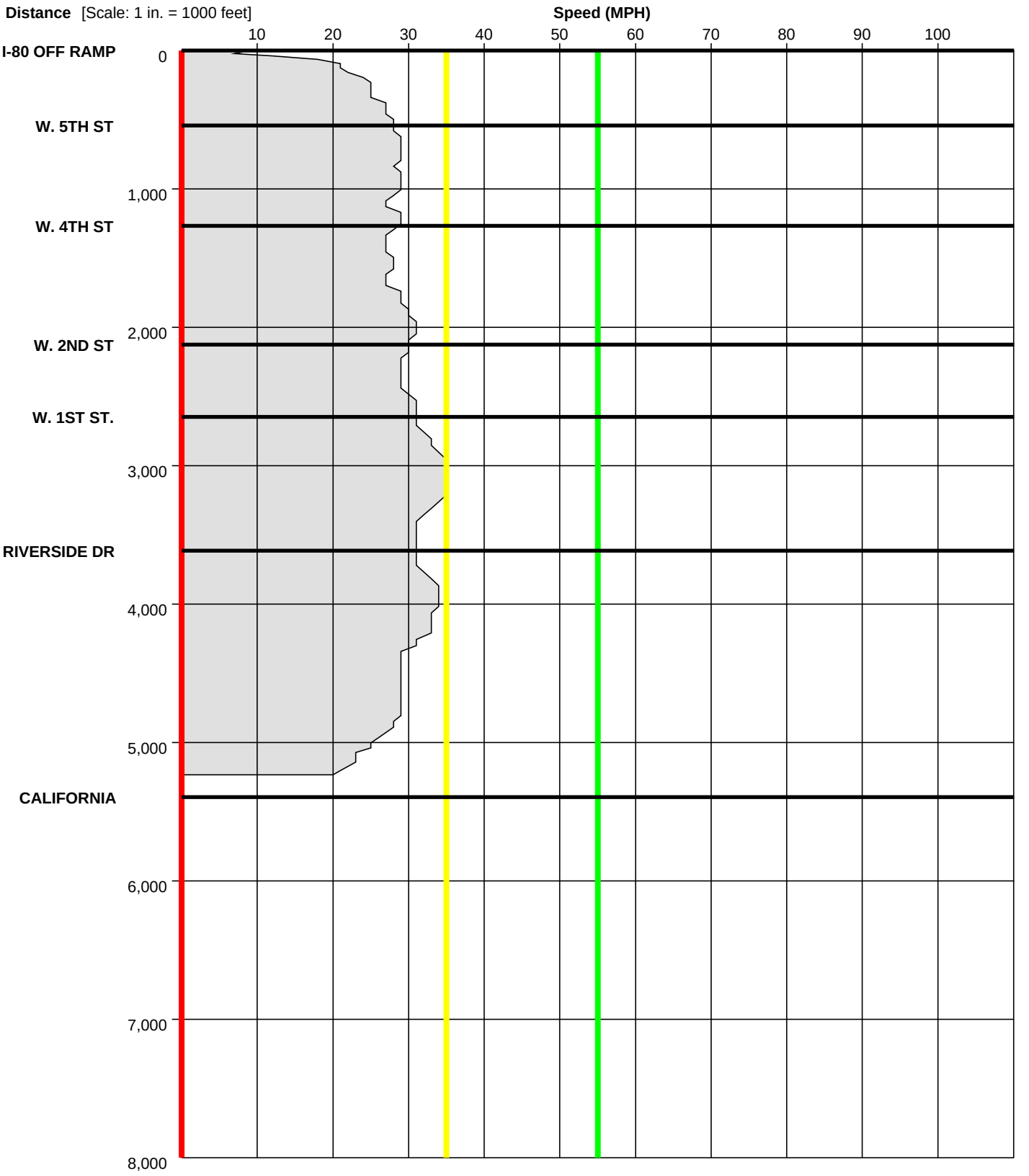
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **29**

Speed Profile

Run : RENO thurs PM-SB-009T Start Time: 17:28 (This is a Before Run)



Pacific Traffic Data Services

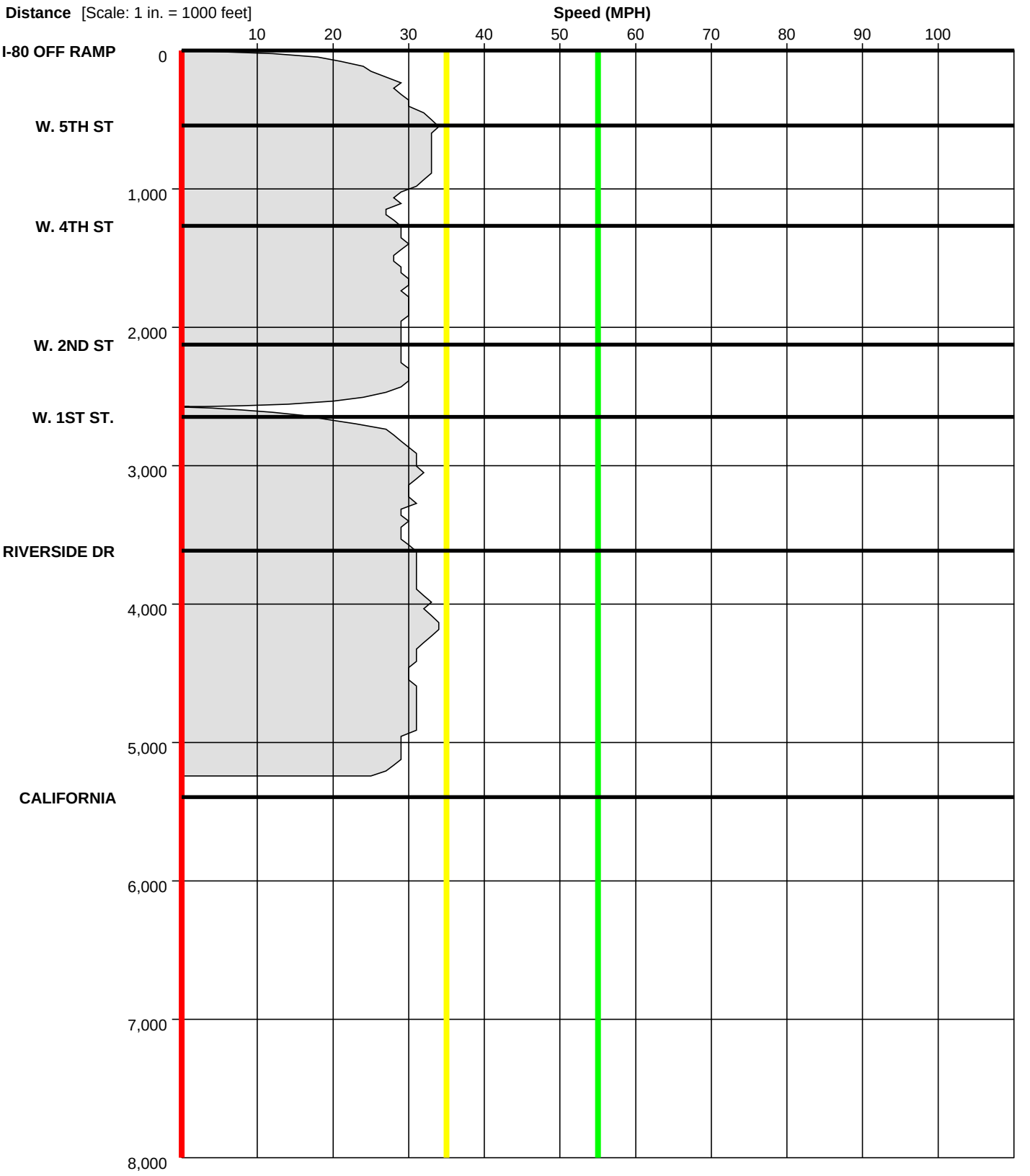
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **30**

Speed Profile

Run : RENO thurs PM-SB-010T Start Time: 17:36 (This is a Before Run)



Pacific Traffic Data Services

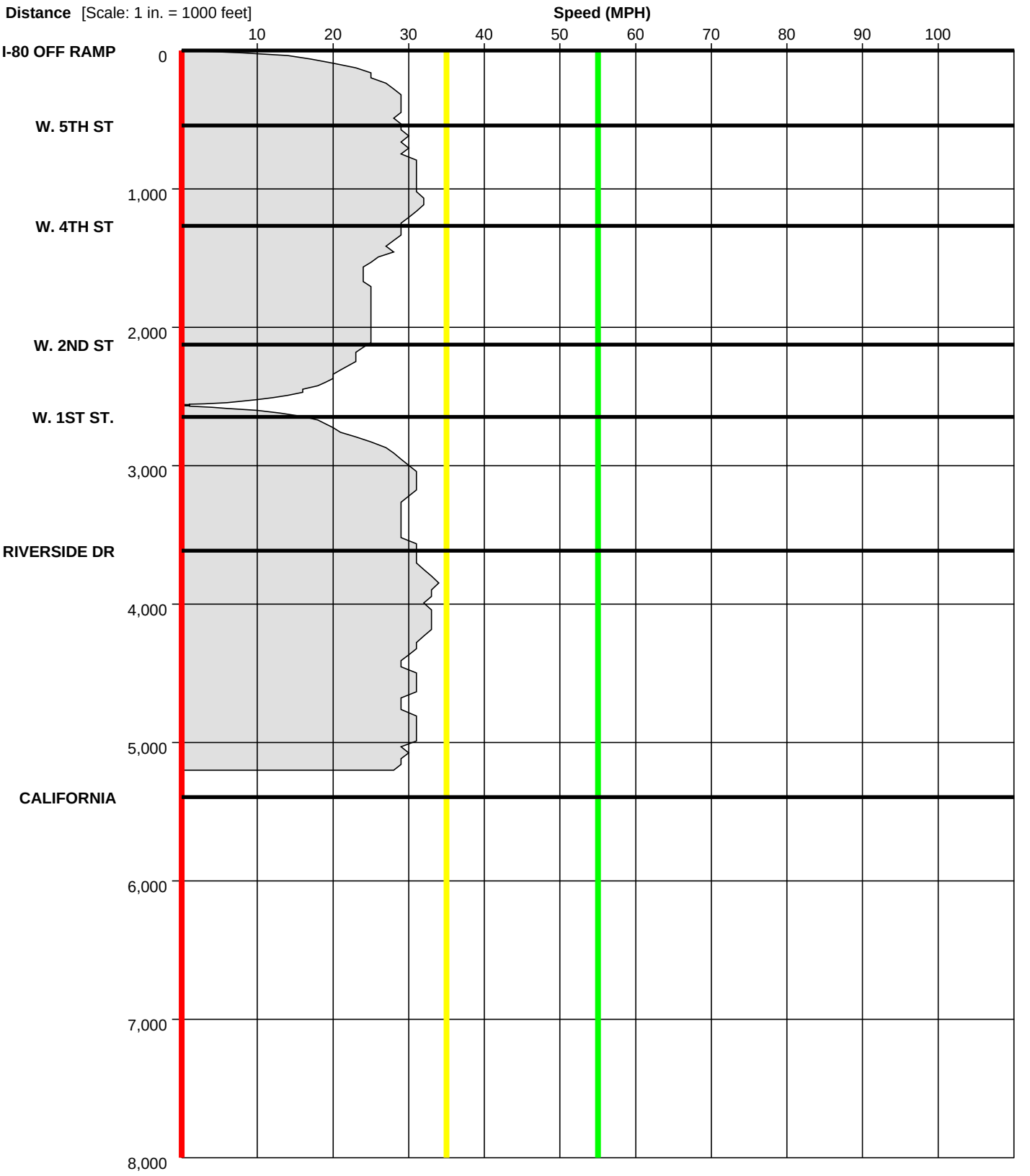
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **31**

Speed Profile

Run : RENO thurs PM-SB-011T Start Time: 17:44 (This is a Before Run)



Pacific Traffic Data Services

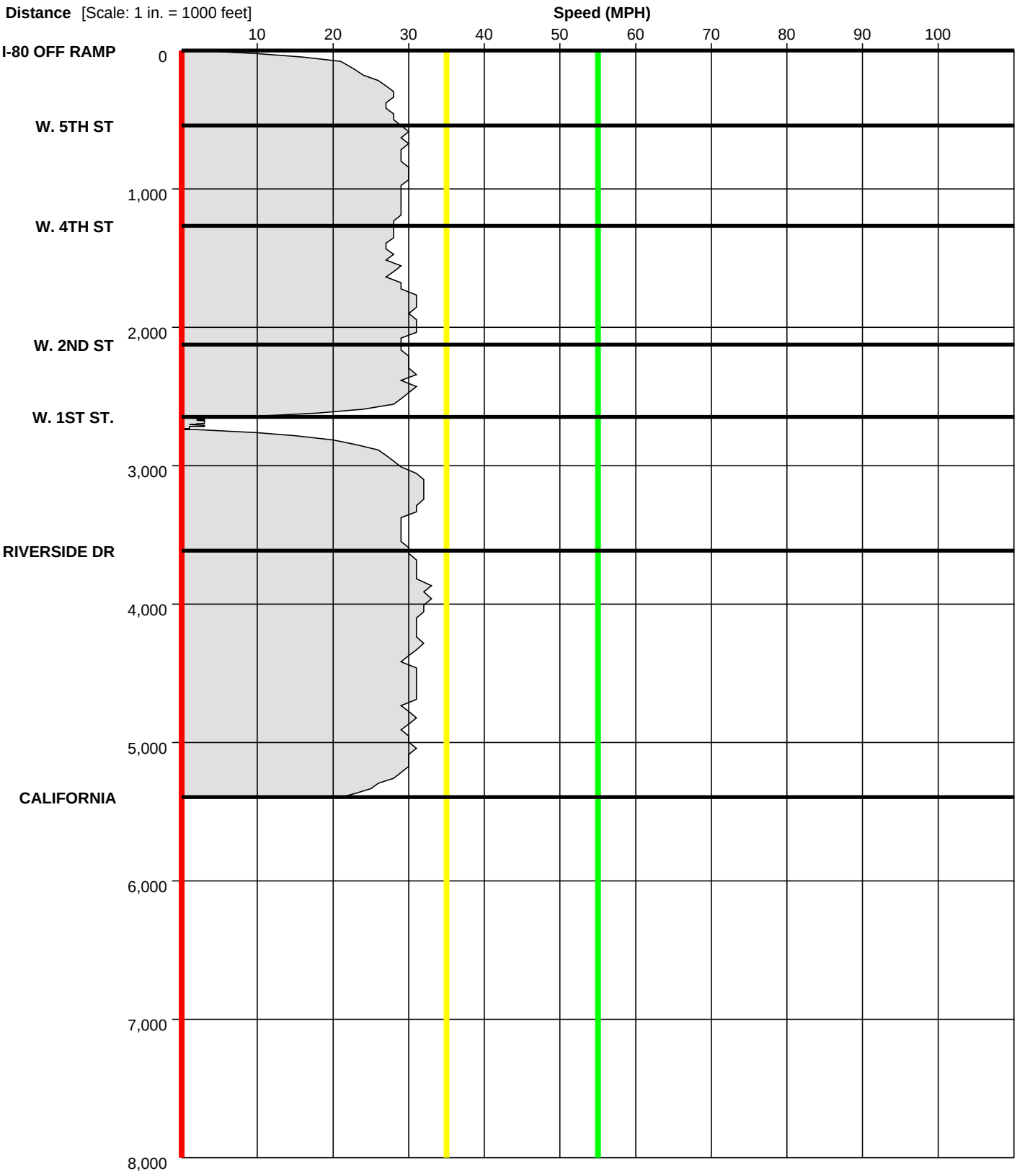
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **32**

Speed Profile

Run : RENO thurs PM-SB-012T Start Time: 17:54 (This is a Before Run)



Pacific Traffic Data Services

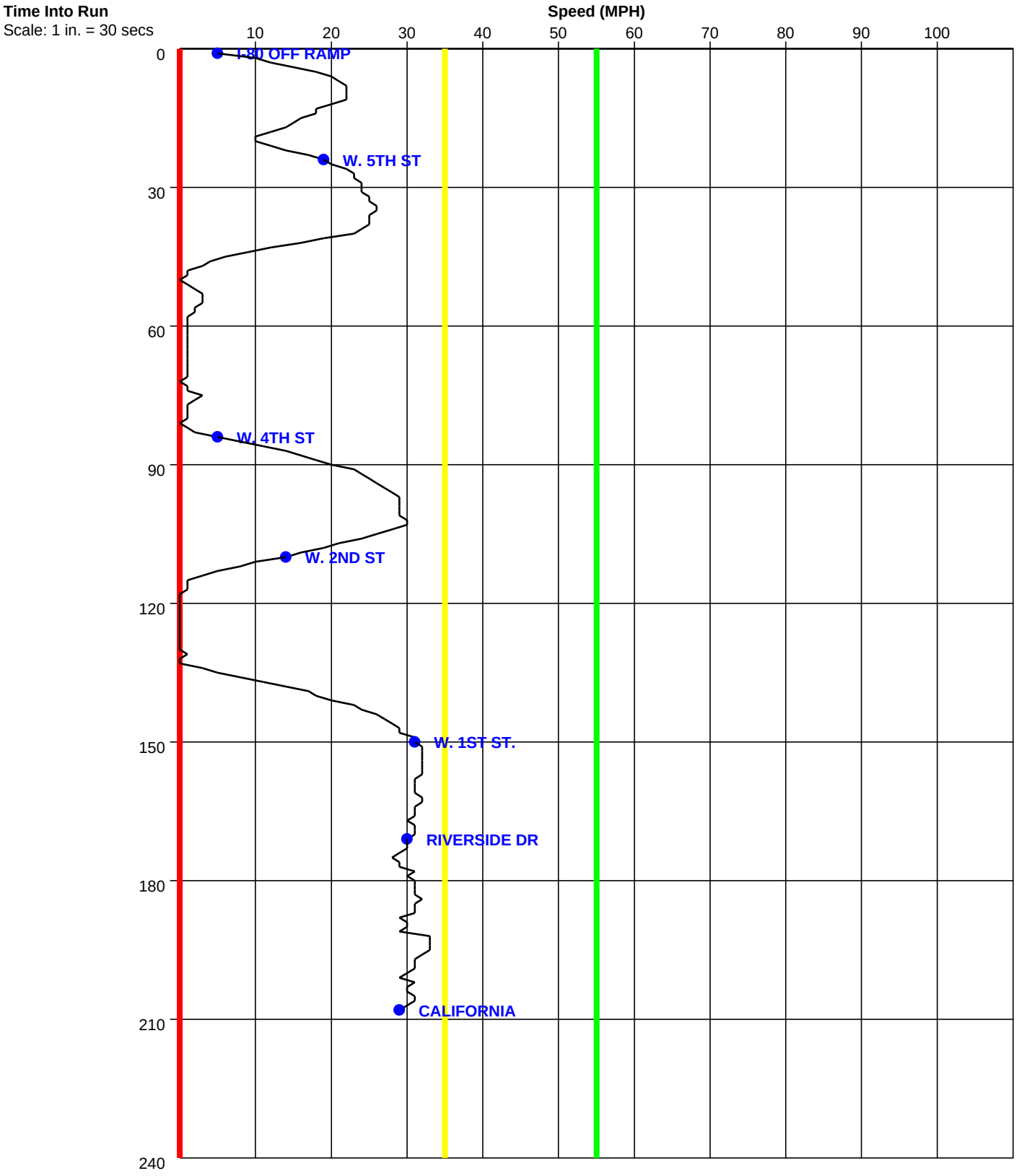
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **33**

Time-Based Speed Profile

Run : RENO thurs PM-SB-001TN Start Time:16:13 (This is a Before Run)



Pacific Traffic Data Services

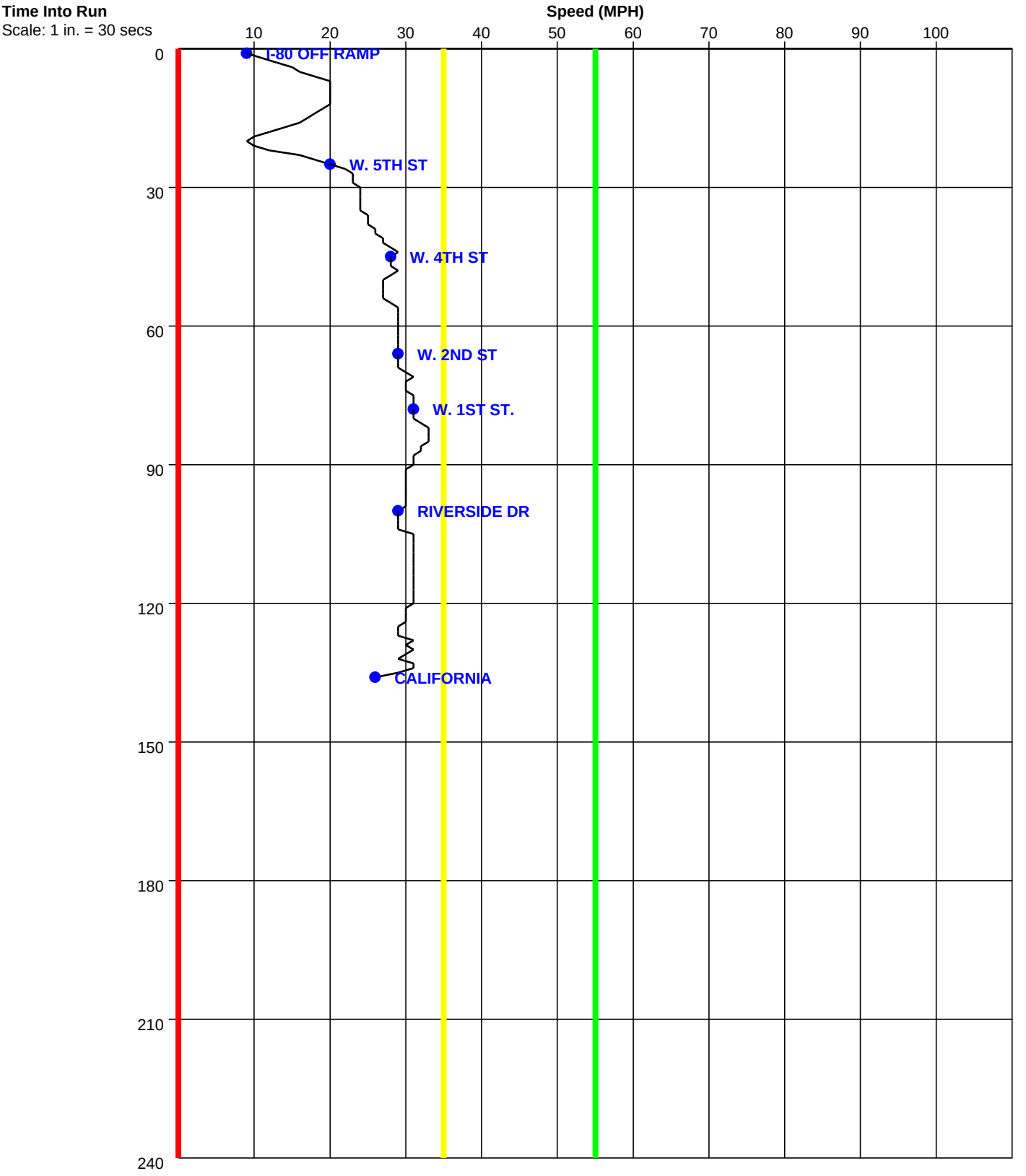
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **34**

Time-Based Speed Profile

Run : RENO thurs PM-SB-002T Start Time:16:22 (This is a Before Run)



Pacific Traffic Data Services

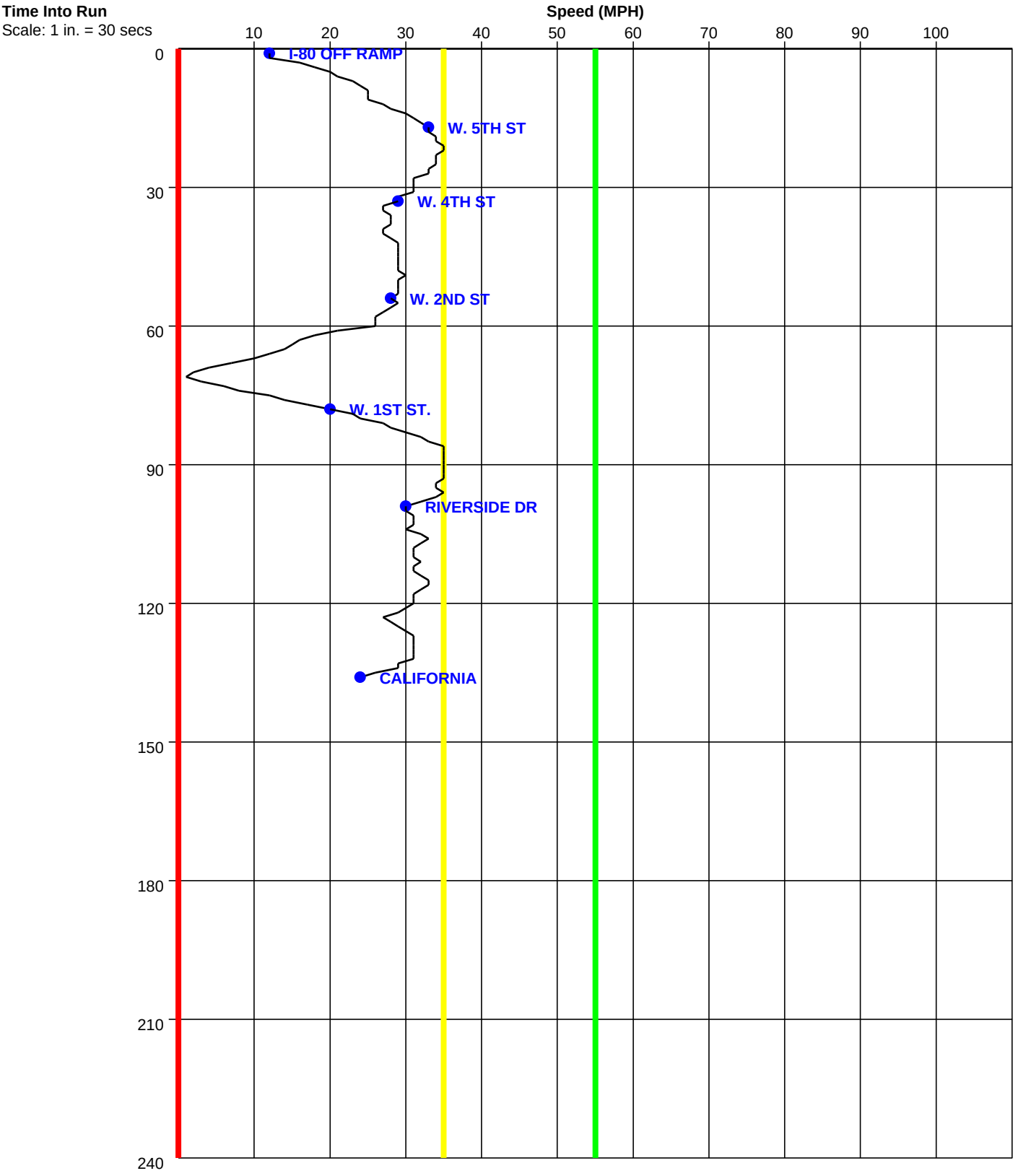
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **35**

Time-Based Speed Profile

Run : RENO thurs PM-SB-003T Start Time:16:31 (This is a Before Run)



Pacific Traffic Data Services

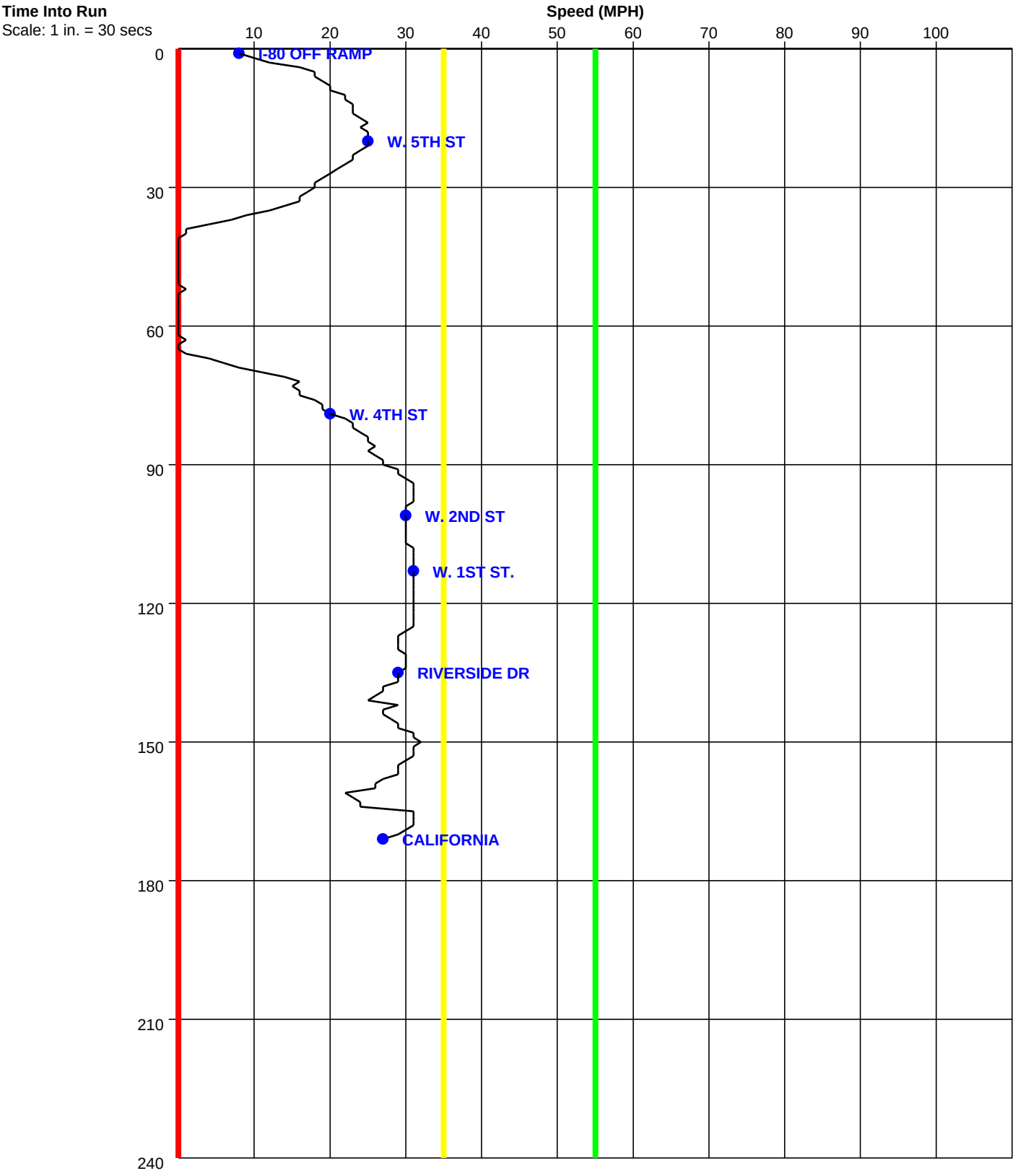
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **36**

Time-Based Speed Profile

Run : RENO thurs PM-SB-004T Start Time:16:40 (This is a Before Run)



Pacific Traffic Data Services

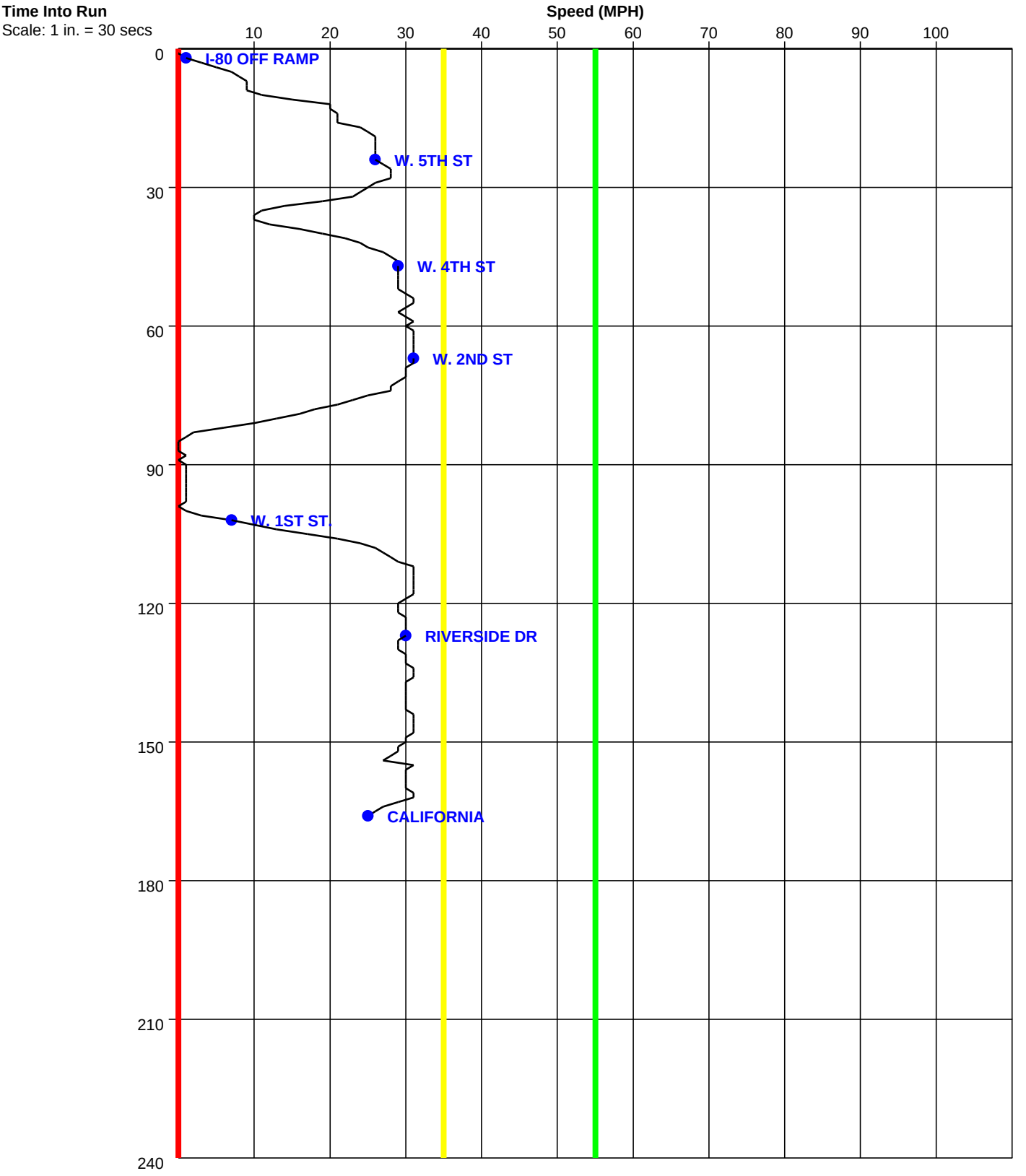
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **37**

Time-Based Speed Profile

Run : RENO thurs PM-SB-005T Start Time:16:50 (This is a Before Run)



Pacific Traffic Data Services

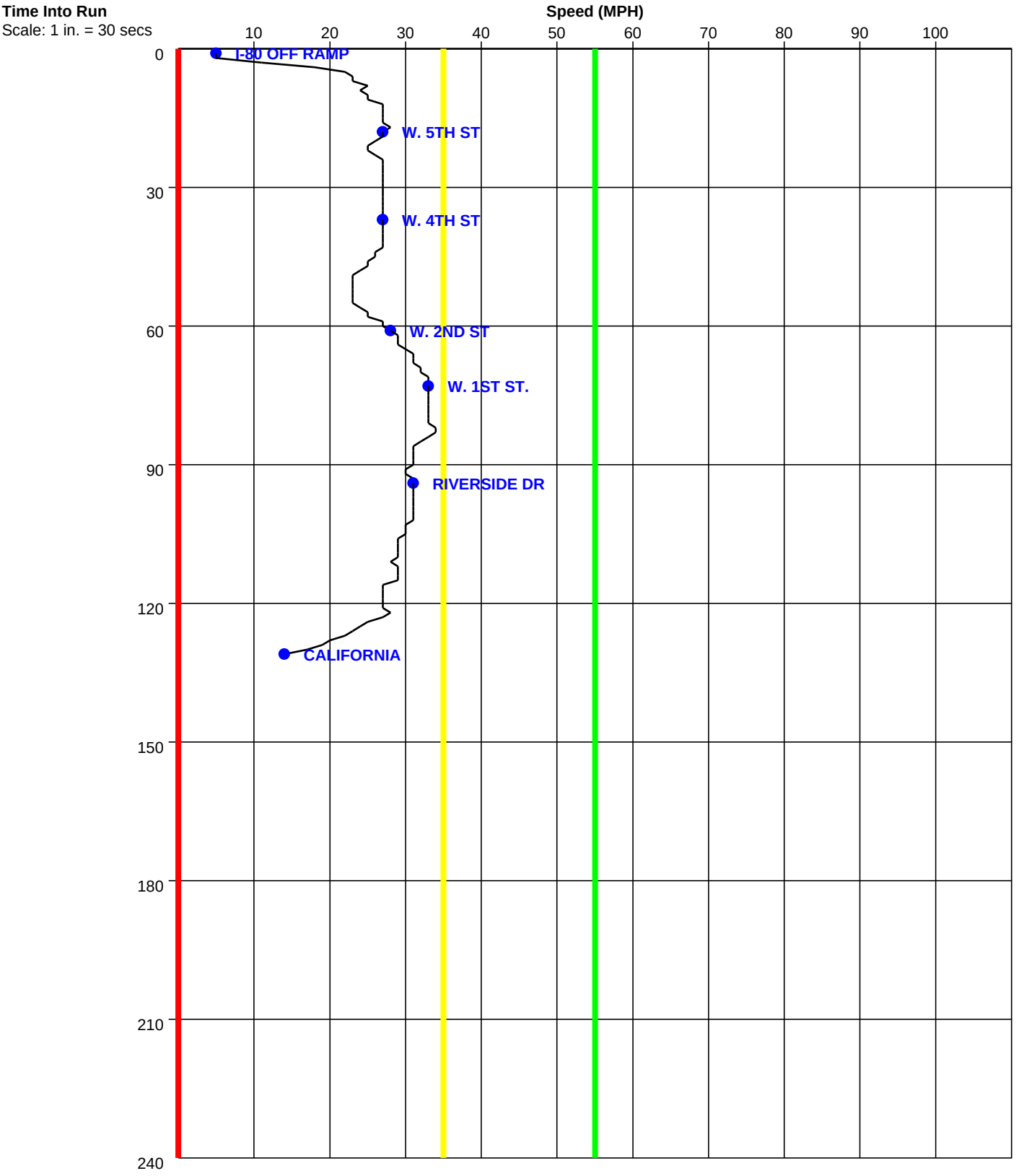
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **38**

Time-Based Speed Profile

Run : RENO thurs PM-SB-006T Start Time:17:00 (This is a Before Run)



Pacific Traffic Data Services

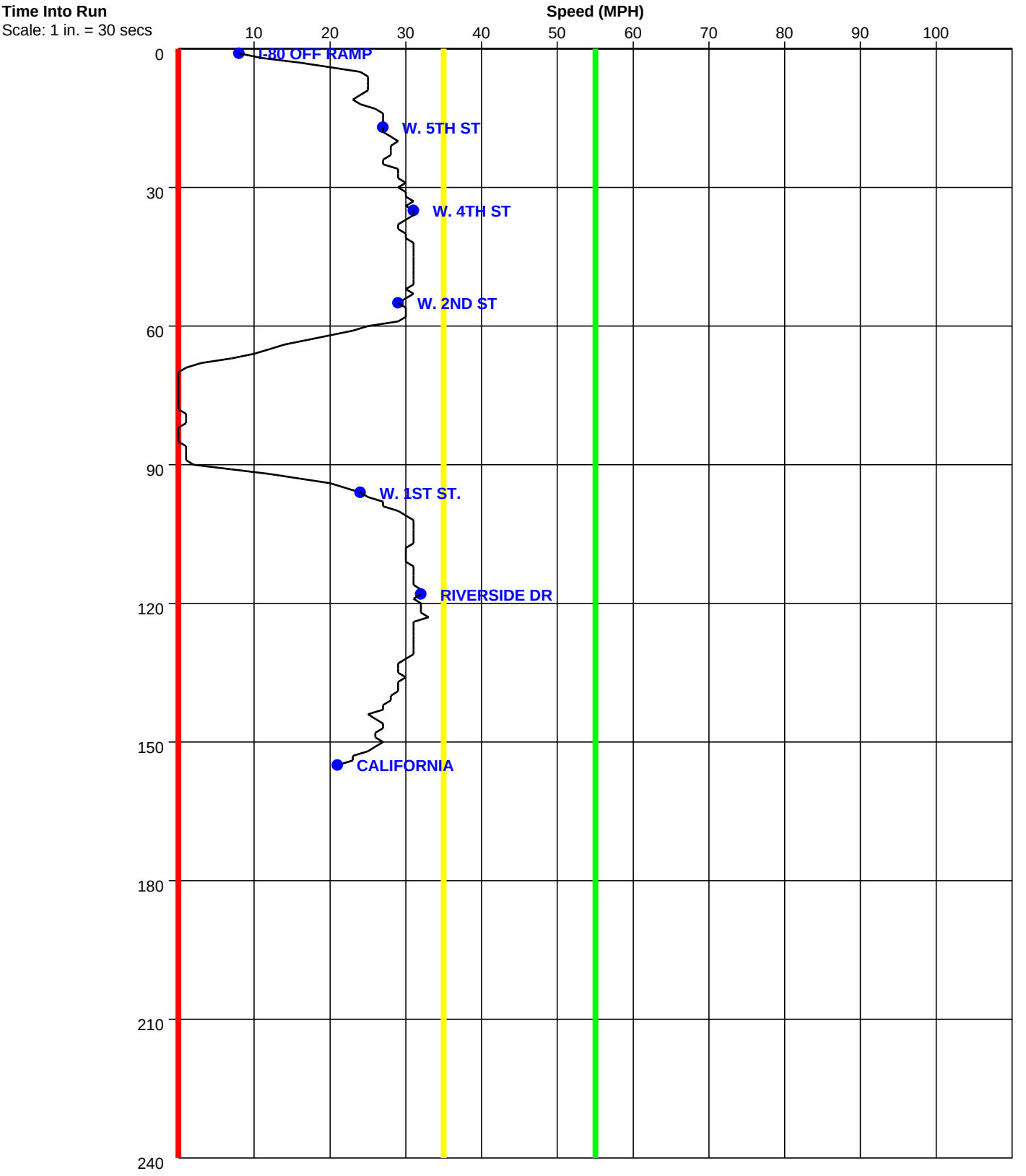
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **39**

Time-Based Speed Profile

Run : RENO thurs PM-SB-007T Start Time:17:08 (This is a Before Run)



Pacific Traffic Data Services

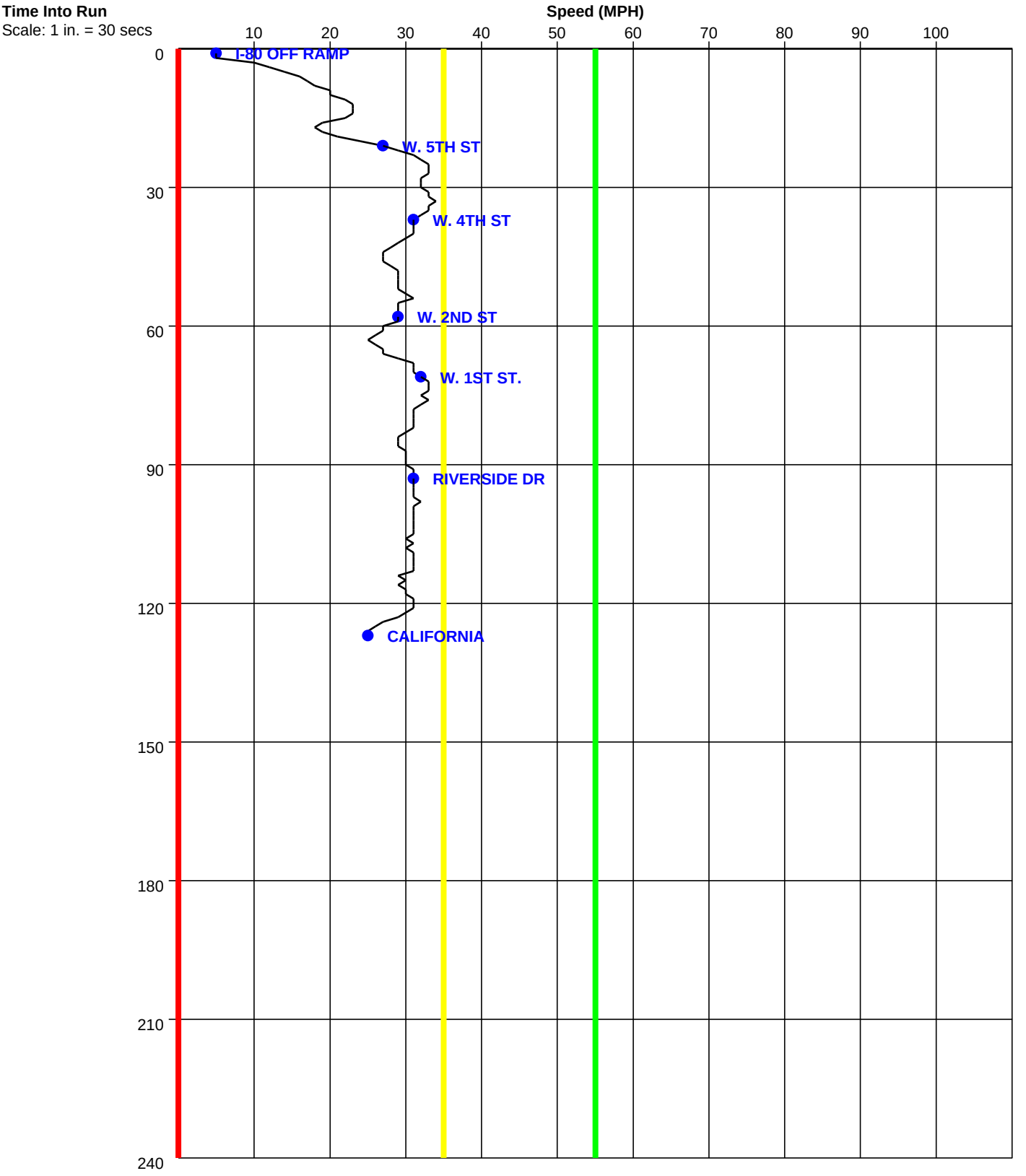
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **40**

Time-Based Speed Profile

Run : RENO thurs PM-SB-008T Start Time:17:18 (This is a Before Run)



Pacific Traffic Data Services

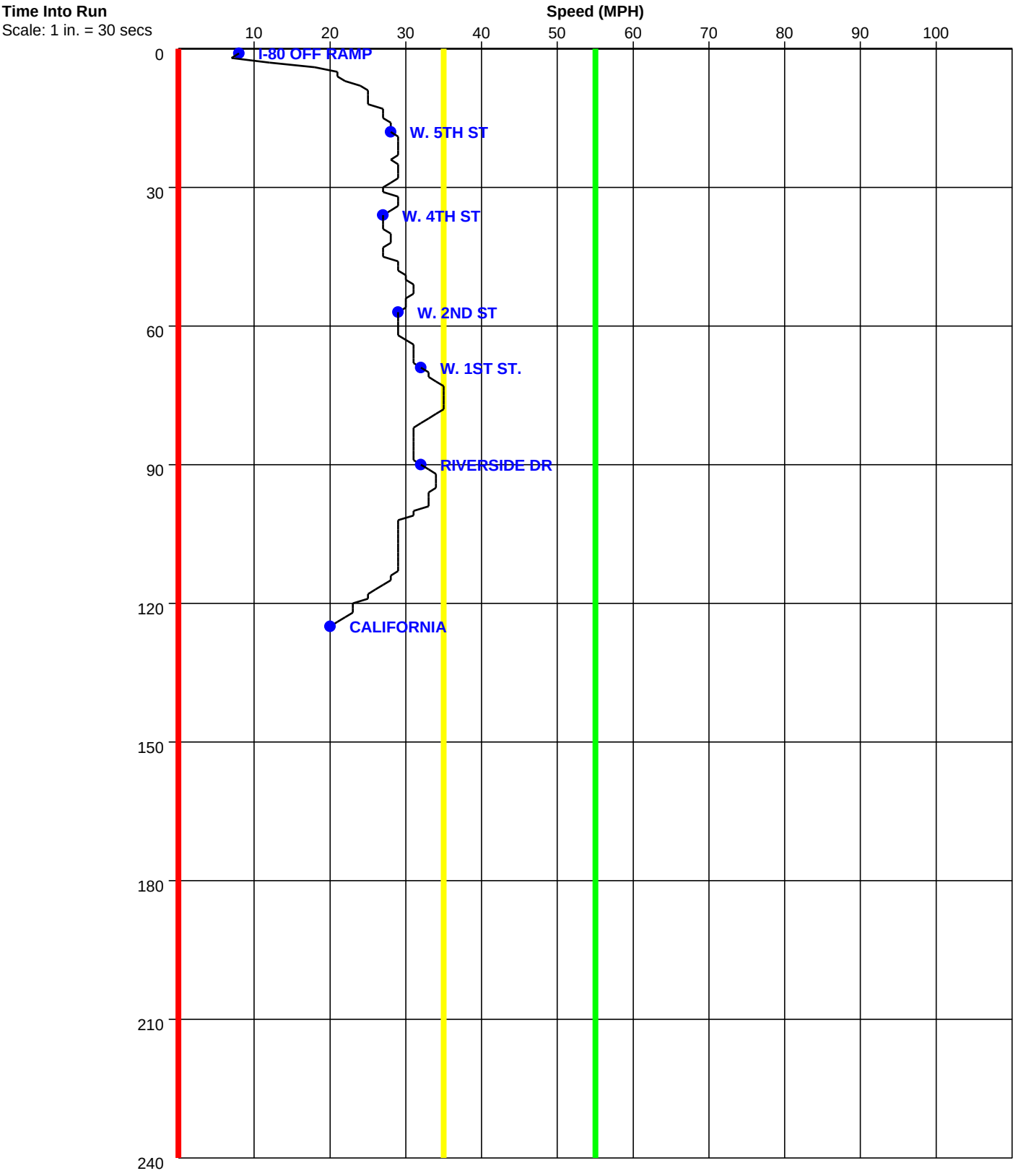
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **41**

Time-Based Speed Profile

Run : RENO thurs PM-SB-009T Start Time:17:28 (This is a Before Run)



Pacific Traffic Data Services

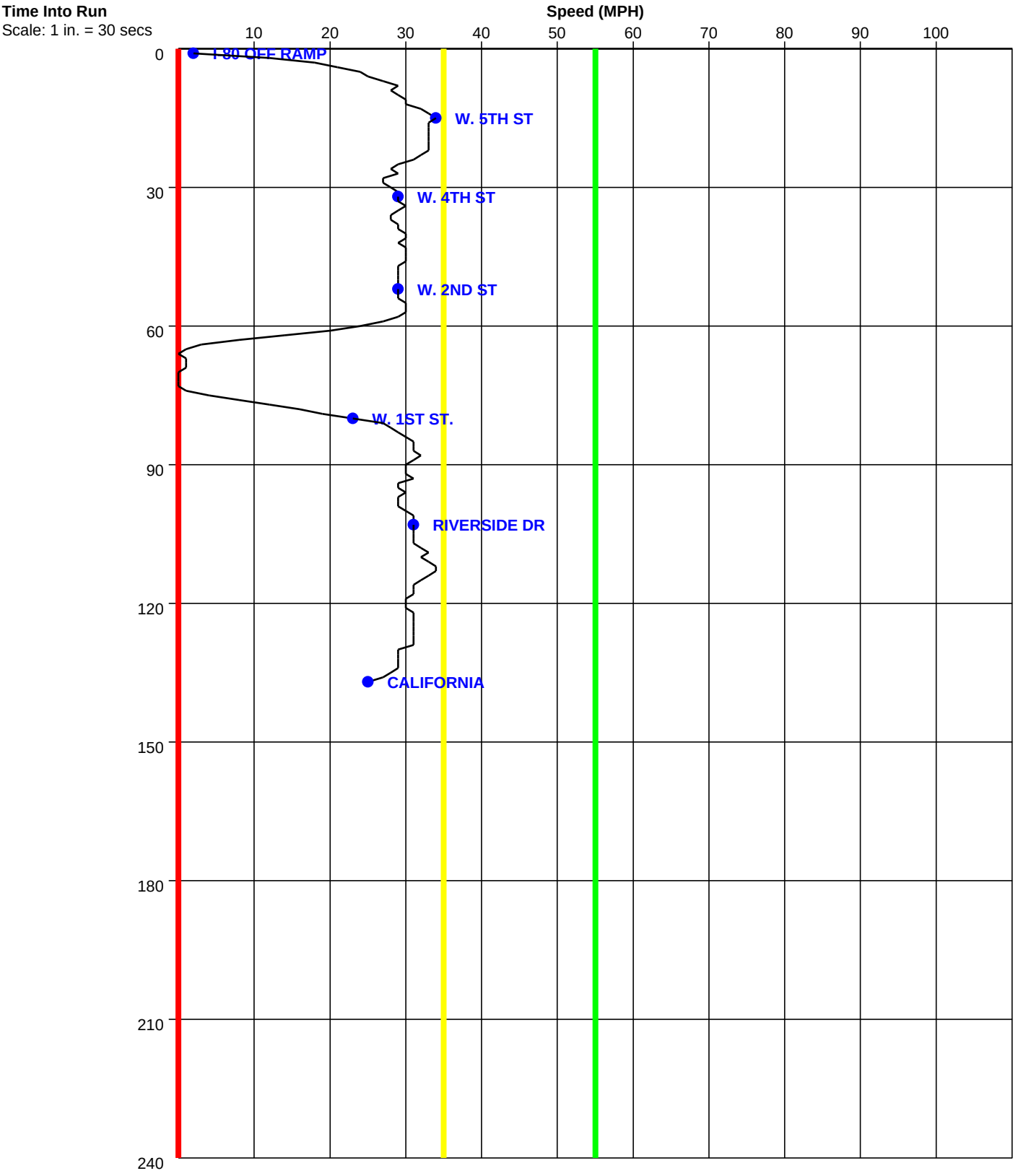
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **42**

Time-Based Speed Profile

Run : RENO thurs PM-SB-010T Start Time:17:36 (This is a Before Run)



Pacific Traffic Data Services

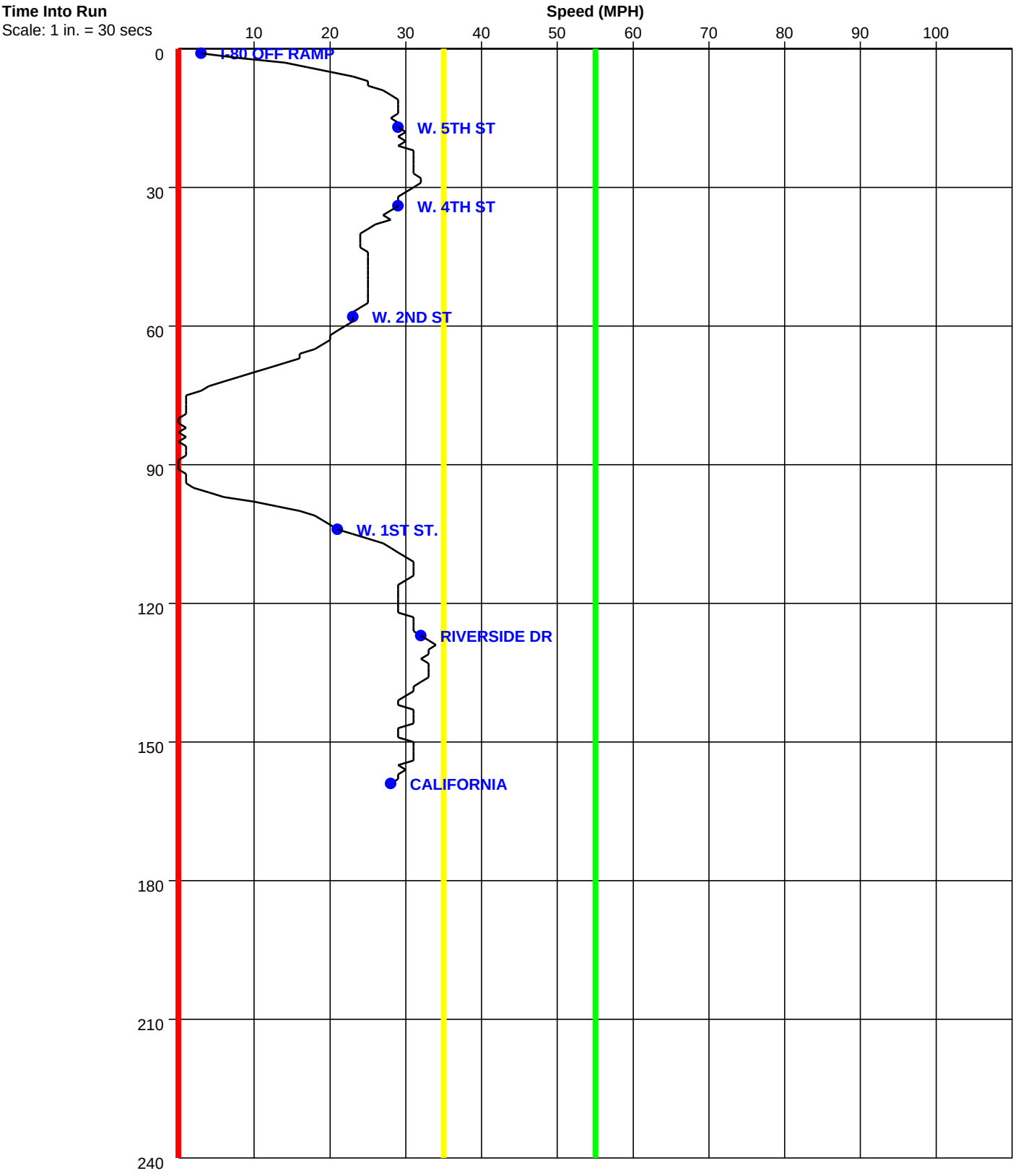
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **43**

Time-Based Speed Profile

Run : RENO thurs PM-SB-011T Start Time:17:44 (This is a Before Run)



Pacific Traffic Data Services

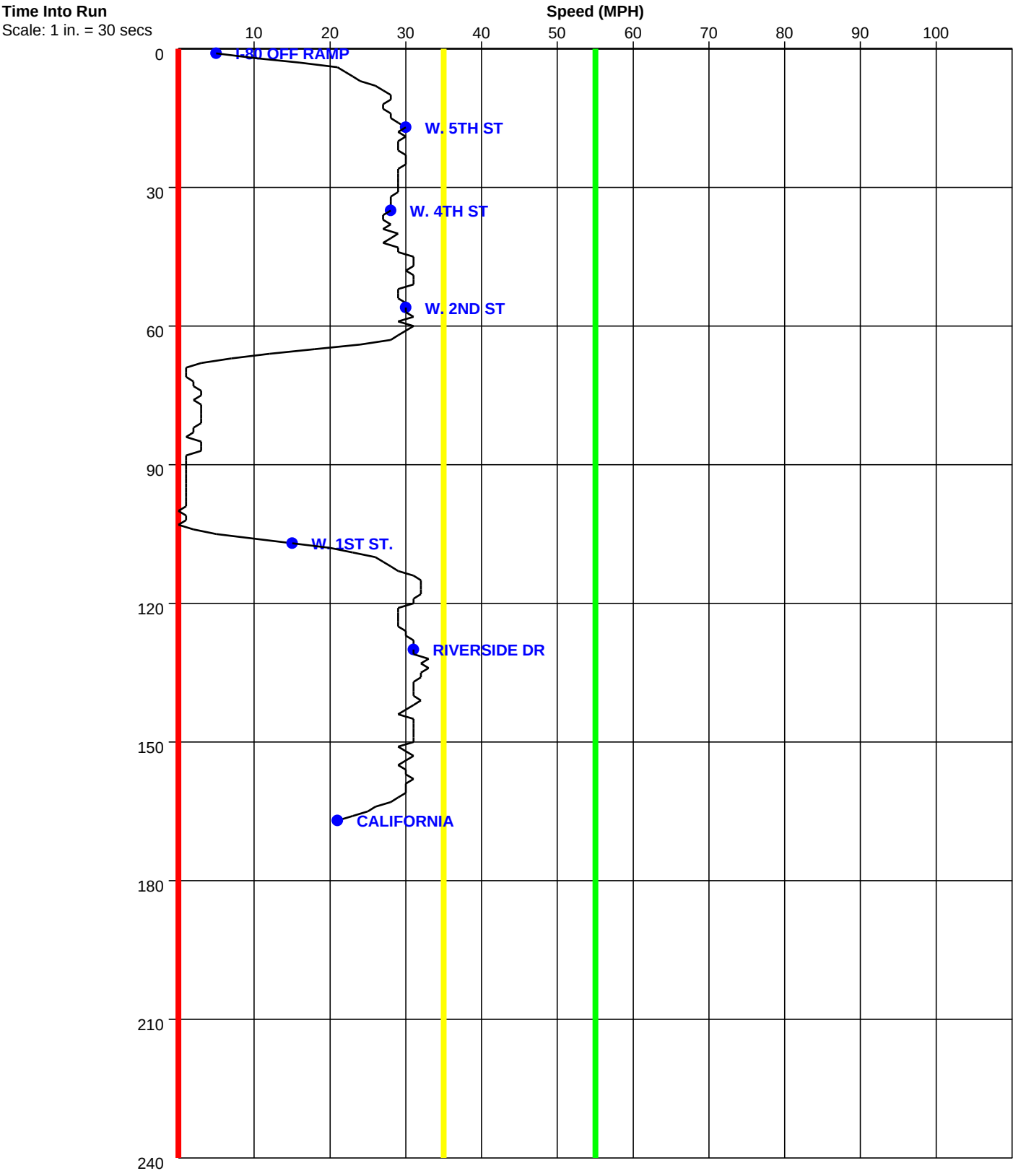
Reno Nv.

THU SB PM

Study Name : **THU PM SB**
Study Date : **8/22/2013**
Page No. : **44**

Time-Based Speed Profile

Run : RENO thurs PM-SB-012T Start Time:17:54 (This is a Before Run)



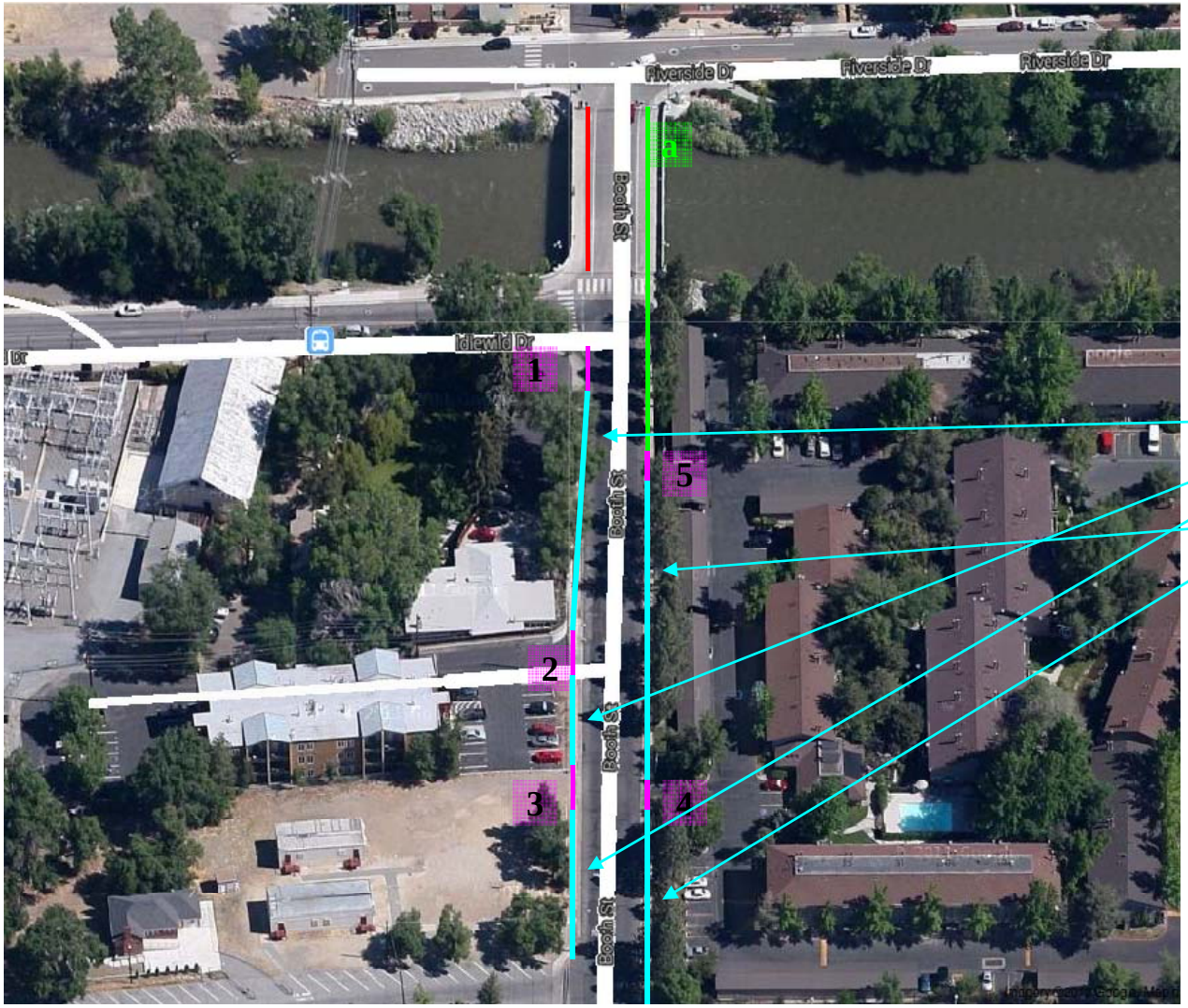
Appendix I

Access Management Inventory Sheets

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Booth Street North (to Riverside Dr)



- Distance between Riverside Dr and Idlewild Dr: 130’ ft

1. Driveway access: **30’ ft** Full access
2. Driveway access: **30’ ft** Full access
3. Driveway access: **20’ ft** Full access
4. Driveway access: **20’ ft** Full access
5. Driveway access: **20’ ft** Full access

A. Corner clearance: **270’ ft**

- Driveway spacing: **190’ ft**
- Driveway spacing: **80’ ft**
- Driveway spacing: **110’ ft**
- Driveway spacing: **300’ ft**
- Driveway spacing: **170’ ft**

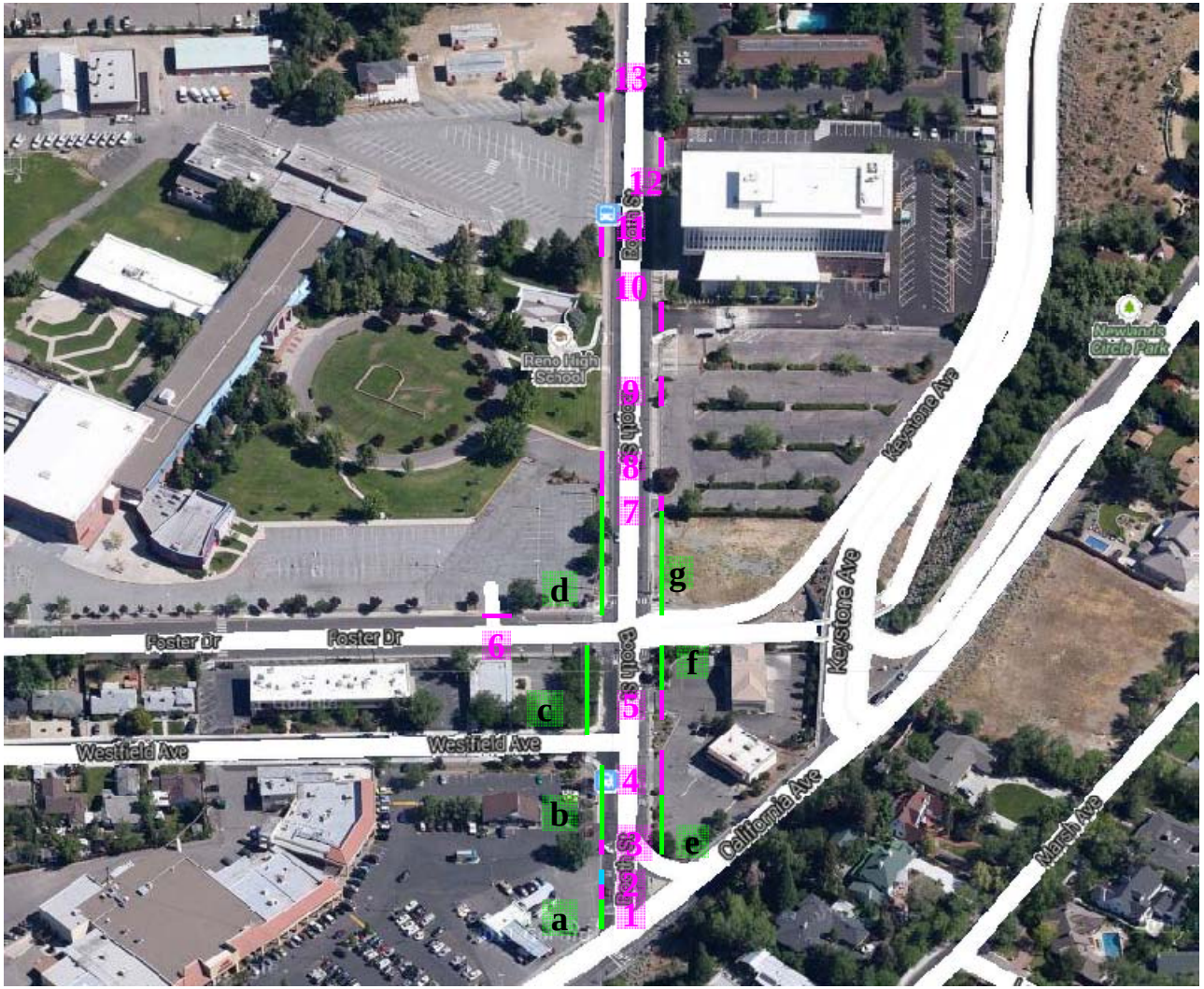
Notes:

- On-street parking unless marked otherwise (this section)
- No “left turn lane” for driveway access (this section)
- Existing “bike lane” on both roadway directions

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Booth Street South)



1. Driveway access: **30’ ft** Full access
2. Driveway access: **25’ ft** Full access
3. Driveway access: **40’ ft** Full access
4. Driveway access: **35’ ft** Full access
5. Driveway access: **25’ ft** Full access
6. Driveway access: **30’ ft** Full access
7. Driveway access: **20’ ft** Full access
8. Driveway access: **50’ ft** Full access
9. Driveway access: **20’ ft** Full access
10. Driveway access: **30’ ft** Full access
11. Driveway access: **40’ ft** Full access
12. Driveway access: **35’ ft** Full access
13. Driveway access: **45’ ft** Full access

A. Corner clearance: **20’ ft**

B. Corner clearance: **85’ ft**

C. Corner clearance: **85’ ft**

D. Corner clearance: **170’ ft**

E. Corner clearance: **95’ ft**

F. Corner clearance: **55’ ft**

G. Corner clearance: **125’ ft**

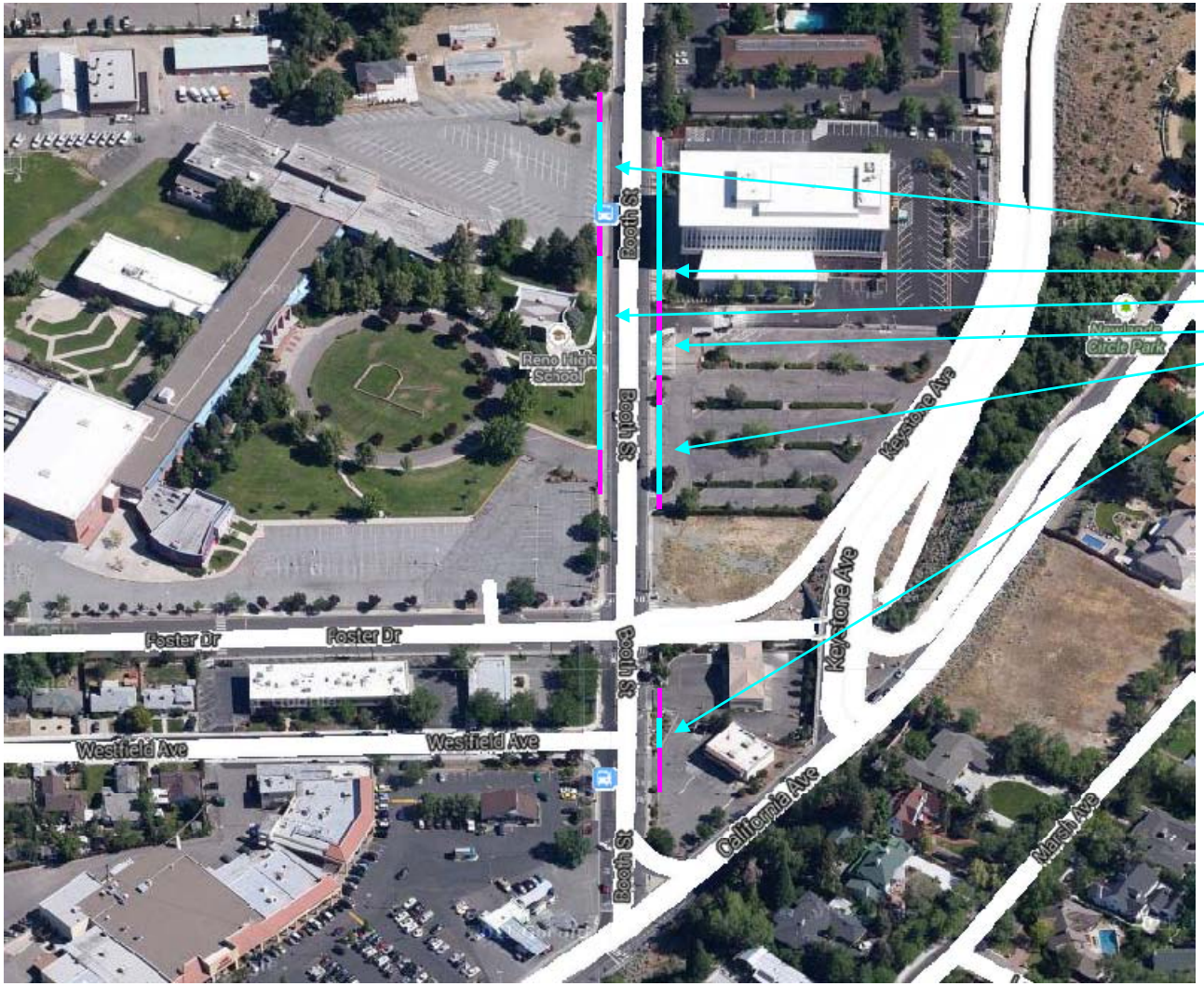
Notes:

- On-street parking unless marked otherwise (this section)
- No “left turn lane” for driveway access (this section)
- Existing “bike lane” on both roadway directions

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Booth Street South)

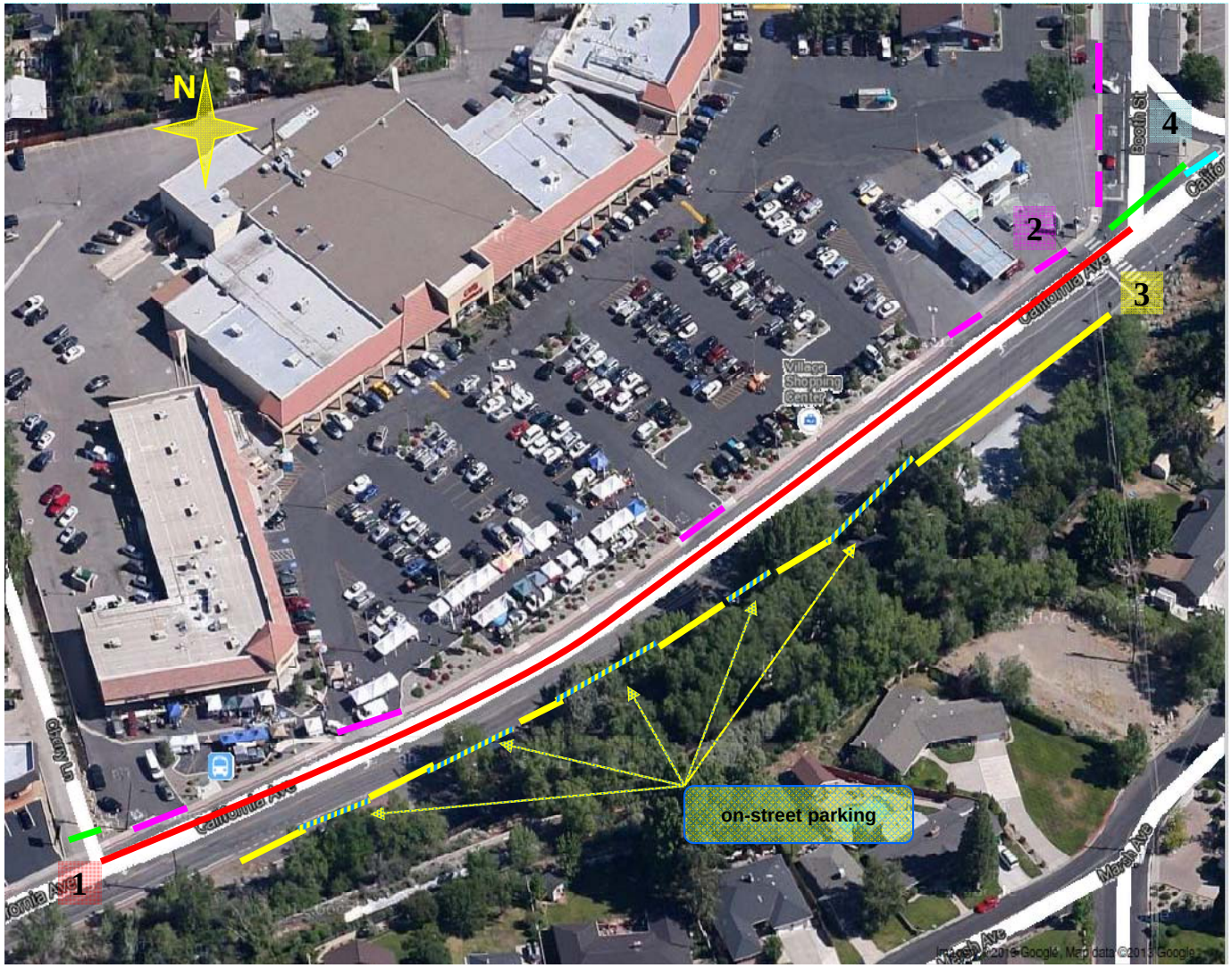


- Driveway spacing: **145’ ft**
- Driveway spacing: **215’ ft**
- Driveway spacing: **295’ ft**
- Driveway spacing: **65’ ft**
- Driveway spacing: **155’ ft**
- Driveway spacing: **75’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: California Avenue, Cherry Lane to Booth Street)



1. Distance between Cherry Lane and Booth Street: **855' ft**
2. No. driveway access from CA Ave west side: **2** (alternate access from Booth St: **4**)
3. No. driveway access from CA Ave east side: **3**

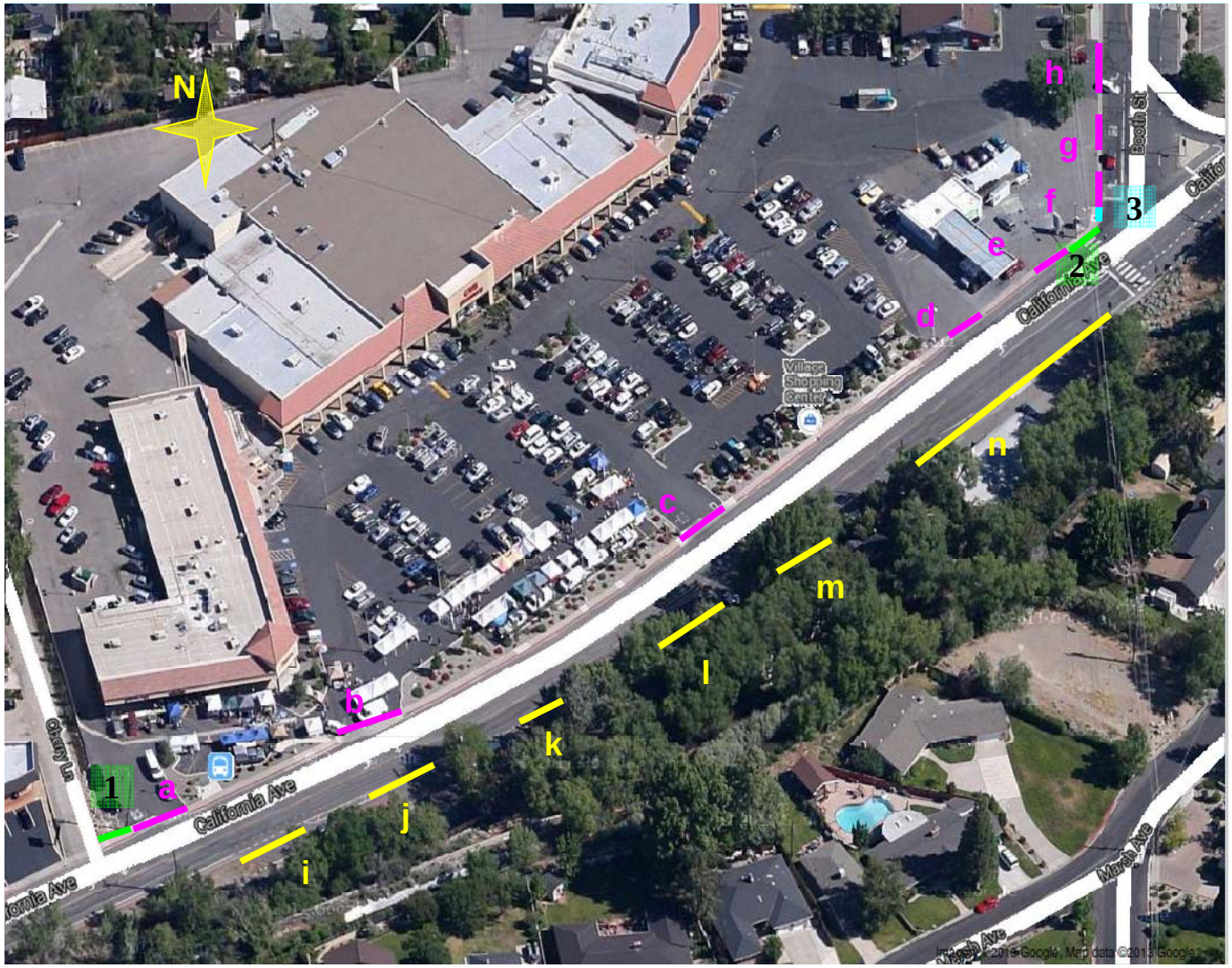
Notes:

- CA Ave has center Left turn lane into driveways
- All driveways are full access
- Street parking allowed on CA Ave eastbound

KEYSTONE AVENUE CORRIDOR STUDY

(Driveways and street parking)

Location: California Avenue, Cherry Lane to Booth Street)



1. Corner clearance: **25’ ft**
2. Corner clearance: **25’ ft**
3. Corner clearance: **20’ ft**

A. Driveway access: **35’ ft** Full access

B. Driveway access width: **45’ ft** Full access

C. Driveway access width : **40’ ft** Full access

D. Driveway access width **30’ ft** Full access

E. Driveway access width : **25’ ft** Left and Right in; Right out ONLY

F. Driveway access width: **30’ ft** Full access

G. Driveway access width: **25’ ft** Full access

H. Driveway access width: **40’ ft** Full access

I. Driveway access width: **30’ ft** Full access

J. Driveway access width: **35’ ft** Full access

K. Driveway access width: **20’ ft** Full access

L. Driveway access width: **20’ ft** Full access

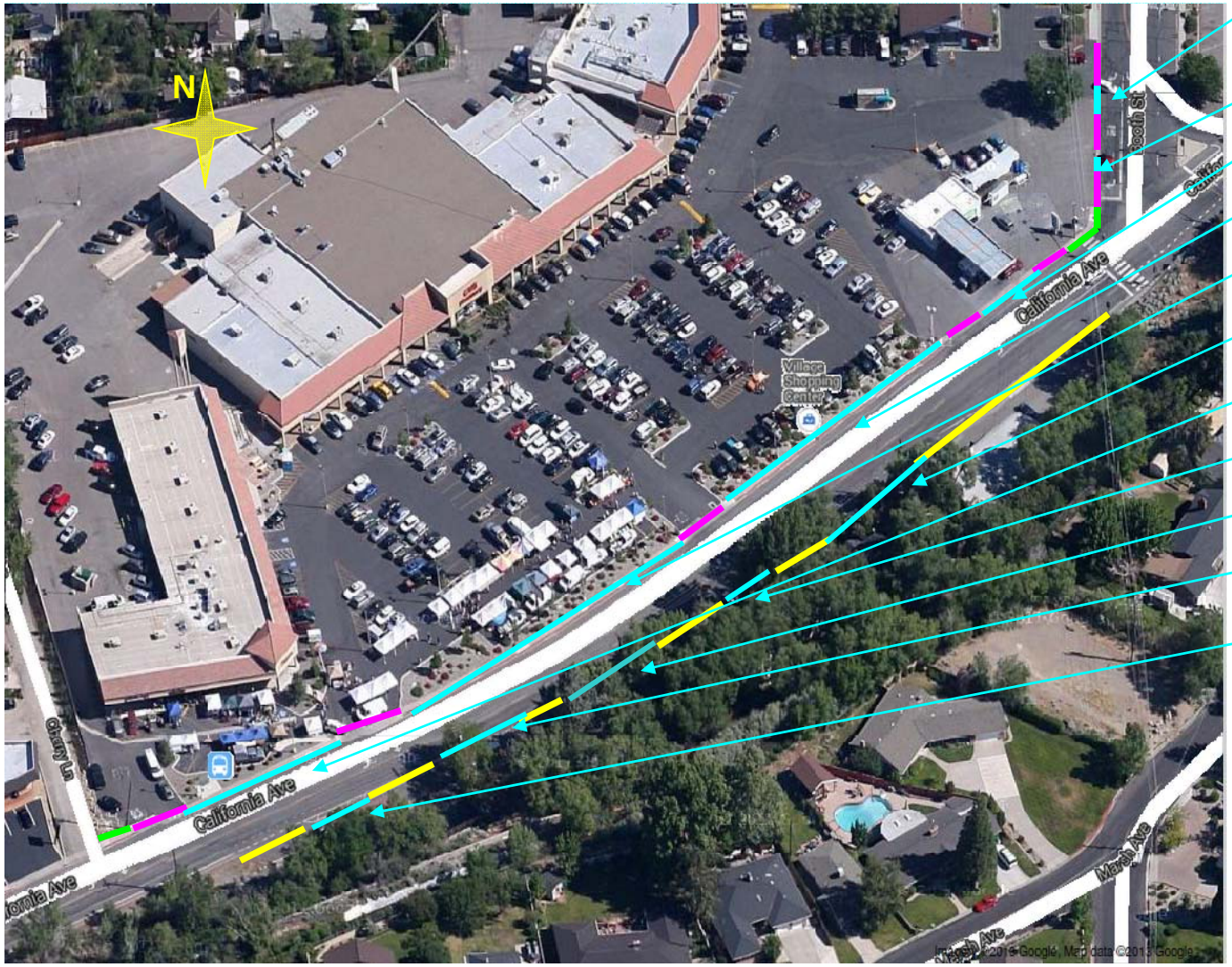
M. Driveway access width: **20’ ft** Full access

N. Driveway access width: **140’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Driveways and street parking)

Location: California Avenue, Cherry Lane to Booth Street)



- Driveway spacing: **15’ ft**
- Driveway spacing: **10’ ft**
- Driveway spacing: **45’ ft**
- Driveway spacing: **190’ ft**
- Driveway spacing: **225’ ft**
- Driveway spacing: **90’ ft**
- Driveway spacing: **110’ ft**
- Driveway spacing: **105’ ft**
- Driveway spacing: **135’ ft**
- Driveway spacing: **15’ ft**
- Driveway spacing: **75’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Driveways and street parking)

Location: California Avenue, Booth Street to Newlands Circle)

- Driveway access: **35’ ft** Full access
- Residential Driveway access width: **55’ ft** Full access
- Residential Driveway access width : **15’ ft** Full access
- Residential Driveway access width **15’ ft** Full access
- City Park Driveway access width : **15’ ft** Full access
- On-Street parking: **25’ ft**
- Corner clearance : **70’ ft**
- Corner clearance : **45’ ft**
- Corner clearance : **100’ ft**
- Corner clearance : **110’ ft**
- Corner clearance: **85’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Driveways and street parking)

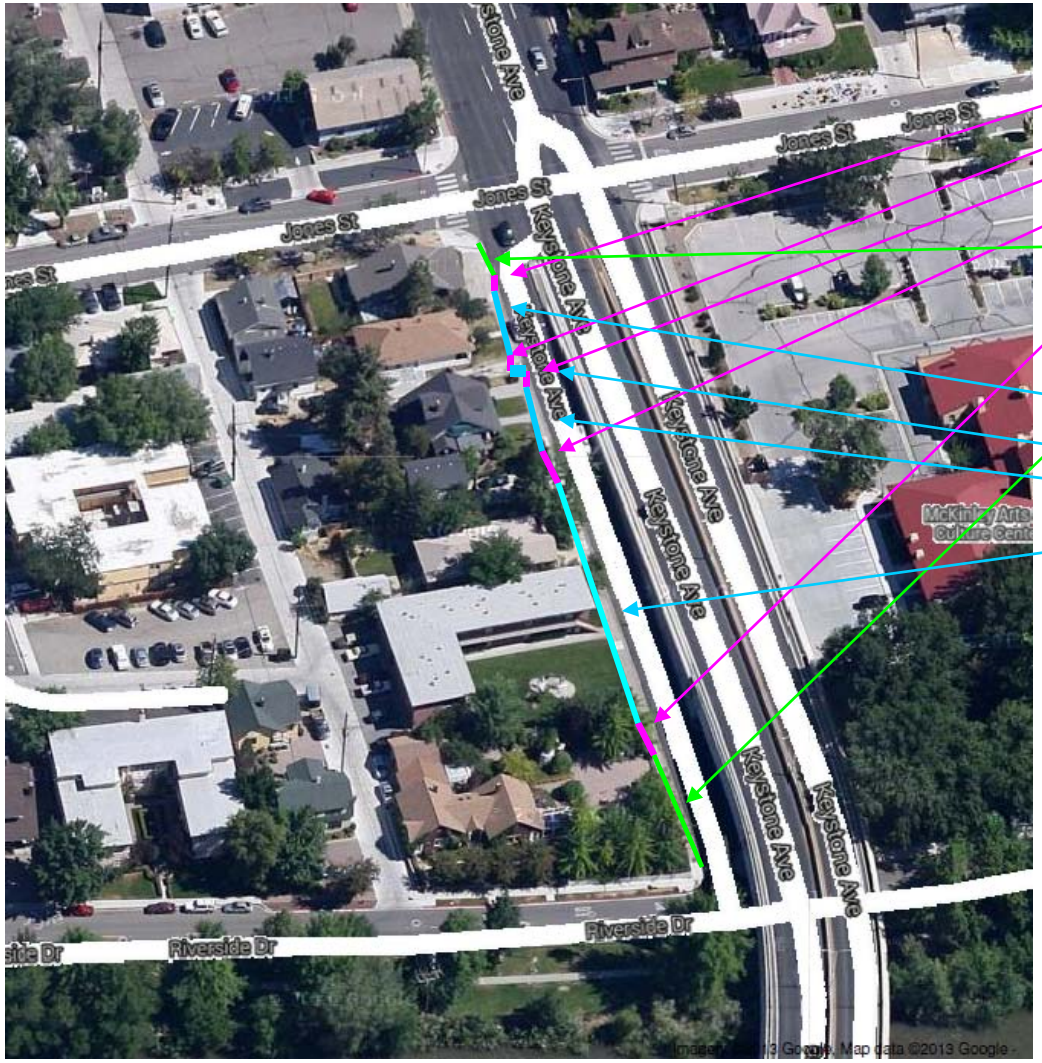
Location: California Avenue, Booth Street to Newlands Circle)

- Driveway spacing: **100' ft**
- Driveway spacing : **60' ft**
- Driveway spacing : **40' ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Travel Access Identification)

Location: Keystone Ave: CA Ave to Jones St



- **1** Driveway access: **10' ft** Right in/out ONLY
- **2** Driveway access: **10' ft** Right in/out ONLY
- **3** Driveway access: **10' ft** Right in/out ONLY
- **4** Driveway access: **20' ft** Right in/out ONLY
- **5** Driveway access: **25' ft** Right in/out ONLY

- **A**. Corner clearance: **20' ft**
- **B**. Corner clearance: **65' ft**

Notes:

- No on-street parking (this section)
- No "left turn lane" for driveway access (this section)

- Driveway spacing : **40' ft**
- Driveway spacing : **5' ft**
- Driveway spacing : **50' ft**
- Driveway spacing : **185' ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Jones St to W 2nd St

- Driveway access: **25' ft** Full Access
- Driveway access: **25' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **25' ft** Full Access
- Driveway access: **25' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **10' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **10' ft** Full Access
- Driveway access: **10' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **30' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **30' ft** Full Access
- Driveway access: **30' ft** Full Access

A. Corner clearance: **75' ft**

B. Corner clearance : **85' ft**

C. Corner clearance : **100' ft**

D. Corner clearance : **85' ft**

E. Corner clearance : **155' ft**

F. Corner clearance : **55' ft**

G. Corner clearance : **15' ft**

H. Corner clearance : **15' ft**

Notes:

- On-street parking along both directions of street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

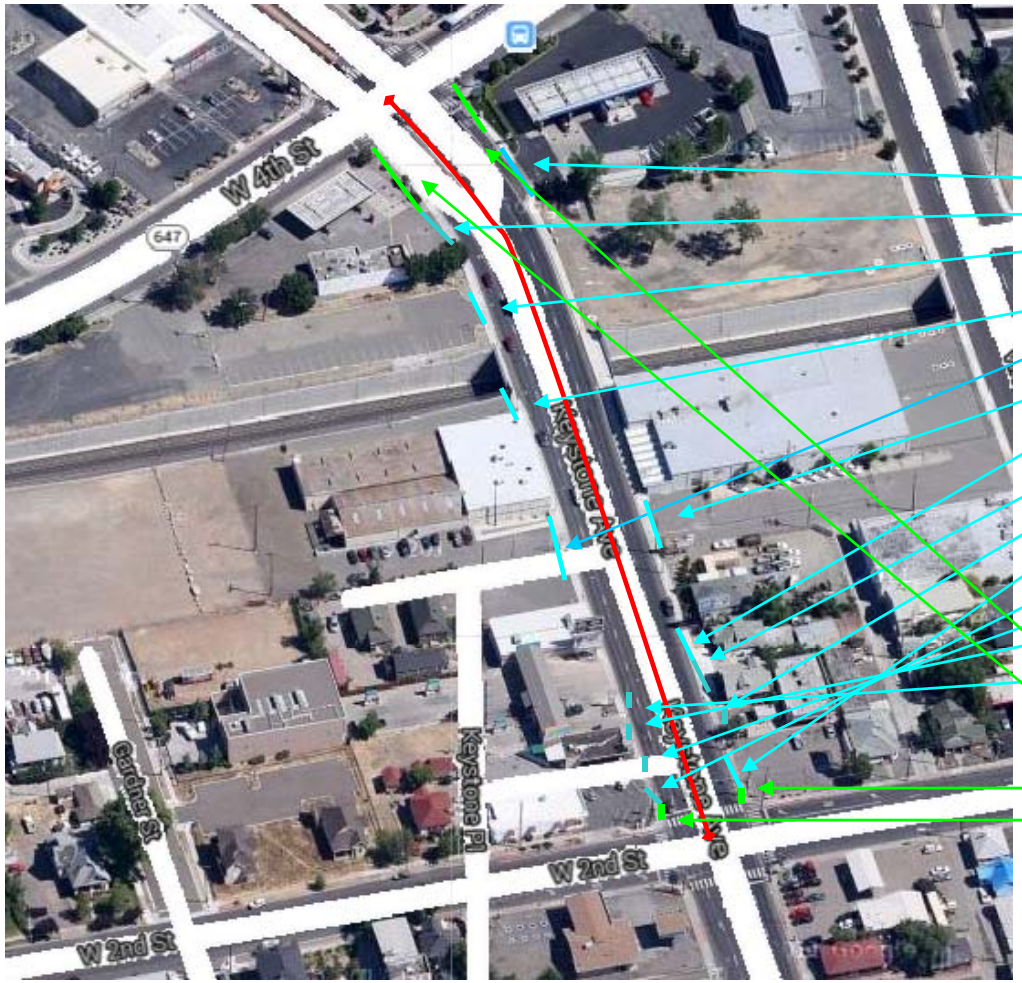
Location: Keystone Ave: Jones St to W 2nd St

- Driveway spacing : **25’ ft**
- Driveway spacing : **20’ ft**
- Driveway spacing : **30’ ft**
- Driveway spacing : **35’ ft**
- Driveway spacing : **185’ ft**
- Driveway spacing : **40’ ft**
- Driveway spacing : **90’ ft**
- Driveway spacing : **45’ ft**
- Driveway spacing : **20’ ft**
- Driveway spacing : **40’ ft**
- Driveway spacing : **40’ ft**
- Driveway spacing: **100’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: W 2nd St to W 4th St



- Distance between W 2nd St and W 4th St: **915' ft**

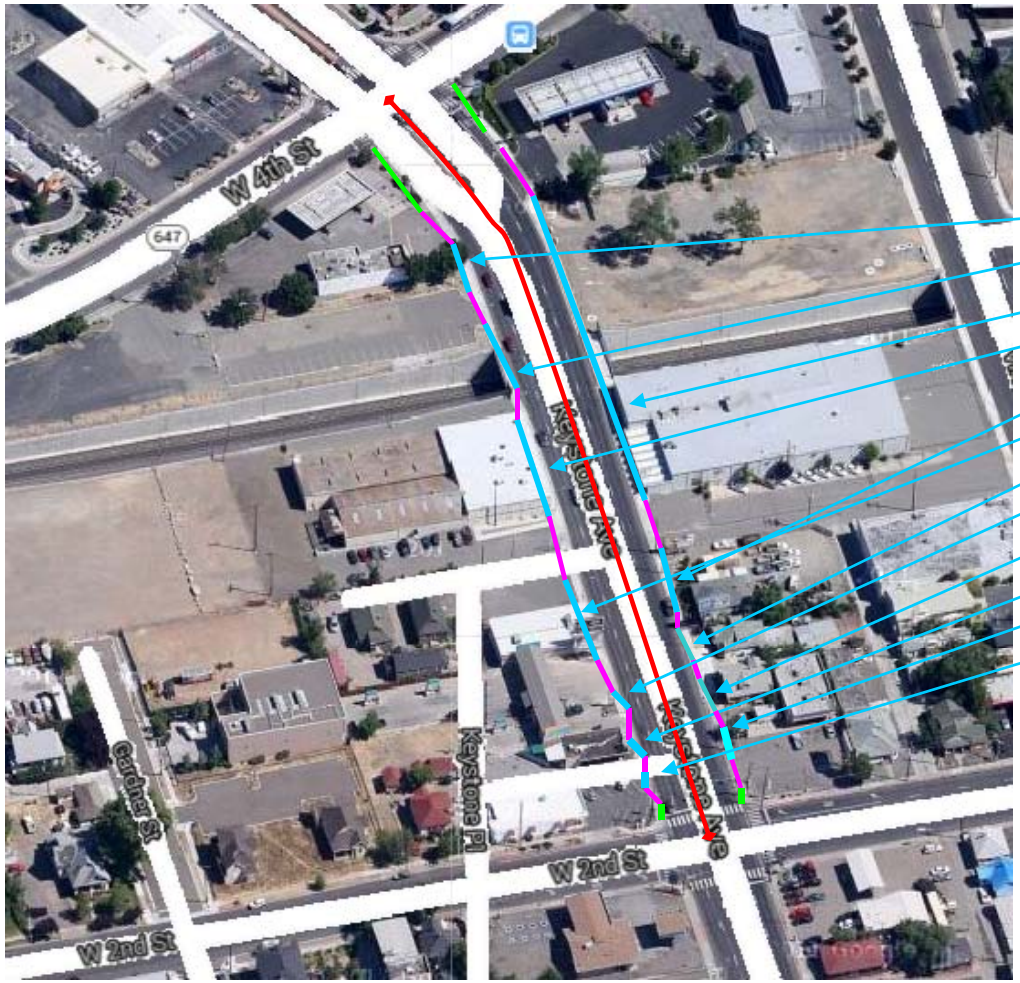
- Driveway access: **40' ft** Full Access
- Driveway access: **50' ft** Full Access
- Driveway access: **30' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **55' ft** Full Access
- Driveway access: **50' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **25' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **20' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **40' ft** Full Access
- Corner clearance: **70' ft**
- Corner clearance: **75' ft**
- Corner clearance: **25' ft**
- Corner clearance: **20' ft**

– Note: "on-street parking" on a short stretch on east side

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: W 2nd St to W 4th St

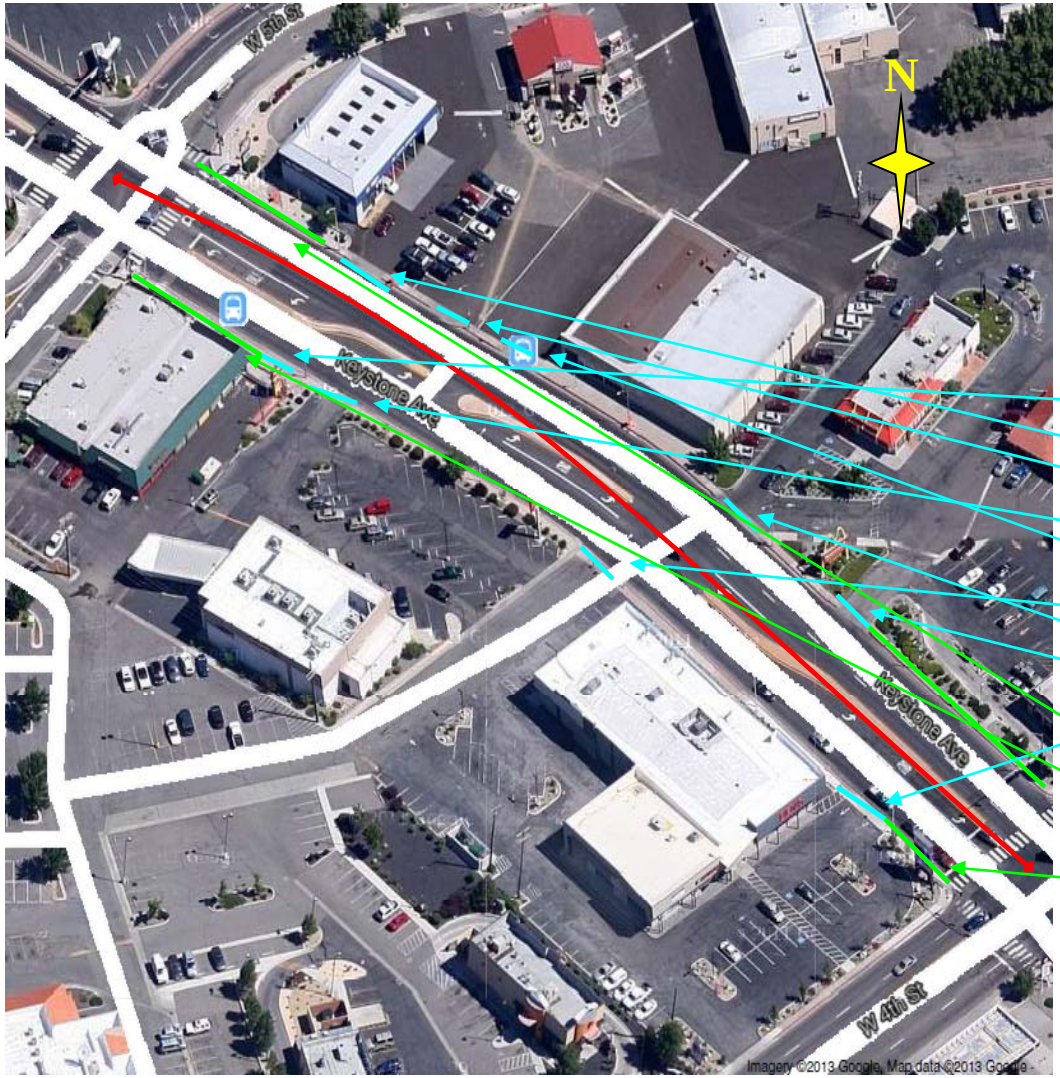


- Driveway spacing: **80’ ft**
- Driveway spacing: **95’ ft**
- Driveway spacing: **365’ ft**
- Driveway spacing: **140’ ft**
- Driveway spacing: **85’ ft**
- Driveway spacing: **105’ ft**
- Driveway spacing: **20’ ft**
- Driveway spacing: **20’ ft**
- Driveway spacing: **40’ ft**
- Driveway spacing: **35’ ft**
- Driveway spacing : **35’ ft**
- Driveway spacing: **25’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: West 4th Street to West 5th Street)



- Distance between W 4th and W 5th St: **730' ft**

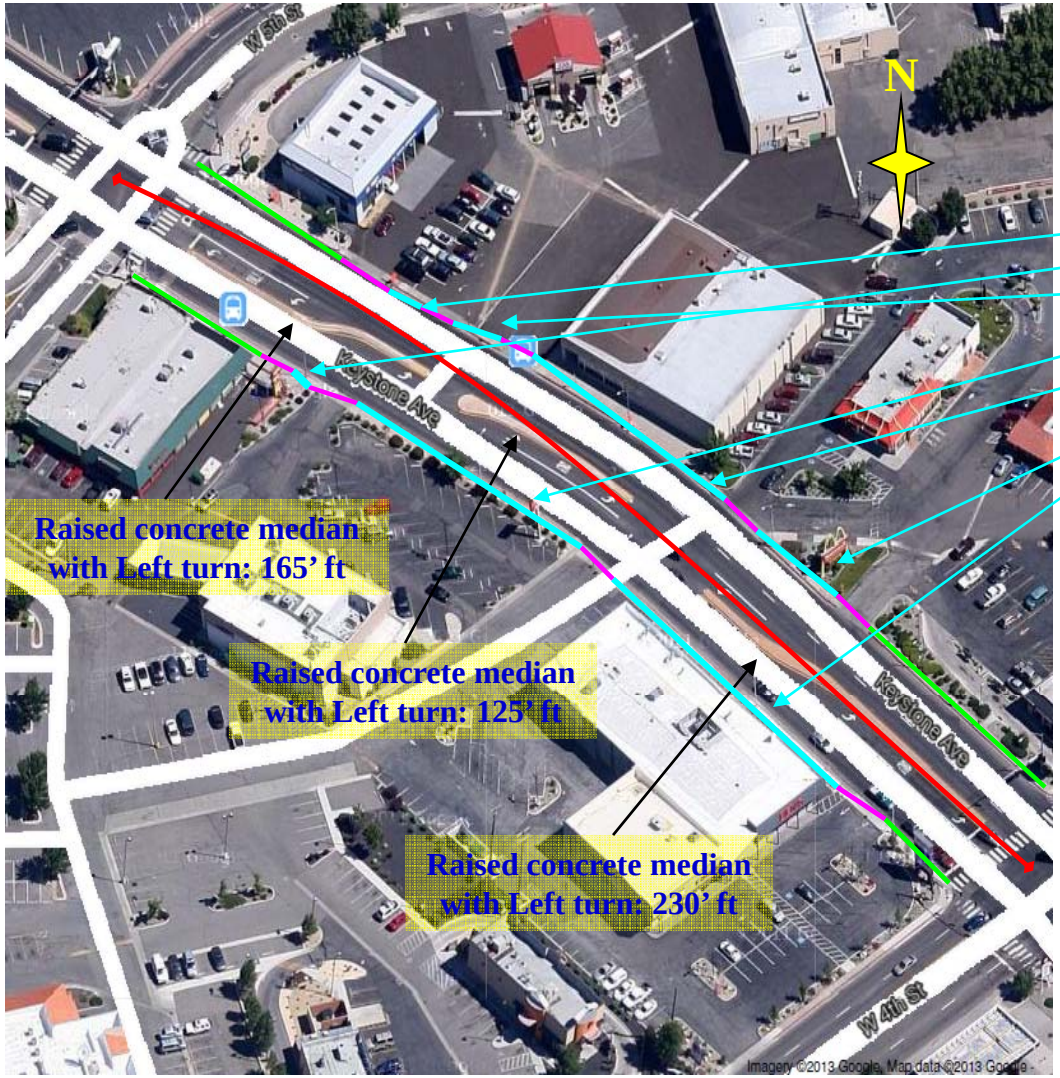
- Driveway access: **40' ft** Full Access
- Driveway access: **50' ft** Full Access
- Driveway access: **30' ft** Full Access
- Driveway access: **15' ft** Full Access
- Driveway access: **55' ft** Full Access
- Driveway access: **20' ft** Right in/out ONLY
- Driveway access: **25' ft** Right in/out ONLY
- Driveway access: **20' ft** Right in/out ONLY
- Driveway access: **25' ft** Right in/out ONLY
- Driveway access: **20' ft** Left/Right in; Right out ONLY
- Driveway access: **30' ft** Full Access
- Driveway access: **40' ft** Full Access
- Driveway access: **25' ft** Right in ONLY
- Driveway access: **30' ft** Right in/out ONLY
- Corner clearance: **95' ft**
- Corner clearance: **100' ft**
- Corner clearance: **155' ft**
- Corner clearance: **50' ft**

– Note: No "on-street" parking on either direction

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: West 4th Street to West 5th Street)

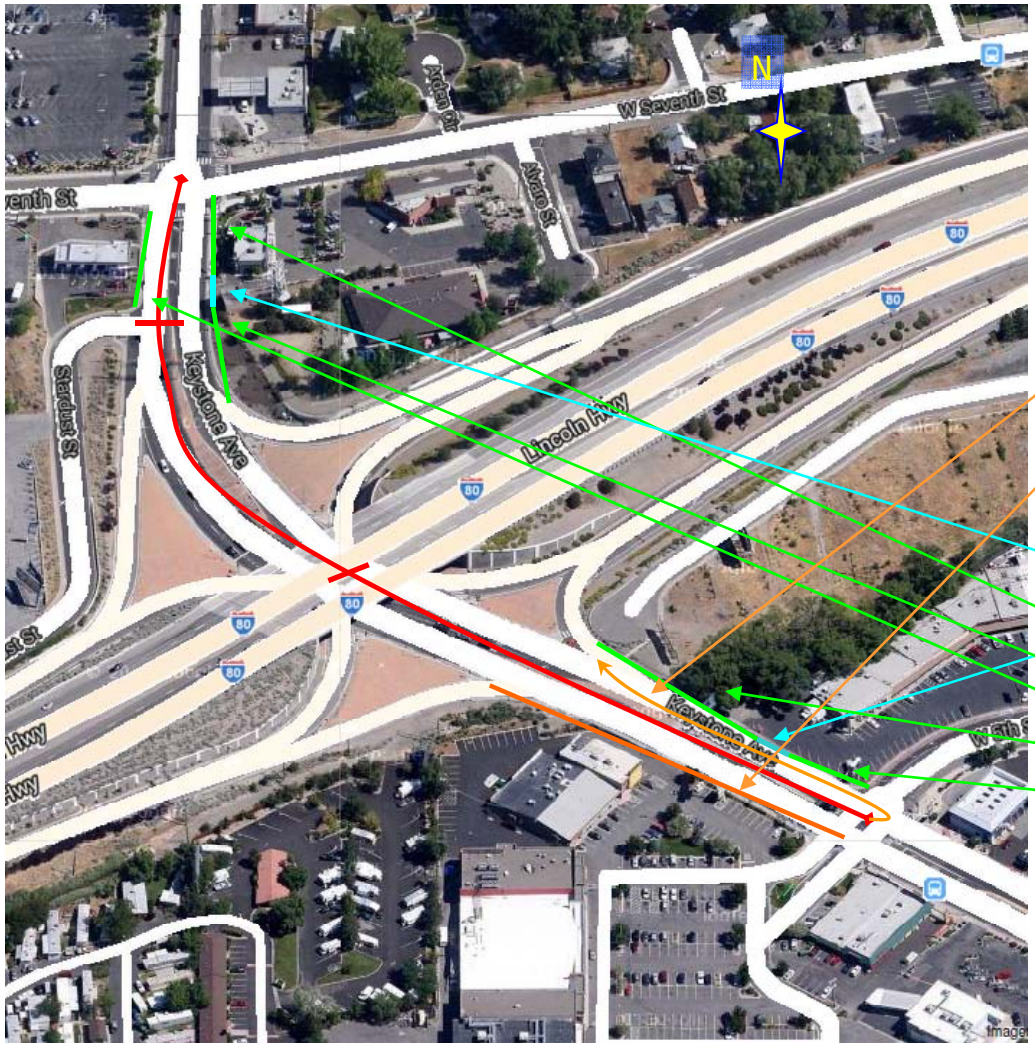


- Driveway spacing: **35' ft**
- Driveway spacing: **25' ft**
- Driveway spacing: **25' ft**
- Driveway spacing: **165' ft**
- Driveway spacing: **140' ft**
- Driveway spacing: **65' ft**
- Driveway spacing: **200' ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: W 5th to W 7th Street)



- Distance from W 5th St to I-80: **650’ ft**
- Distance from I-80 to Stardust St: **410’ ft**
- Distance between I-80 and W 7th St: **620’ ft**
- Distance between Stardust St and W 7th St: **210’ ft**

- Distance from W 5th St to I-80 East on-ramp: **385’ ft**
- Distance from W 5th St to I-80 East Off-ramp (southbound): **410’ ft**

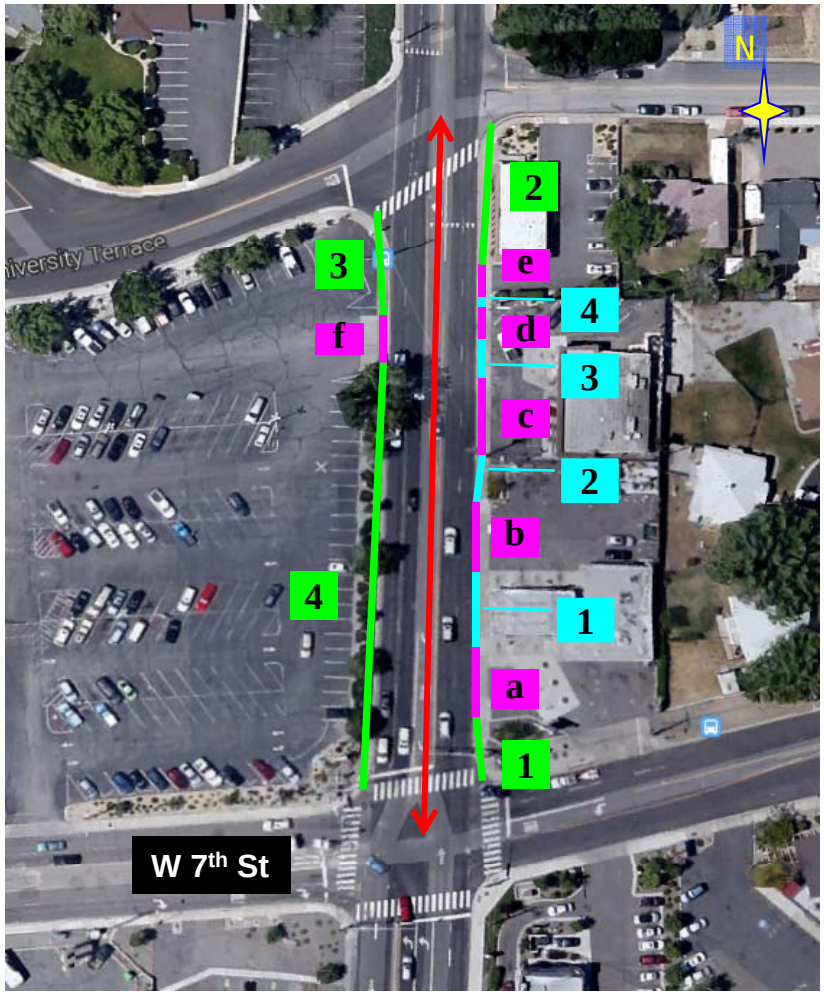
- Driveway access: **35’ ft** Right in/out ONLY
- Driveway access: **15’ ft** Right out ONLY
- Corner clearance: **90’ ft**
- Corner clearance: **160’ ft**
- Corner clearance: **120’ ft**
- Corner clearance: **210’ ft**
- Corner clearance: **110’ ft**

– No “on-street” parking on either direction

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: W 7th St to University Terrace



❑ Distance between W 7th St and University Terrace: **450' ft**

a. Driveway access width: **35' ft** Full Access
b. Driveway access width: **40' ft** Full Access
c. Driveway access width: **35' ft** Full Access
d. Driveway access width: **30' ft** Full Access
e. Driveway access width: **20' ft** Full Access
f. Driveway access width: **30' ft** Full Access

1. Driveway spacing: **50' ft**
2. Driveway spacing: **25' ft**
3. Driveway spacing: **25' ft**
4. Driveway spacing: **5' ft**

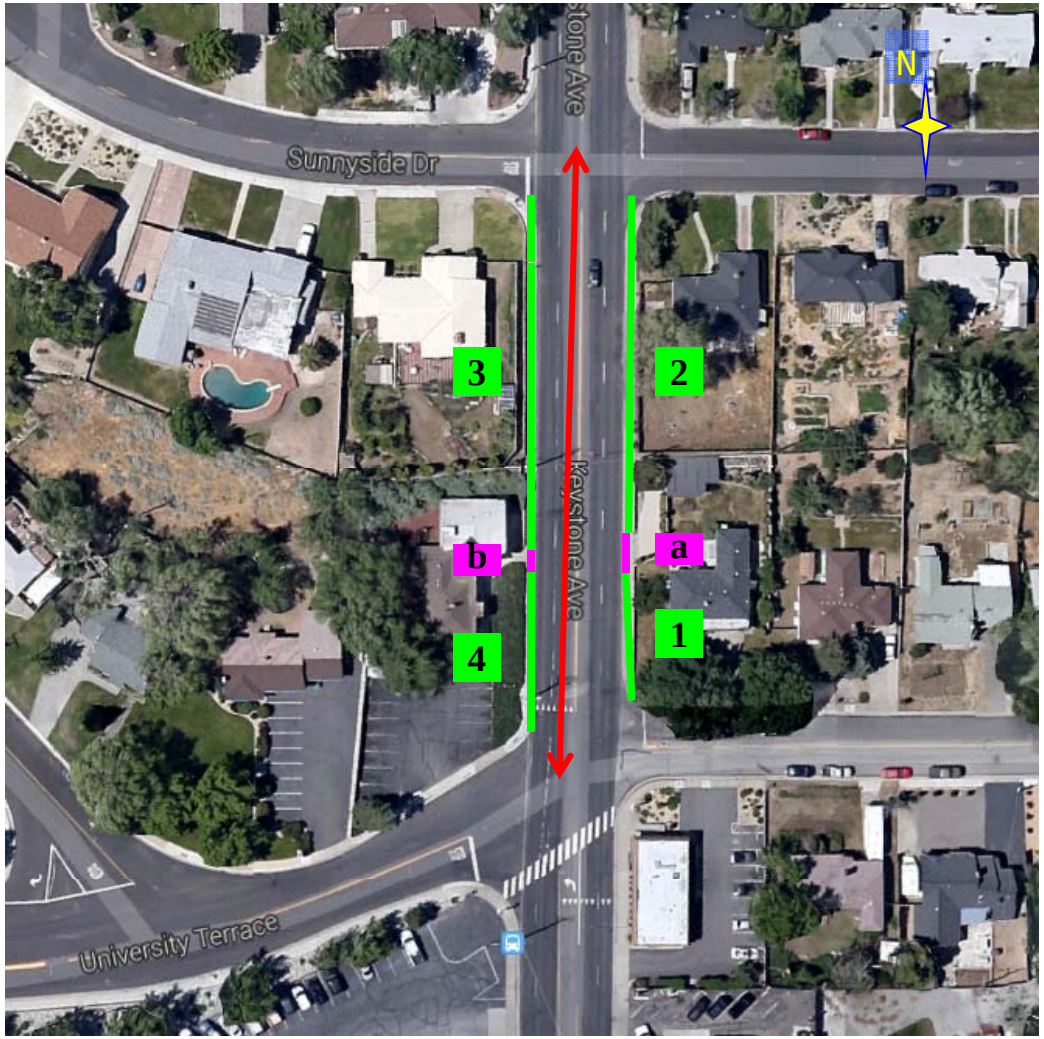
1. Corner clearance: **35' ft**
2. Corner clearance: **70' ft**
3. Corner clearance: **40' ft**
4. Corner clearance: **240' ft**

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: University Terrace to Sunnyside Dr



- Distance between University Terrace and Sunnyside Dr : **330' ft**

a. Driveway access width: **20' ft** Full Access
b. Driveway access width: **10' ft** Full Access

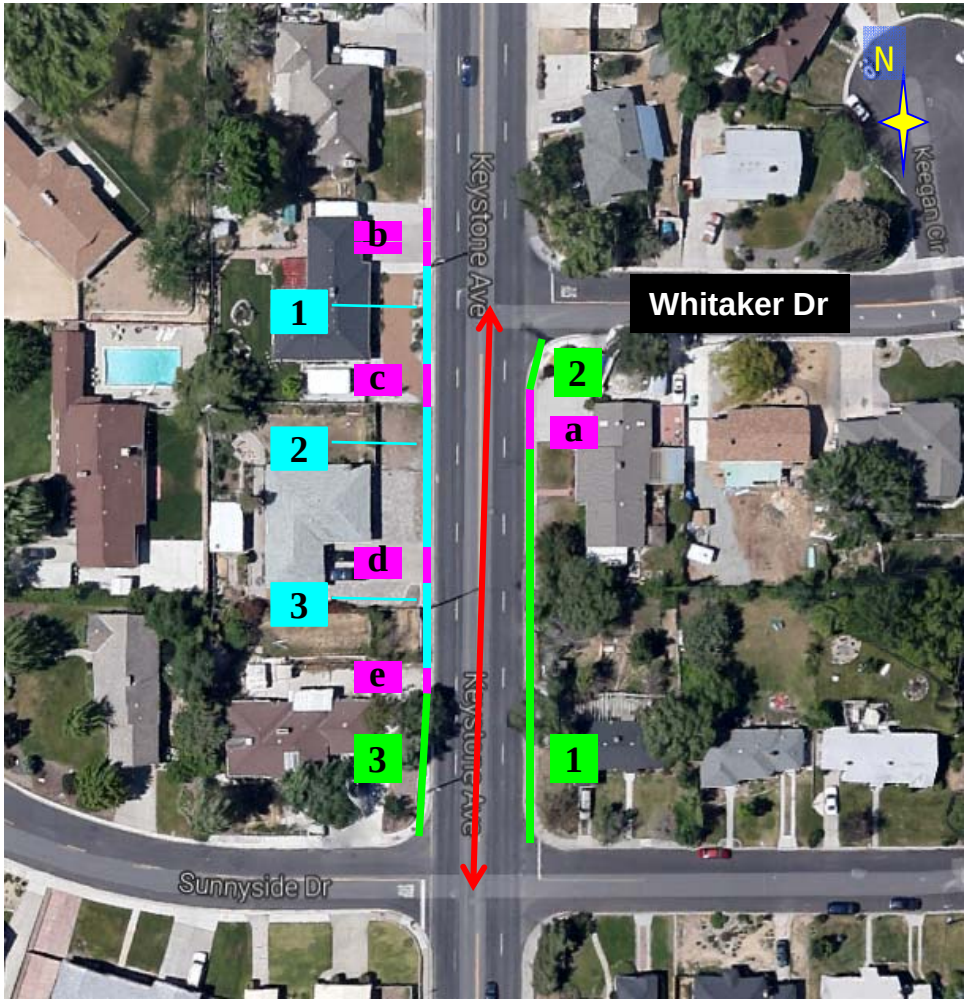
1. Corner clearance: **65' ft**
2. Corner clearance: **175' ft**
3. Corner clearance: **175' ft**
4. Corner clearance: **90' ft**

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Sunnyside Dr to Whitaker Dr



- Distance between Sunnyside Dr and Whitaker Dr : **290’ ft**

a. Driveway access width: **25’ ft** Full Access
b. Driveway access width: **30’ ft** Full Access
c. Driveway access width: **20’ ft** Full Access
d. Driveway access width: **20’ ft** Full Access
e. Driveway access width: **25’ ft** Full Access

1. Driveway spacing: **50’ ft**
2. Driveway spacing: **75’ ft**
3. Driveway spacing: **40’ ft**

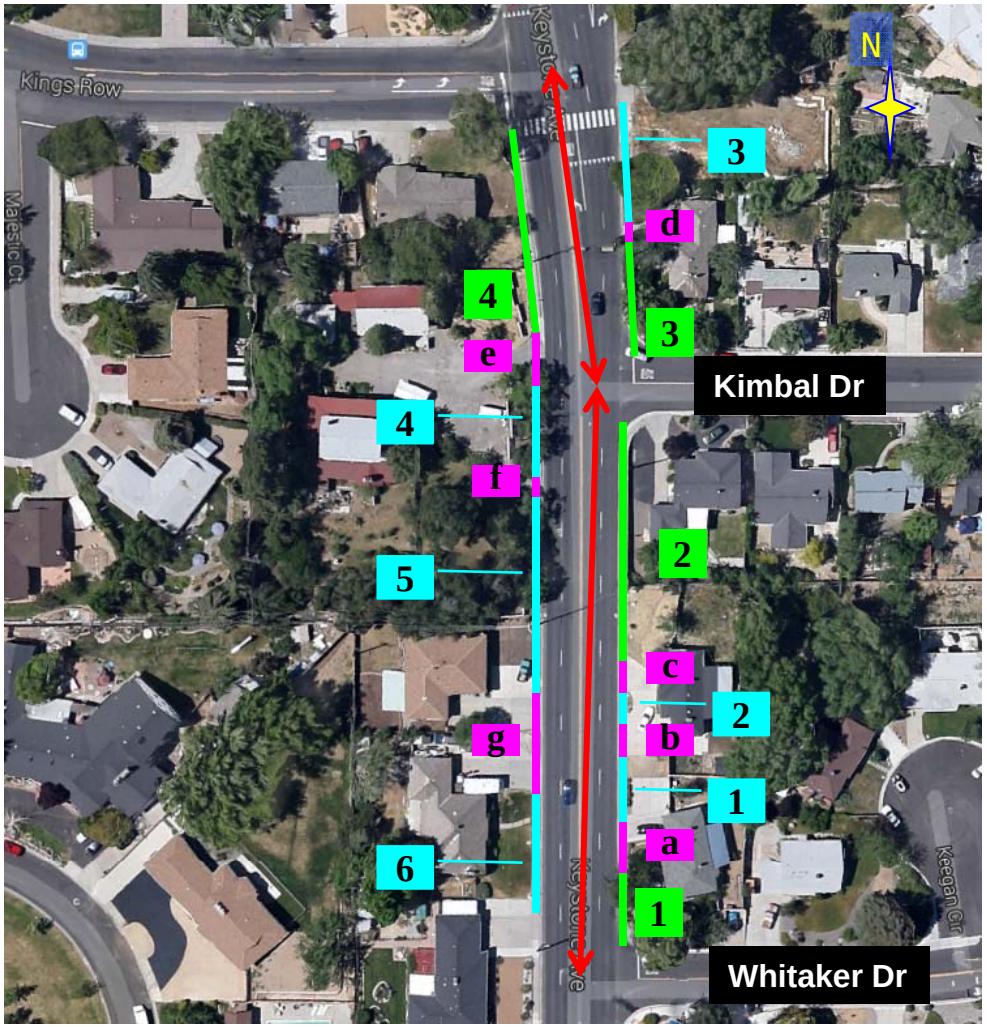
1. Corner clearance: **190’ ft**
2. Corner clearance: **20’ ft**
3. Corner clearance: **50’ ft**

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Whitaker Dr to Kings Row



- Distance between Whitaker Dr and Kimbal Dr: **380’ ft**
- Distance between Kimbal Dr and Kings Row: **200’ ft**

a. Driveway access width: **15’ ft** Full Access
b. Driveway access width: **25’ ft** Full Access
c. Driveway access width: **20’ ft** Full Access
d. Driveway access width: **10’ ft** Full Access
e. Driveway access width: **40’ ft** Full Access
f. Driveway access width: **10’ ft** Full Access
g. Driveway access width: **60’ ft** Full Access

1. Driveway spacing: **40’ ft**
2. Driveway spacing: **15’ ft**
3. Driveway spacing: **50’ ft**
4. Driveway spacing: **60’ ft**
5. Driveway spacing: **100’ ft**
6. Driveway spacing: **70’ ft**

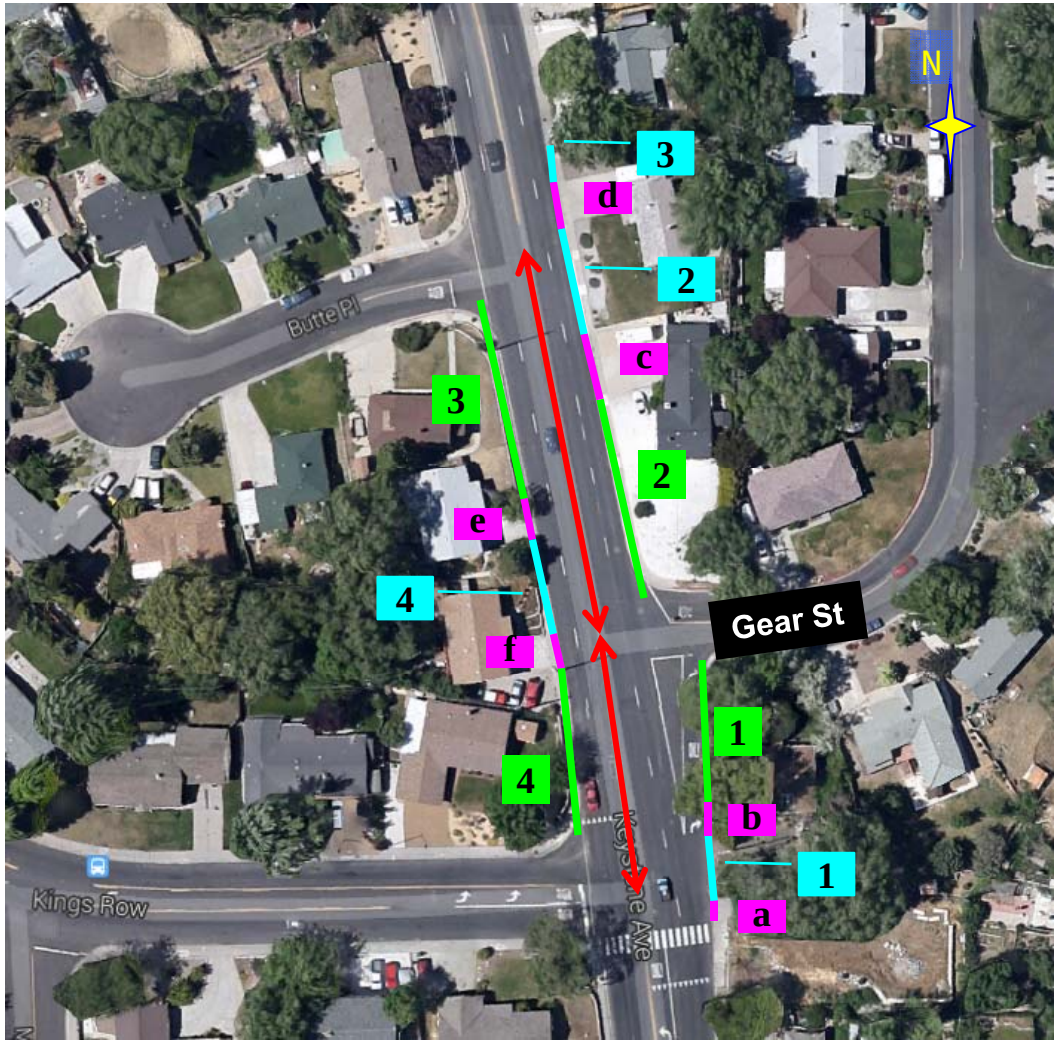
1. Corner clearance: **55’ ft**
2. Corner clearance: **135’ ft**
3. Corner clearance: **50’ ft**
4. Corner clearance: **120’ ft**

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Kings Row to Butte Pl



- Distance between Kings Row and Gear St : **130' ft**
- Distance between Gear St and Butte Pl : **210' ft**

a. Driveway access width: **10' ft** Full Access
b. Driveway access width: **15' ft** Full Access
c. Driveway access width: **30' ft** Full Access
d. Driveway access width: **25' ft** Full Access
e. Driveway access width: **20' ft** Full Access
f. Driveway access width: **20' ft** Full Access

1. Driveway spacing: **30' ft**
2. Driveway spacing: **60' ft**
3. Driveway spacing: **10' ft**
4. Driveway spacing: **55' ft**

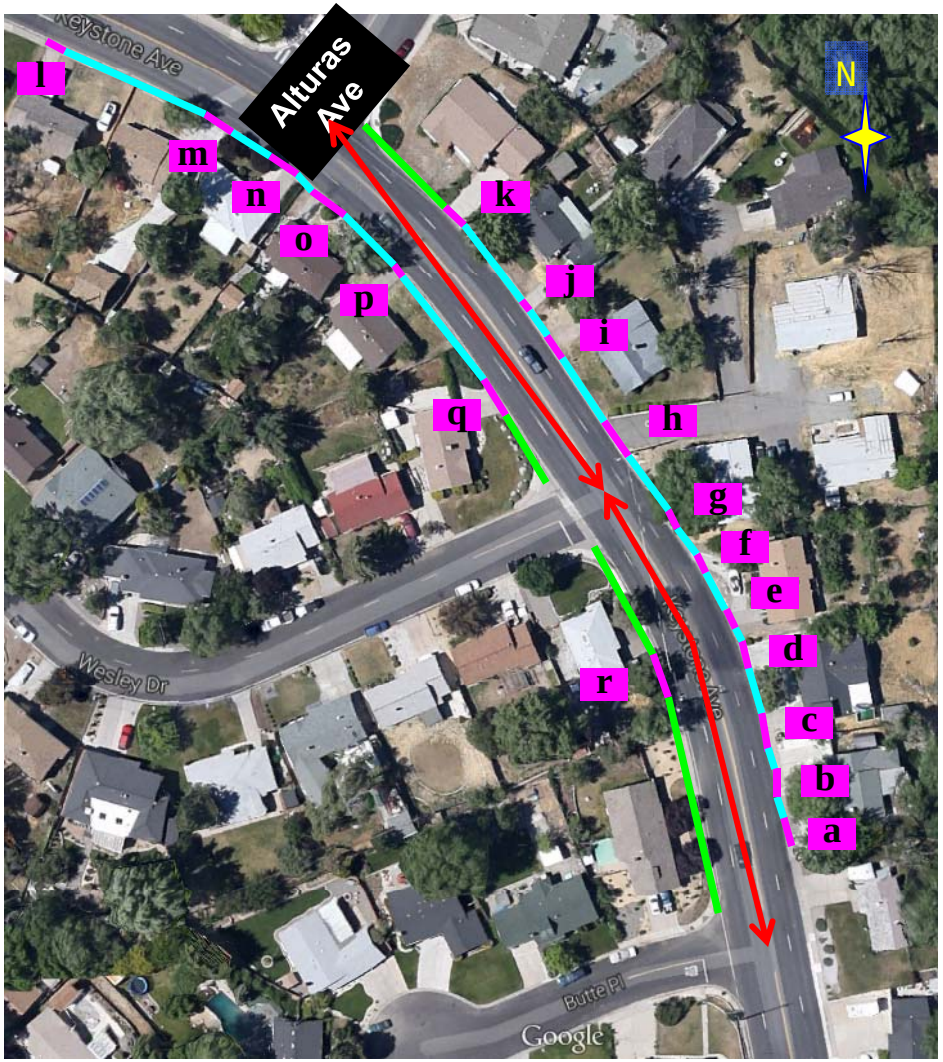
1. Corner clearance: **65' ft**
2. Corner clearance: **100' ft**
3. Corner clearance: **90' ft**
4. Corner clearance: **80' ft**

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Butte Pl to Alturas Ave



- Distance between Butte Pl and Wesley Dr: **310' ft**
- Distance between Wesley Dr and Alturas Ave: **280' ft**

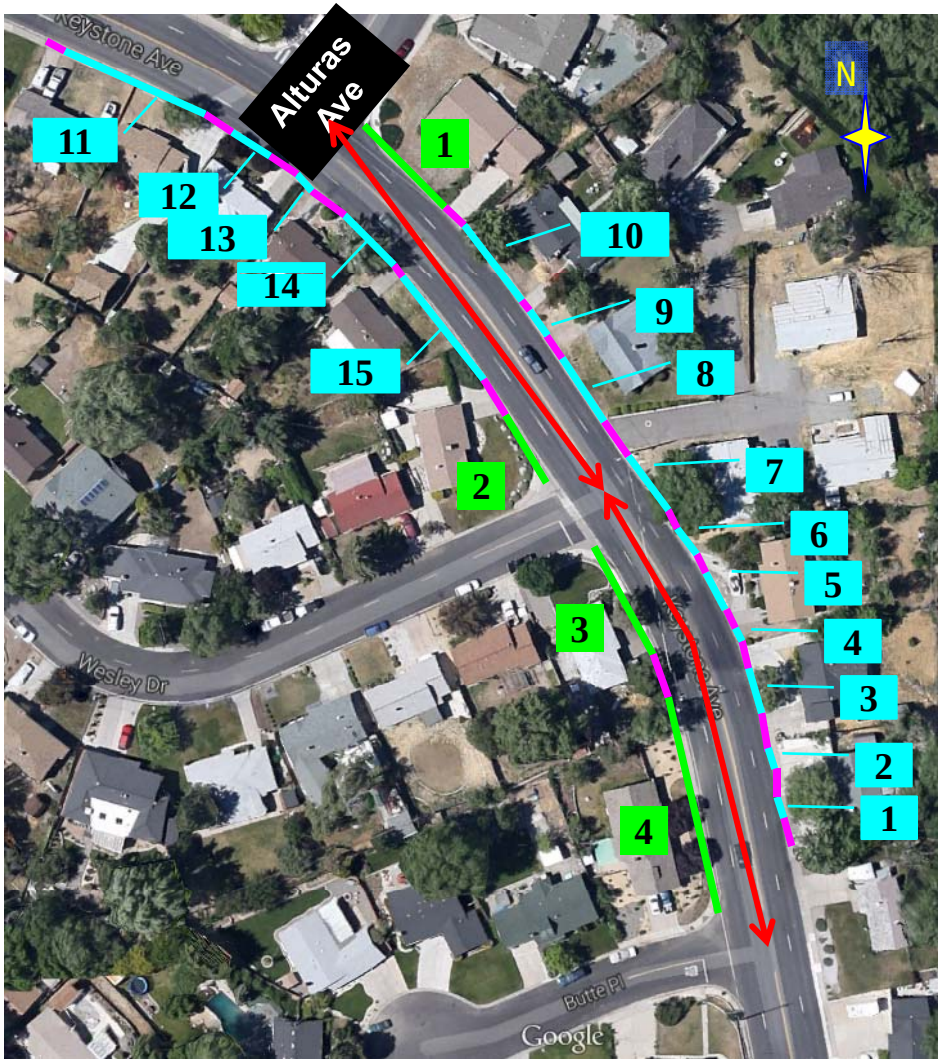
a. Driveway access width: **15' ft** Full Access
b. Driveway access width: **15' ft** Full Access
c. Driveway access width: **15' ft** Full Access
d. Driveway access width: **10' ft** Full Access
e. Driveway access width: **10' ft** Full Access
f. Driveway access width: **10' ft** Full Access
g. Driveway access width: **10' ft** Full Access
h. Driveway access width: **20' ft** Full Access
i. Driveway access width: **15' ft** Full Access
j. Driveway access width: **10' ft** Full Access
k. Driveway access width: **15' ft** Full Access
l. Driveway access width: **10' ft** Full Access
m. Driveway access width: **20' ft** Full Access
n. Driveway access width: **15' ft** Full Access
o. Driveway access width: **15' ft** Full Access
p. Driveway access width: **10' ft** Full Access
q. Driveway access width: **20' ft** Full Access
r. Driveway access width: **15' ft** Full Access

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Butte Pl to Alturas Ave



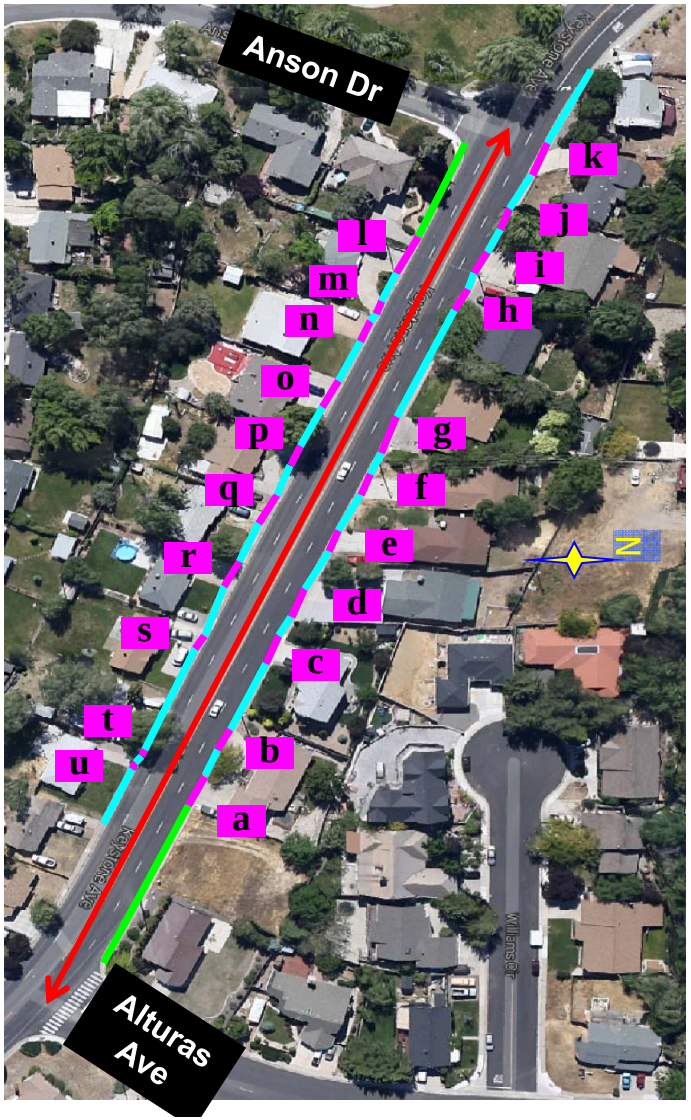
1. Driveway spacing: **25’ ft**
2. Driveway spacing: **10’ ft**
3. Driveway spacing: **25’ ft**
4. Driveway spacing: **5’ ft**
5. Driveway spacing: **15’ ft**
6. Driveway spacing: **15’ ft**
7. Driveway spacing: **50’ ft**
8. Driveway spacing: **50’ ft**
9. Driveway spacing: **15’ ft**
10. Driveway spacing: **60’ ft**
11. Driveway spacing: **70’ ft**
12. Driveway spacing: **35’ ft**
13. Driveway spacing: **5’ ft**
14. Driveway spacing: **60’ ft**
15. Driveway spacing: **95’ ft**

1. Corner clearance: **60’ ft**
2. Corner clearance: **40’ ft**
3. Corner clearance: **40’ ft**
4. Corner clearance: **165’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Alturas Ave to Anson Dr



- Distance between Alturas Ave and Anson Dr : **850' ft**

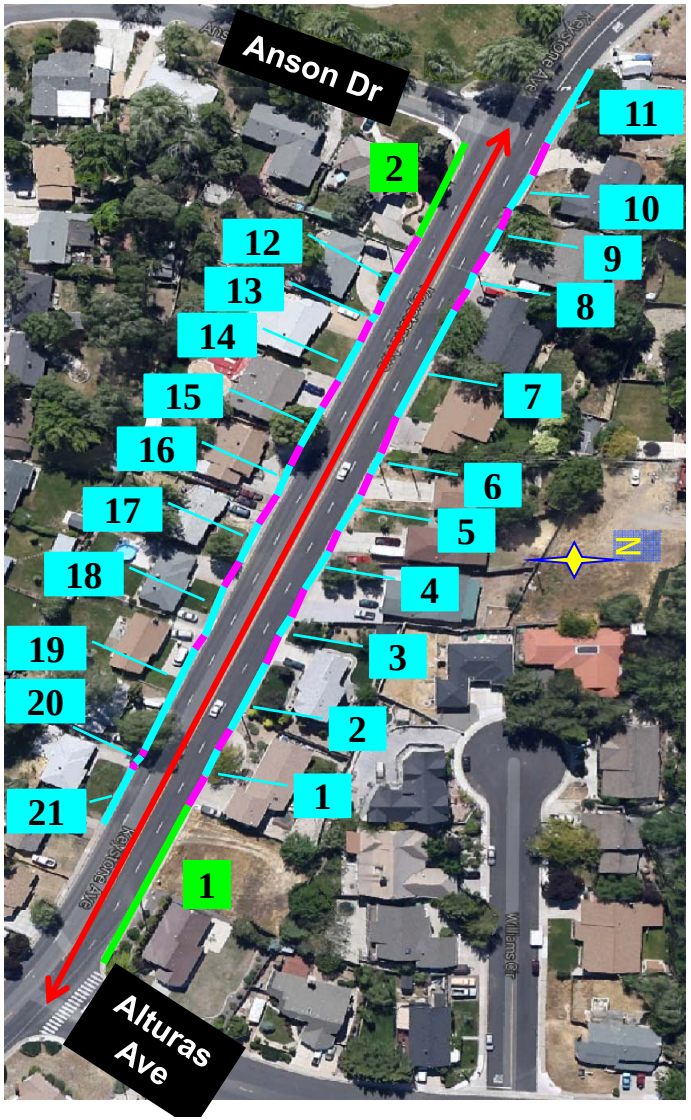
a. Driveway access width: **20' ft** Full Access
b. Driveway access width: **10' ft** Full Access
c. Driveway access width: **20' ft** Full Access
d. Driveway access width: **15' ft** Full Access
e. Driveway access width: **20' ft** Full Access
f. Driveway access width: **15' ft** Full Access
g. Driveway access width: **25' ft** Full Access
h. Driveway access width: **10' ft** Full Access
i. Driveway access width: **20' ft** Full Access
j. Driveway access width: **10' ft** Full Access
k. Driveway access width: **25' ft** Full Access
l. Driveway access width: **30' ft** Full Access
m. Driveway access width: **15' ft** Full Access
n. Driveway access width: **35' ft** Full Access
o. Driveway access width: **20' ft** Full Access
p. Driveway access width: **25' ft** Full Access
q. Driveway access width: **15' ft** Full Access
r. Driveway access width: **15' ft** Full Access
s. Driveway access width: **20' ft** Full Access
t. Driveway access width: **10' ft** Full Access
u. Driveway access width: **10' ft** Full Access

- No on-street parking on either side of the street

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Travel Access Identification)

Location: Keystone Ave: Alturas Ave to Anson Dr



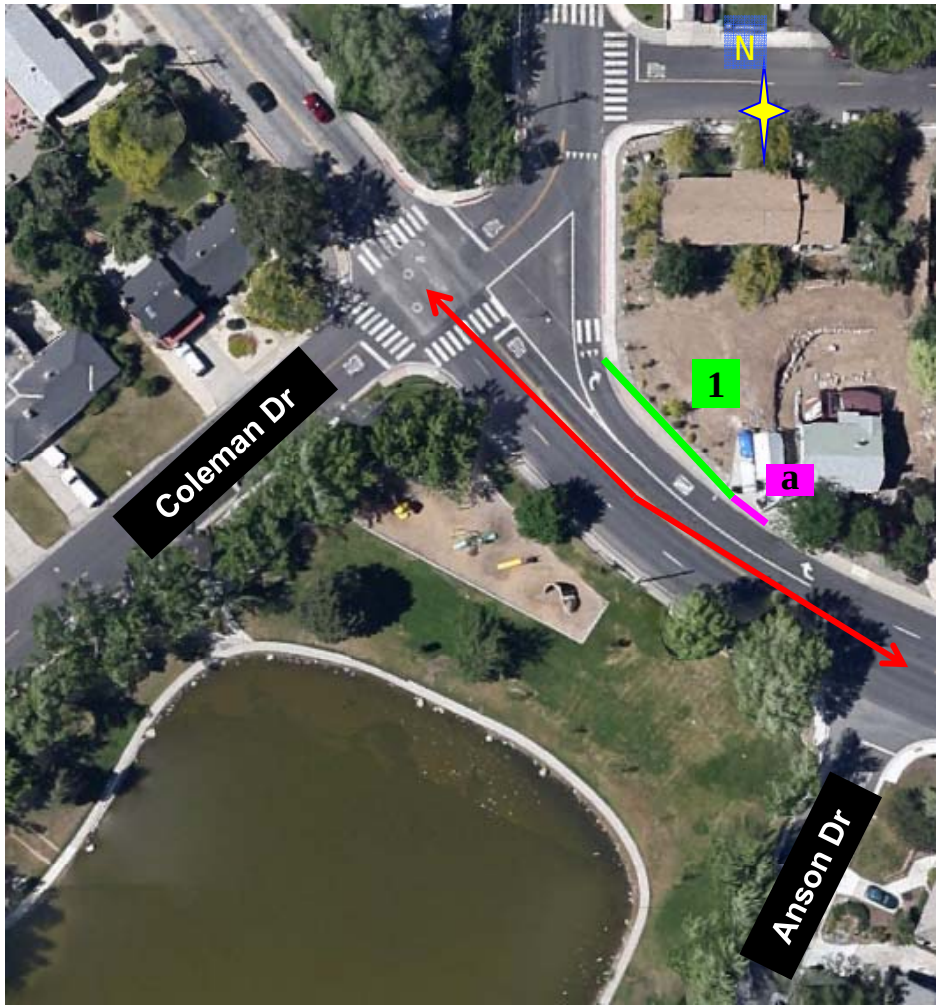
1. Driveway spacing: **35’ ft**
2. Driveway spacing: **65’ ft**
3. Driveway spacing: **25’ ft**
4. Driveway spacing: **40’ ft**
5. Driveway spacing: **40’ ft**
6. Driveway spacing: **30’ ft**
7. Driveway spacing: **110’ ft**
8. Driveway spacing: **25’ ft**
9. Driveway spacing: **20’ ft**
10. Driveway spacing: **50’ ft**
11. Driveway spacing: **75’ ft**
12. Driveway spacing: **25’ ft**
13. Driveway spacing: **5’ ft**
14. Driveway spacing: **45’ ft**
15. Driveway spacing: **35’ ft**
16. Driveway spacing: **25’ ft**
17. Driveway spacing: **35’ ft**
18. Driveway spacing: **45’ ft**
19. Driveway spacing: **55’ ft**
20. Driveway spacing: **5’ ft**
21. Driveway spacing: **50’ ft**

1. Corner clearance: **160’ ft**
2. Corner clearance: **80’ ft**

KEYSTONE AVENUE CORRIDOR STUDY

(Streets Spacing and Access Identification)

Location: Keystone Ave: Anson Dr to Coleman Dr



- ❑ Distance between Anson Dr and Coleman Dr : **260’ ft**

a. Driveway access width: **20’ ft** Full Access

1. Corner clearance: **170’ ft**

- ▪ No on-street parking on either side of the street

Appendix J

Right-of-Way and Utility Survey Sheets

KEYSTONE AVENUE CORRIDOR STUDY
Utility Survey Sheets

This package identifies the following:

1. **Key utilities that exist throughout the corridor along Booth Street, Foster Drive, California Avenue and Keystone Avenue.**
2. **Limits along Keystone Avenue are from California Avenue to W. 7th Street.**
3. **Location of traffic signals and street lights are identified as well, including the location of all pedestrian signal buttons.**
4. **Survey data was gathered from aerial photos as well as Google maps and street view. A field review was conducted to verify locations and descriptions of utilities listed.**
5. **All utility location information is approximate. Additional field verifications are required.**

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)
LEGEND SHEET

ITEM NAME: Electrical systems, traffic signal or lighting systems
NOTE:

ITEM NAME: Sewer Systems
NOTE:

ITEM NAME: Water & Fire Protection Sys
NOTE:

ITEM NAME: Comm & CATV System
NOTE:

ITEM NAME: Gas & Oil
NOTE:

ITEM NAME: Structures & Obstructions
NOTE:


Approximate location pointed out


Aboveground boxes etc


Utility / Light Poles & Tall significant structures


Sewer & Storm Drain equipment location


Identifies a specific area


Communications Item


Water & Fire Protection devices


Gas Items (Approximate)

Light Pole callout

Traffic Pole

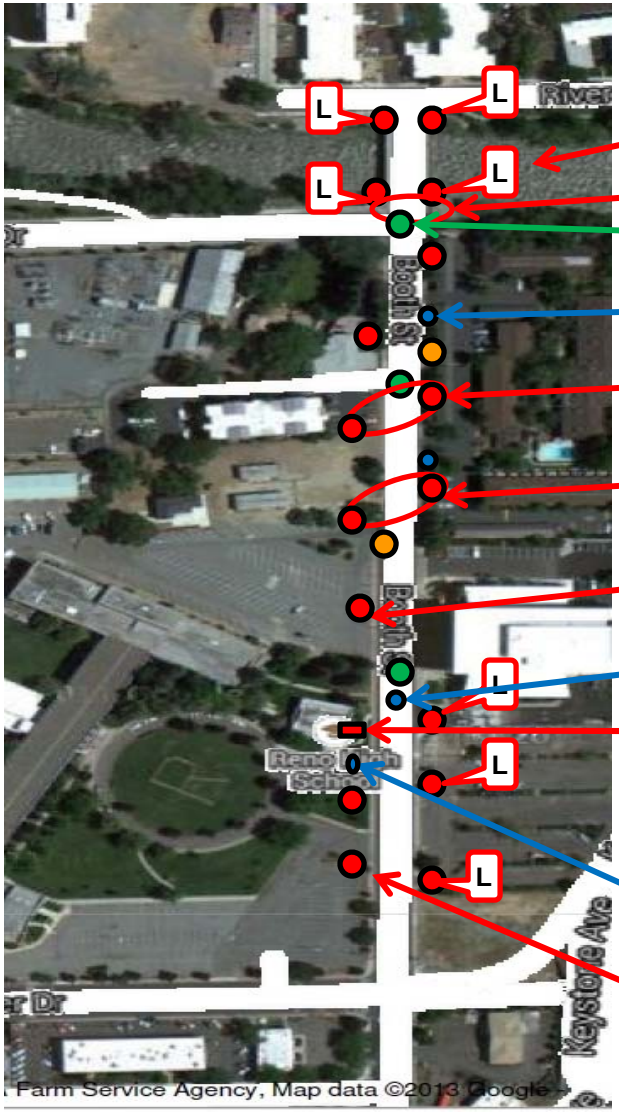
Traffic Pole with Pedestrian Signal Button

NOTE: Only visible utilities were identified.

KEYSTONE AVENUE CORRIDOR STUDY

(Utility Identification)

Location: Booth Street- (Foster Drive to Riverside Drive)



ITEM NAME: 4 Light Poles installed on sidewalls of bridge

ITEM NAME: Crosswalk across Booth Drive

ITEM NAME: Sewer or Storm Drain Manhole

ITEM NAME: Fire Hydrant

ITEM NAME: High Voltage Poles (OH) lines.
NOTE: Electrical lines cross over Booth Avenue.

ITEM NAME: High Voltage Poles (OH) lines.
NOTE: Electrical lines cross over Booth Avenue.

ITEM NAME: High Voltage Pole (OH) lines.
NOTE: Routed parallel to Booth St

ITEM NAME: Water and gas valves

ITEM NAME: High Voltage Transformer
NOTE: Located above grade, 10 feet from Booth.

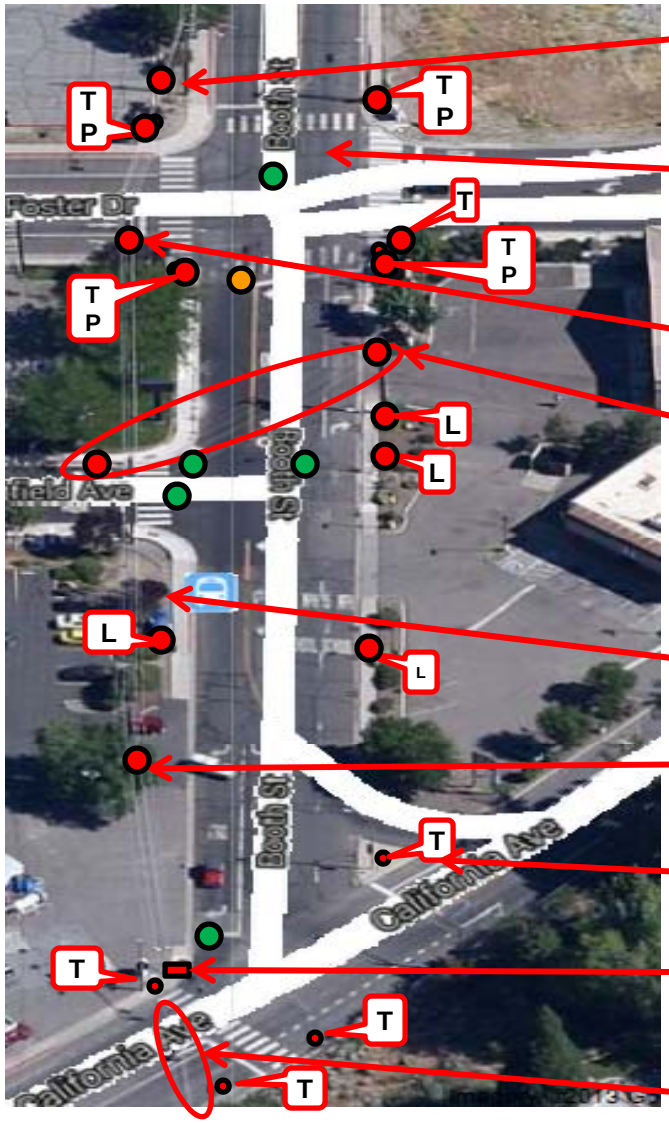
ITEM NAME: Water meter and hot box

ITEM NAME: High Voltage Pole (OH) lines.
NOTE: Routed parallel to Booth St

KEYSTONE AVENUE CORRIDOR STUDY

(Utility Identification)

Location: Booth Street-(Foster Drive to California Avenue)



ITEM NAME: High Voltage Electrical Pole.
NOTE: Overhead lines routed parallel to Booth St

ITEM NAME: SS or SD Systems

ITEM NAME: Crosswalks exist across Booth Street

T P — **ITEM NAME:** Traffic Control with Pedestrian Control

ITEM NAME: High Voltage Electrical Pole.
NOTE: Supports overhead lines routed parallel to Booth St

ITEM NAME: High Voltage Electrical Pole.
NOTE: Corner of street. Support OH lines routed OVER Booth

L — **ITEM NAME:** Light Poles

T — **ITEM NAME:** Traffic Control Signal & Pole

ITEM NAME: Bus Stop Structure

ITEM NAME: High Voltage Electrical Pole.
NOTE: Supports overhead lines routed parallel to Booth St

ITEM NAME: Traffic light Poles (4 at this corner)

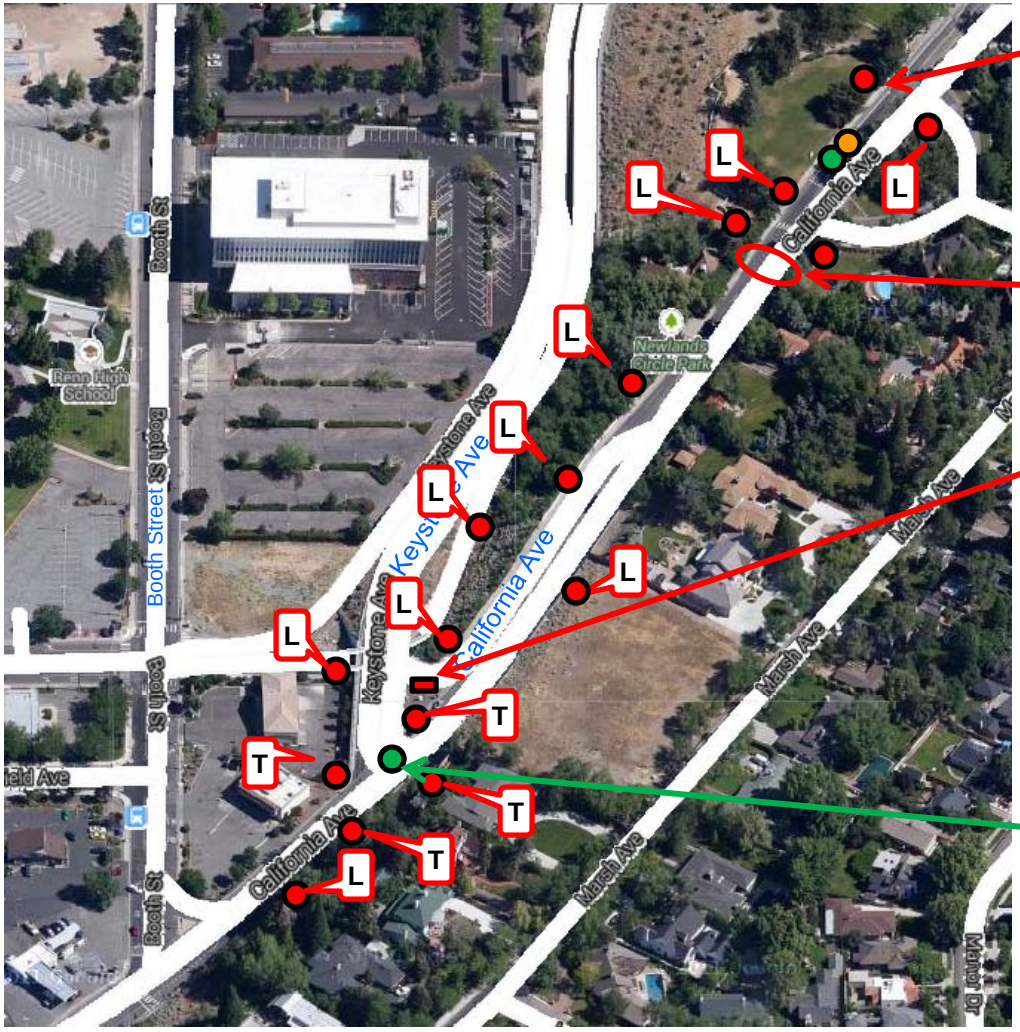
ITEM NAME: Traffic Control Equipment box.
NOTE: Above ground and 10 feet North of California

ITEM NAME: High Voltage (OH) lines.
NOTE: Routed parallel to Booth St and over California Ave

KEYSTONE AVENUE CORRIDOR STUDY

(Utility Identification)

Location: California Avenue-(Newlands Circle to Booth Street)



ITEM NAME: Electrical Pole (OH) lines.
NOTE: Secondary electrical lines routed over California Avenue..

L — **ITEM NAME:** Light Poles

T — **ITEM NAME:** Traffic Signal Pole

ITEM NAME: Crosswalk (Painted)
NOTE: No Traffic Signal exists

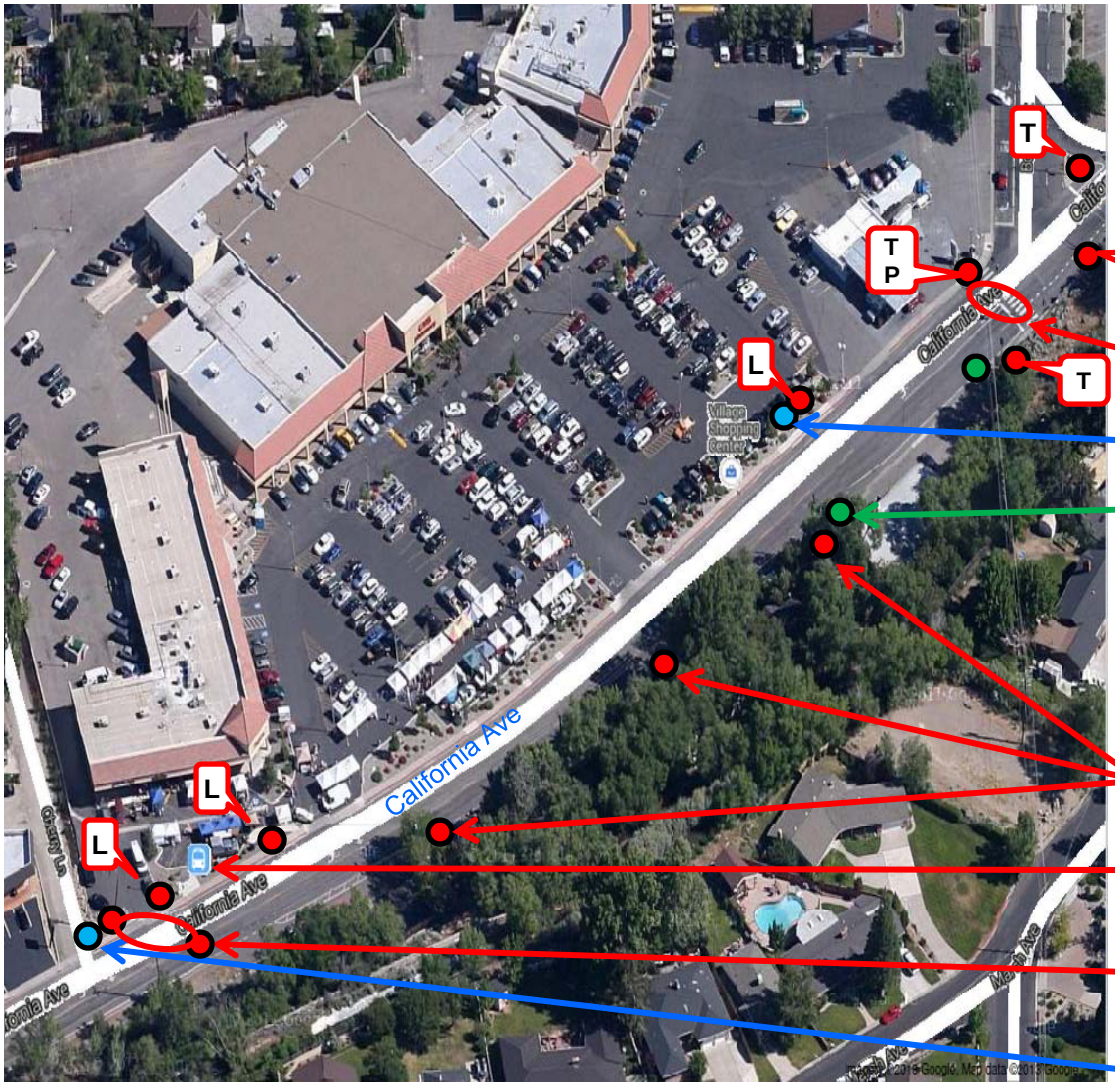
ITEM NAME: Traffic Control Box
NOTE: Above ground

ITEM NAME: Sewer or Storm Drain Manhole

KEYSTONE AVENUE CORRIDOR STUDY

(Utility Identification)

Location: California Avenue - (Cherry Lane to Booth Drive)



L — **ITEM NAME:** Light Poles

T — **ITEM NAME:** Traffic Signal Pole

T P — **ITEM NAME:** Traffic Signal Pole with Pedestrian Signal Button.

ITEM NAME: Crosswalk.
NOTE: Located with a Pedestrian Signal

ITEM NAME: Fire Hydrant

ITEM NAME: Sewer or Storm Drain Manhole

ITEM NAME: High Voltage Pole

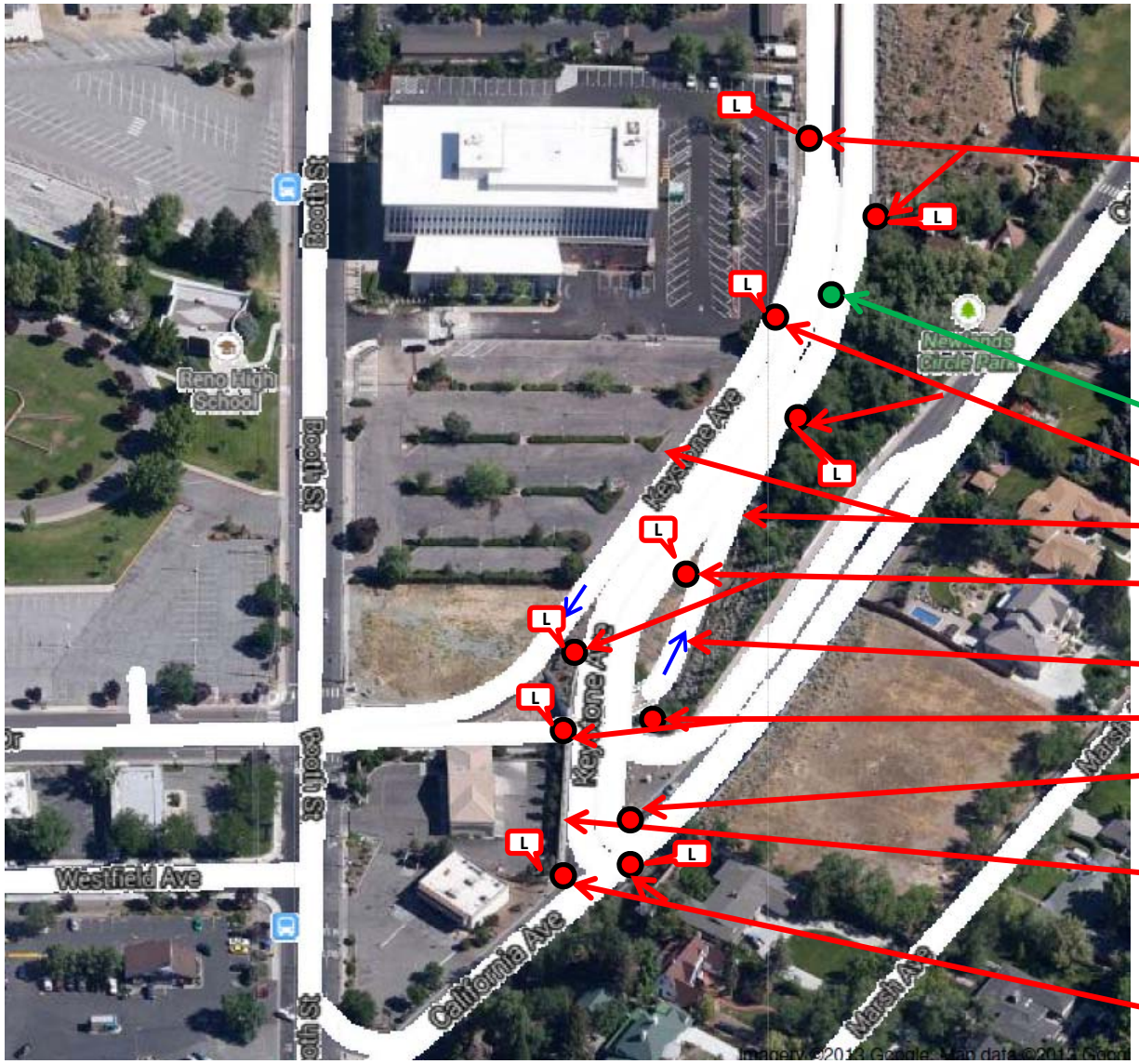
ITEM NAME: Bus Stop.
NOTE: Bench and concrete pad only.

ITEM NAME: High Voltage Pole (OH) lines.
NOTE: Routed on Poles across California Ave.

ITEM NAME: Water Hydrant
NOTE: Located 5-10 feet East of Cherry Ln..

KEYSTONE PLANNING STUDY
(Utility Identification)

Location: Keystone Avenue.- Parking lot at US Federal Building to California Avenue)



ITEM NAME: Light Poles
NOTE: Symbol show Approx location

L

ITEM NAME: Light Poles

ITEM NAME: Sewer or Storm Drain

ITEM NAME: Light Poles

ITEM NAME: Concrete wall exists on the East and West side of this street.

ITEM NAME: Light Poles

ITEM NAME: Road routed under Keystone Ave.
NOTE:
-Barricades exist on both sides of keystone due to height.

ITEM NAME: Light Poles

ITEM NAME: Light Pole
NOTE: Also contain on traffic light signal device.

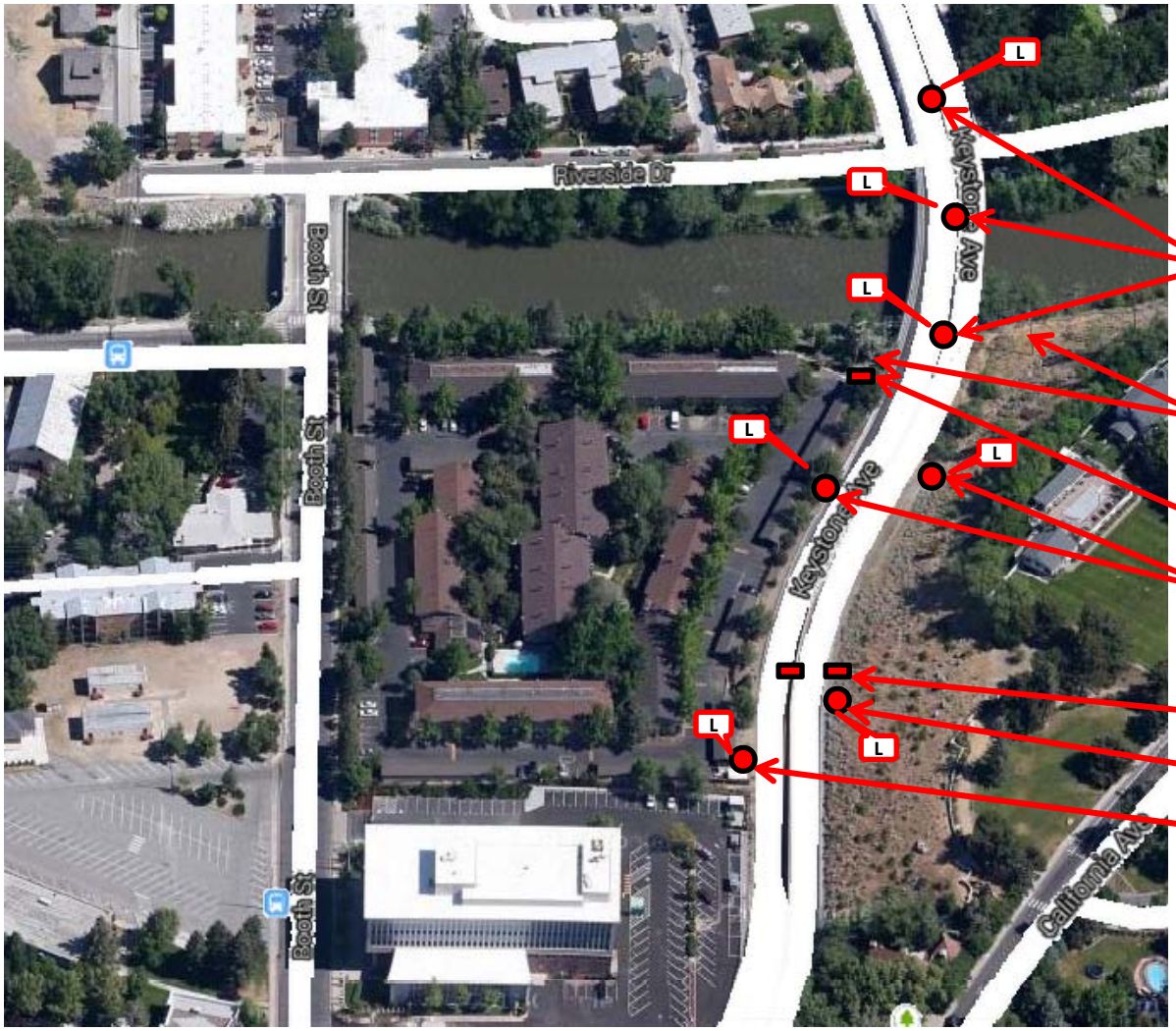
ITEM NAME: Metal Railing & Concrete Barricades
NOTE:
-Protect vehicles from lower level on the East side of road

ITEM NAME: Traffic Light System over California
NOTE:
-Controls one-way traffic going South on California Ave and two-way traffic from Keystone Avenue.
-Sign located at this corner states "NO TURN ON RED"

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE PLANNING STUDY
(Utility Identification)

Location: Keystone Avenue.- Riverside Drive to US Federal Building parking lot.)



ITEM NAME: Light Poles
NOTE:
-Light poles located in the concrete barrier that exist
in the center lane.

ITEM NAME: High Voltage Electrical poles
NOTE:
-High Voltage lines (OH) cross over Keystone Ave.
-Communication lines (OH) cross over Keystone Ave.

ITEM NAME: High Voltage Electrical Oil Switch.
(Above ground)

ITEM NAME: Light Poles

ITEM NAME: Electrical box (2), Underground (UG)
NOTE: Possible support for street lighting system.

ITEM NAME: Light Poles

ITEM NAME: Light Poles

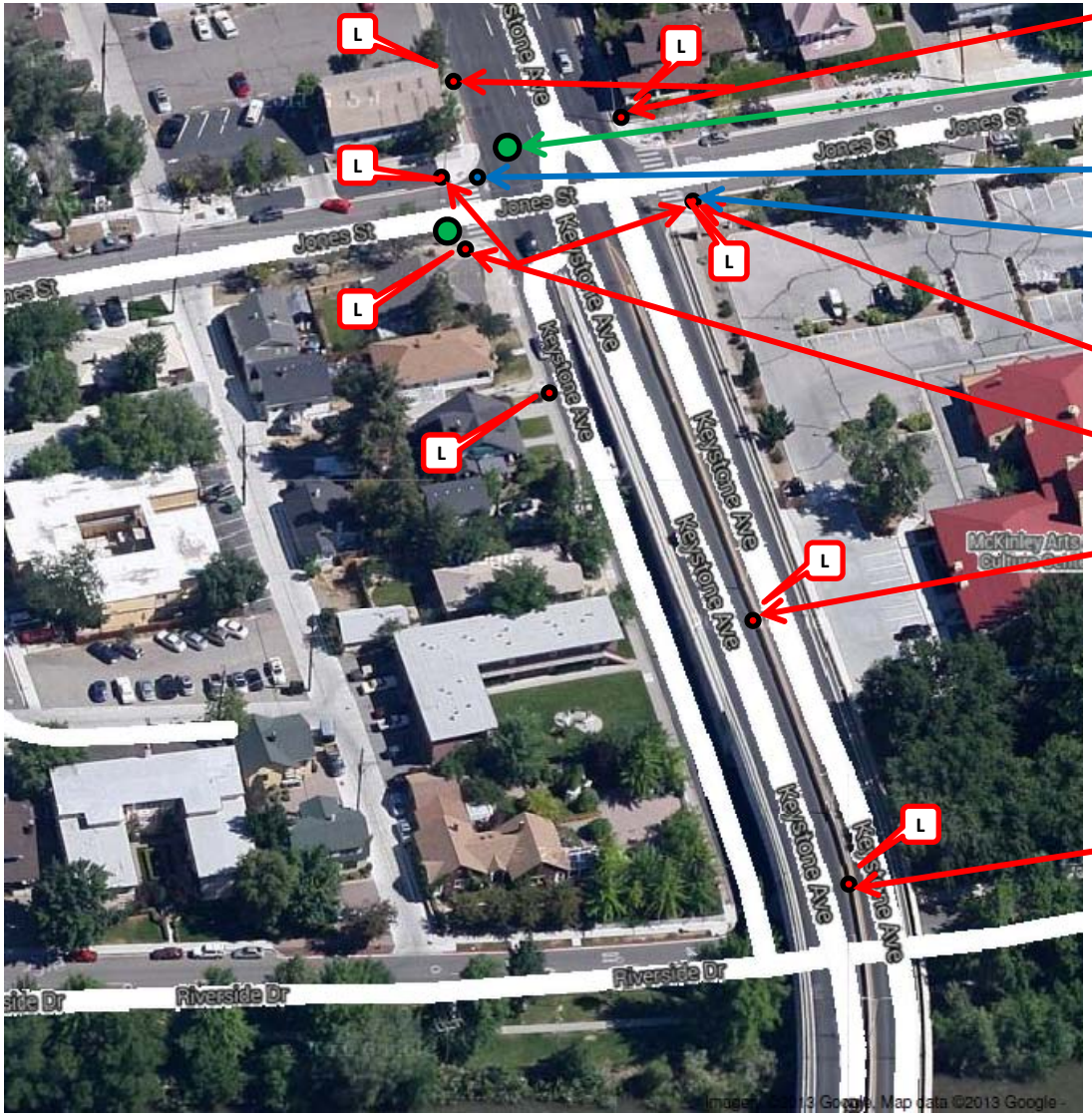
ITEM NAME: Light Poles
NOTE: Symbol show Approx location

L

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue.- Jones Street to Riverside Drive)



ITEM NAME: Light Poles

ITEM NAME: Sanitary Sewer of Storm Drain

ITEM NAME: Water valves (3)
NOTE: Located at the corner of Keystone Avenue and Jones Street (In the asphalt.)

ITEM NAME: Fire Hydrant at this corner

ITEM NAME: High Voltage Electrical poles
NOTE:
-Approximately 7 to 10 feet South of the light pole.
-High Voltage lines cross over Keystone Ave.
-Communication lines also cross over Keystone Ave.

ITEM NAME: Light Poles (NO TRAFFIC LIGHTS)

ITEM NAME: Light Poles
NOTE:
-Light poles located in the concrete barrier that exist in the center lane.

ITEM NAME: Light Poles
NOTE:
-Light poles located in the concrete barrier that exist in the center lane.

ITEM NAME: Light Poles
NOTE: Symbol show Approx location — L

ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location — T

ITEM NAME: Traffic Control with Pedestrian Control — T P

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue.- West 2nd Street to Jones Street)

ITEM NAME: Fire Hydrant
NOTE: Located on the South side of West 2nd Street.

ITEM NAME: -(P) High Voltage lines (OH) routed on utility poles parallel to Keystone Ave

ITEM NAME: Comm lines cross over Keystone Avenue.

ITEM NAME: -High Voltage lines (OH) cross over Keystone Ave

ITEM NAME: SS and SD Manholes in intersection

ITEM NAME: Water Valves in intersection

ITEM NAME: Traffic Signal poles & lights at all four corners of this road. Traffic signal box located on Northwest side of West 1st St.

ITEM NAME: Unknown underground utilities.

ITEM NAME: Water Vault

ITEM NAME: Light Poles
NOTE: Symbol show Approx location — L

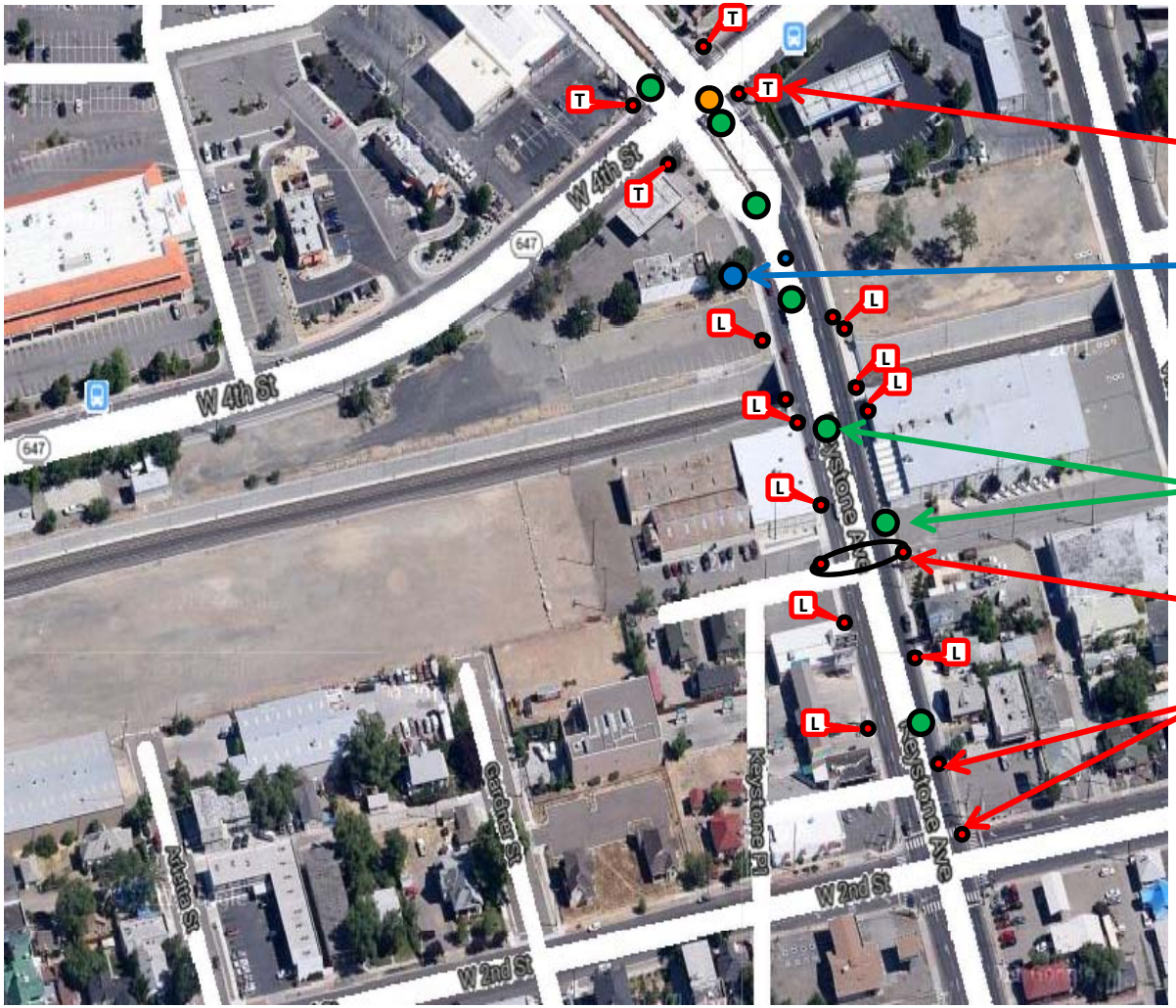
ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location — T

ITEM NAME: Traffic Control with Pedestrian Control — T P

NOTE: All locations are approximate.
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue.- West 4th Street to West 2nd Street)



ITEM NAME: Traffic Light Poles
NOTE: All Traffic Poles have street lights attached to them

ITEM NAME: Fire Hydrant
NOTE: Water valve located Approx 10 feet North

ITEM NAME: Traffic Signal poles & lights at all four corners of this road. Traffic signal box located on Northwest side of West 1st St.

ITEM NAME: Sewer or Storm Drain

ITEM NAME: -High Voltage lines (OH) cross over Keystone Ave

ITEM NAME: **-(P)** High Voltage lines (OH) routed on utility poles parallel to Keystone Ave

ITEM NAME: Light Poles
NOTE: Symbol show Approx location

L

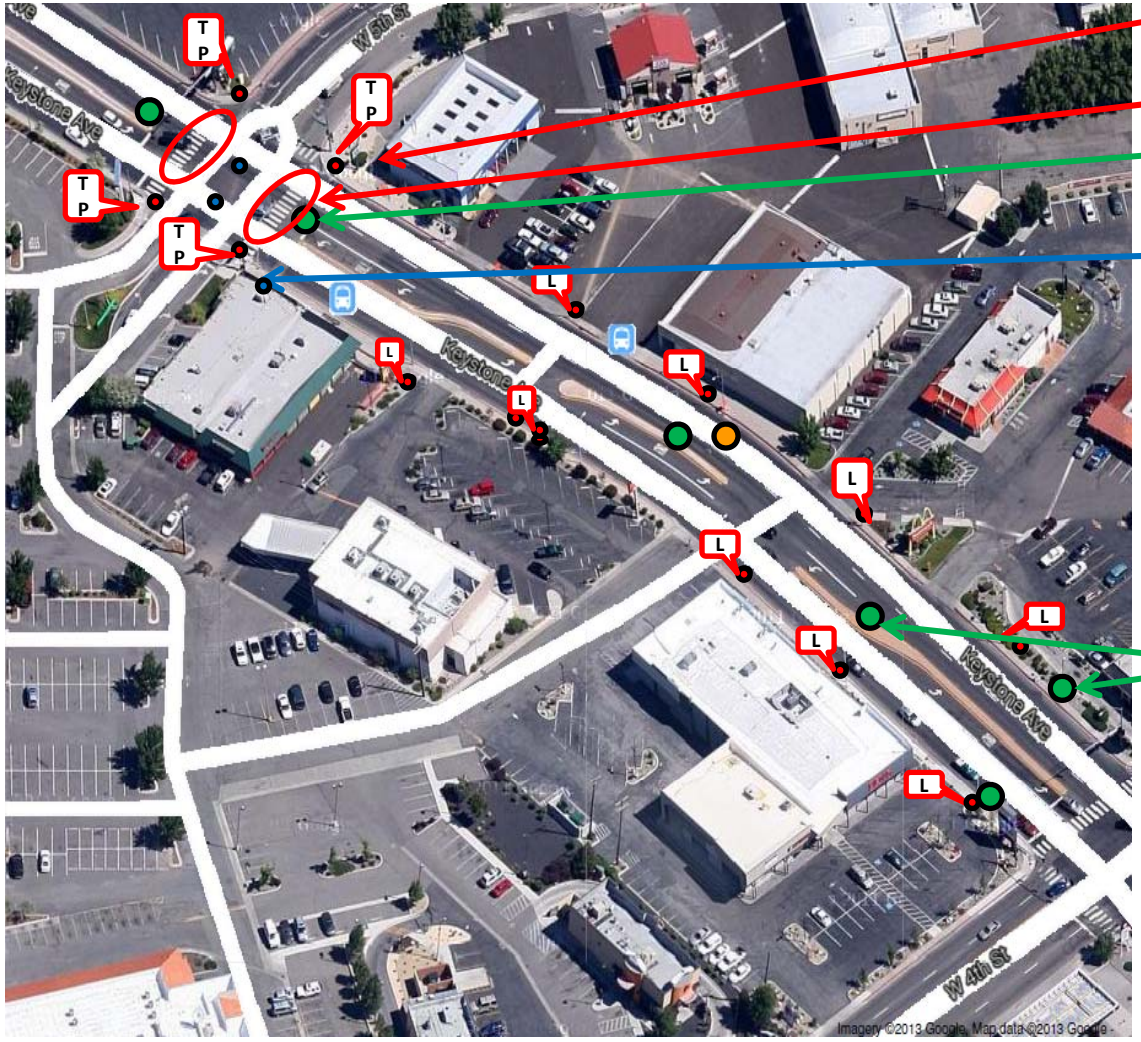
ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location

T

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue. West 5th Street to West 4th Street)



ITEM NAME: Traffic Signal poles & lights at all four corners of this road. Traffic signal box located on Northwest side of West 1st St.

ITEM NAME: Crosswalks across Keystone Avenue

ITEM NAME: Sewer or Storm Drain

ITEM NAME: Fire Hydrant
NOTE: Water valve located Approx 5 feet South

ITEM NAME: Sewer or Storm Drain

L — **ITEM NAME:** Light Poles
NOTE: Symbol show Approx location

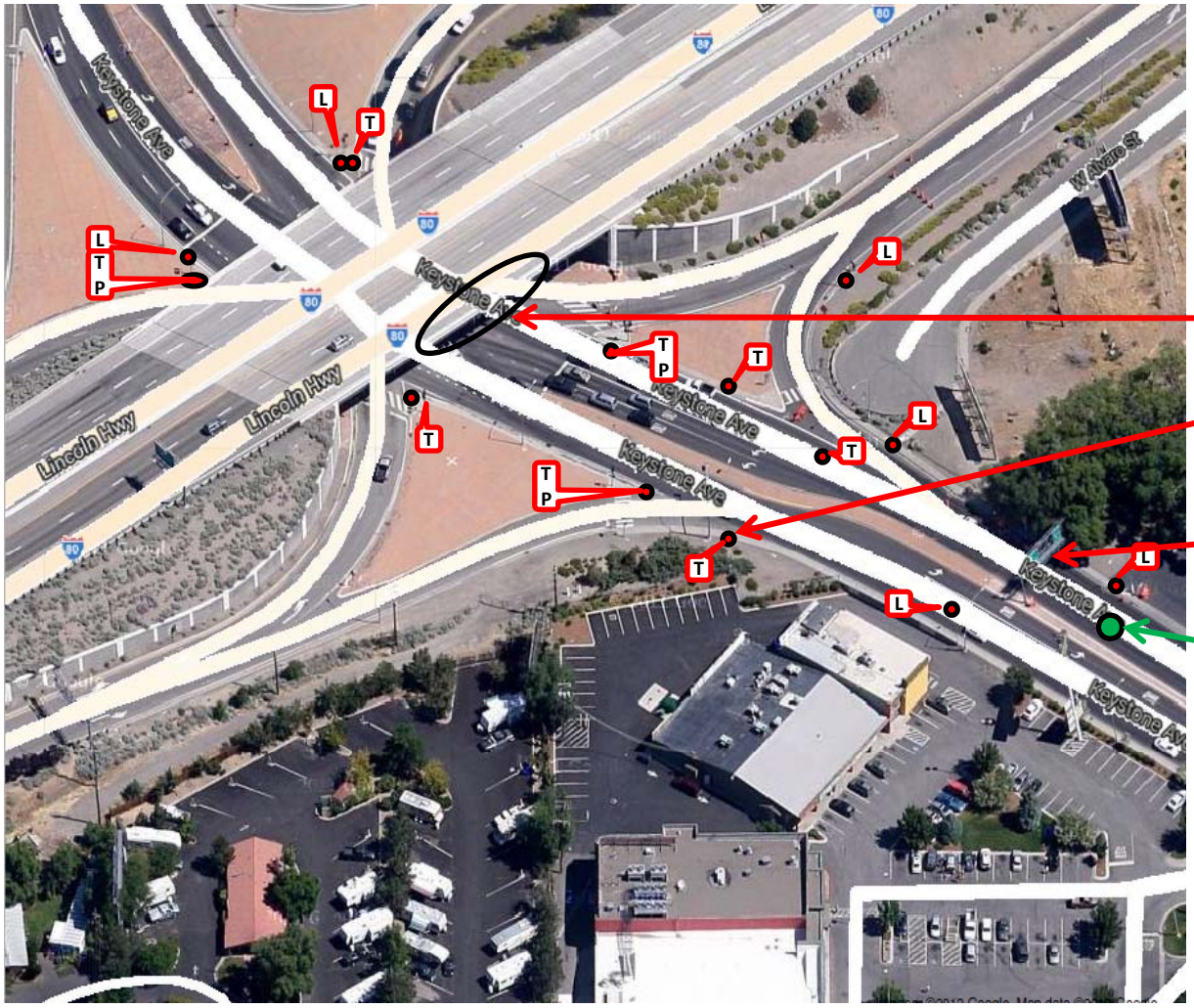
T — **ITEM NAME:** Traffic Light Poles
NOTE: Symbol show approx location

T P — **ITEM NAME:** Traffic Control with Pedestrian Control

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue. Lincoln Hwy Intersection (I-80) to West 5th Street)



ITEM NAME: Traffic Signal Lights
NOTE: Mounted to the Highway Overpass

ITEM NAME: Traffic Signal poles & lights
NOTE: Light facing HWY exit from the East

ITEM NAME: Sign over Keystone Ave
NOTE: Metal structure. Supported by Metal poles on the East side and the center of this street.

ITEM NAME: Sewer or Storm Drain MH

ITEM NAME: Traffic Light Poles
NOTE: All Traffic Poles have street lights attached to them

ITEM NAME: Light Poles
NOTE: Symbol show Approx location

L

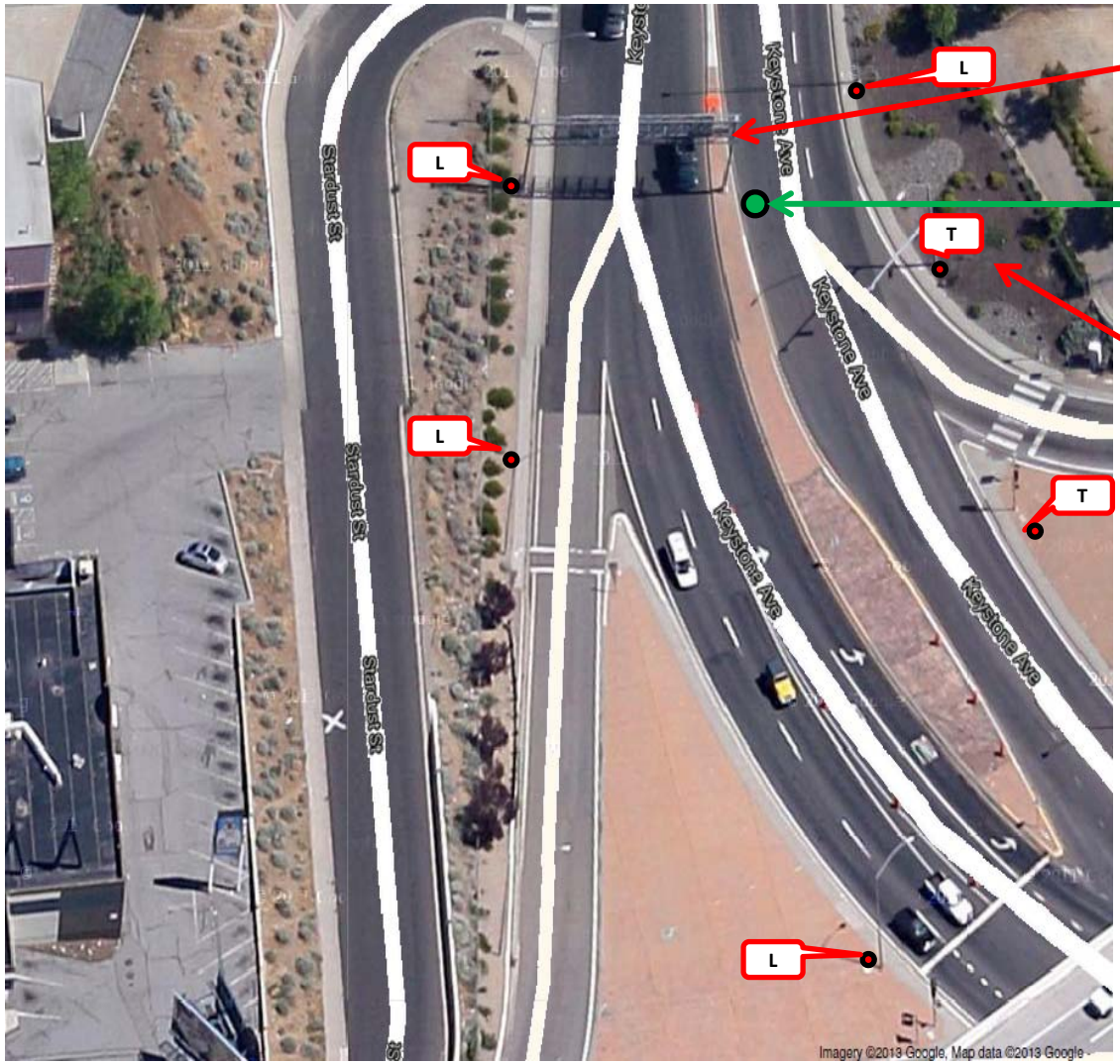
ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location

T

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue. Stardust St to Lincoln Hwy Intersection (I-80)



ITEM NAME: Sign over Keystone Ave
NOTE: Metal structure. Supported by Metal poles on the West side and the center of this street.

ITEM NAME: Sewer or Storm Drain

ITEM NAME: Traffic Signal Lights with attached street lighting fixture

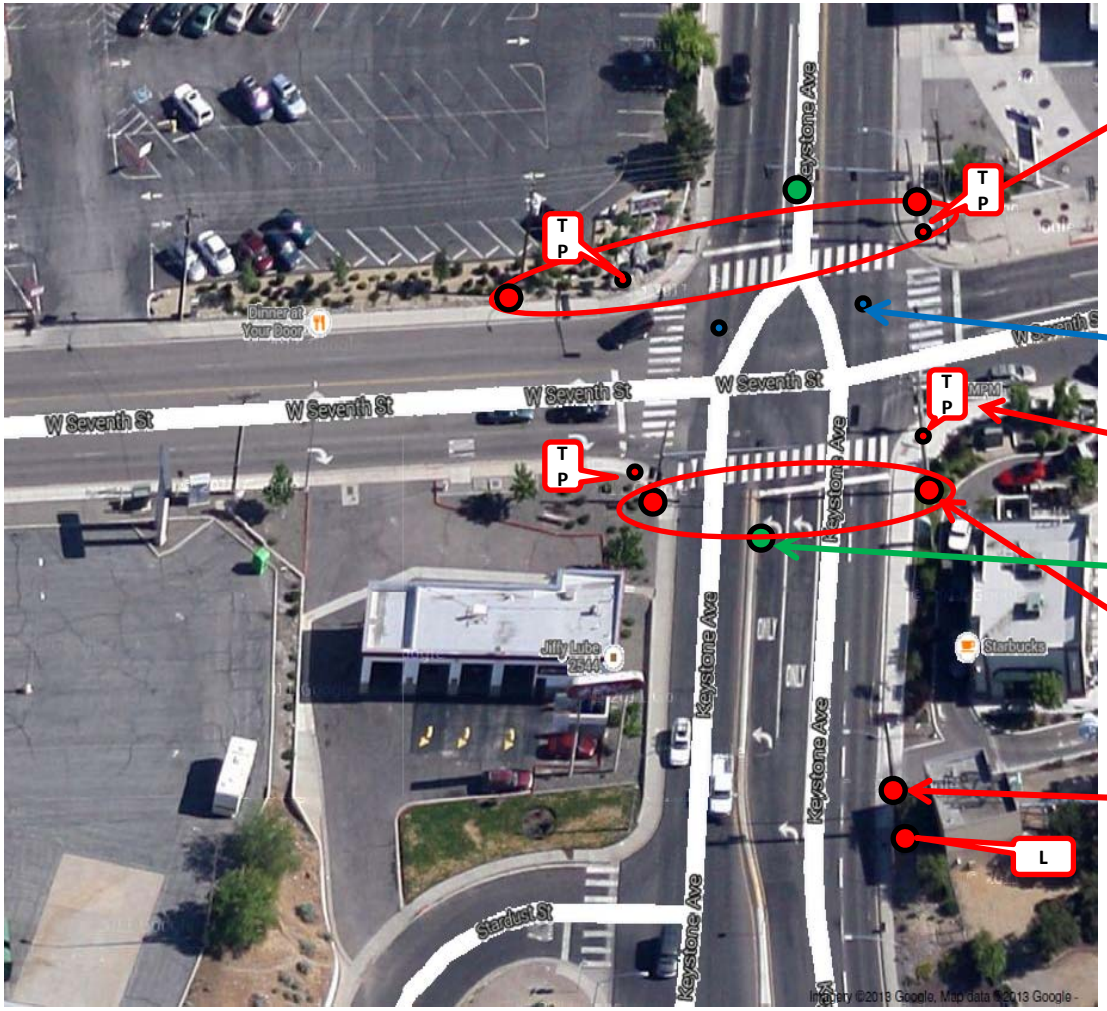
ITEM NAME: Light Poles
NOTE: Symbol show Approx location — L

ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location — T

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

KEYSTONE AVENUE CORRIDOR STUDY
(Utility Identification)

Location: Keystone Avenue. Seventh St to Stardust St



ITEM NAME: -High Voltage lines (OH) routed on utility poles over Keystone Avenue

ITEM NAME: Water Valves

ITEM NAME: Traffic Signal poles & lights
NOTE: Lights located on all four corners of this area and hang over each street.

ITEM NAME: Sewer or Storm Drain

ITEM NAME: -**(P)** High Voltage lines (OH) routed on utility poles parallel to Keystone Ave.

ITEM NAME: -**(P)** High Voltage lines (OH) routed on utility poles parallel to Keystone Ave. The line begins here and is routed to the North.

L

ITEM NAME: Light Poles
NOTE: Symbol show Approx location

T

ITEM NAME: Traffic Light Poles
NOTE: Symbol show approx location

NOTE: **All locations are approximate.**
: Reference only. Not to scale.

TAX CERTIFICATE

The undersigned hereby certifies that no property taxes on this land are delinquent.

WASHOE COUNTY TREASURER

BY: _____ 5/21/90
ASSISTANT CHIEF DEPUTY DATE

BASIS OF BEARINGS

CENTER LINE OF UNIVERSITY TERRACE
AS PER RECORD OF SURVEY No. 1868
IE., N86°21'00"E

TOTAL AREA = 3.985 Ac.±

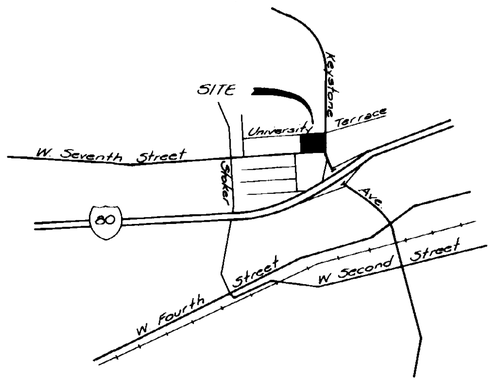
SCALE: 1"=50'

LEGEND

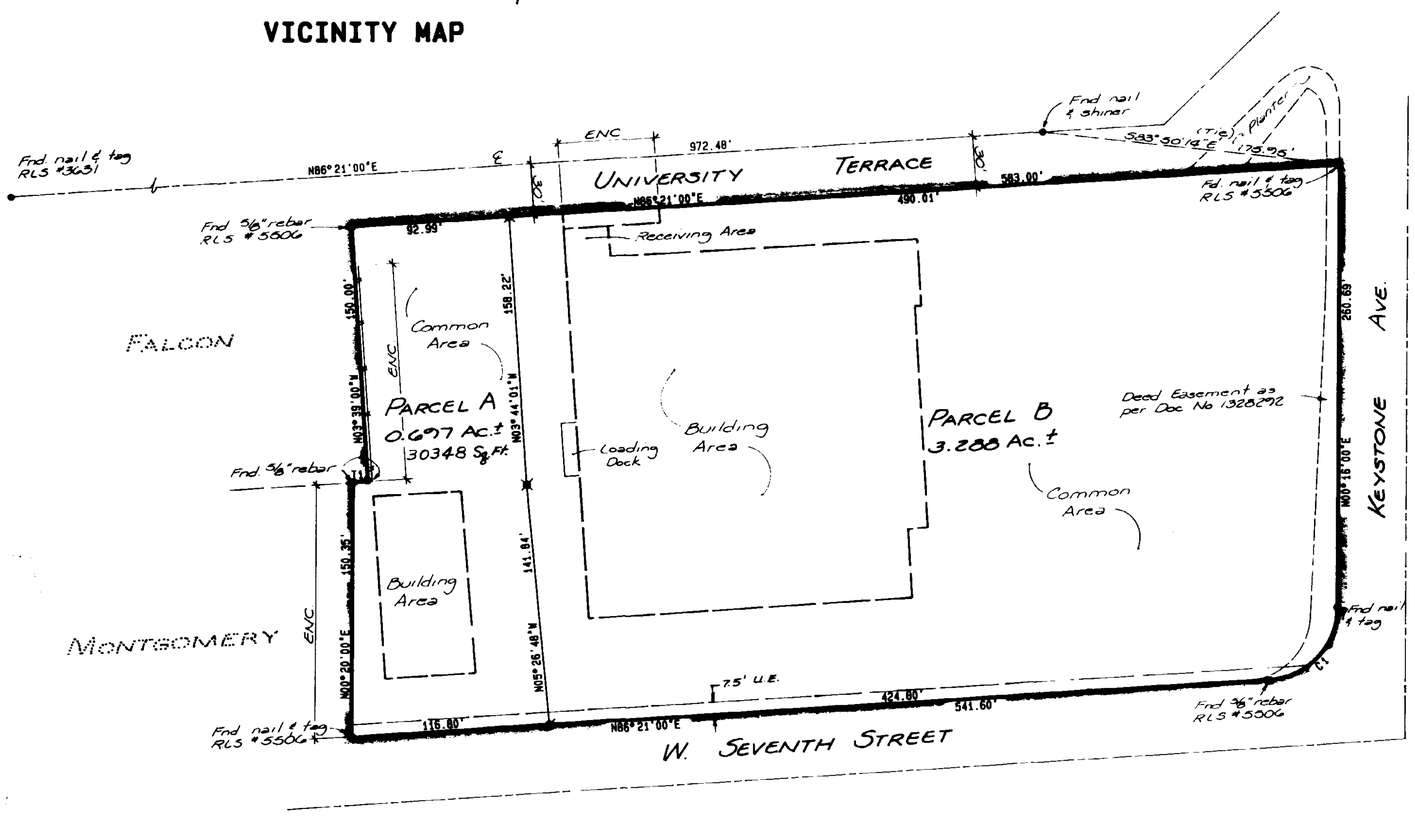
- ⌀ SET 5/8" REBAR CAPPED RLS 1643
- ● FOUND POINT AS INDICATED
- ⊠ SET NAIL AND TAG RLS 1643
- ENC ENCROACHMENT AS PER RECORD OF SURVEY FOR AUGUST WAEGEMANN RECORDED IN WASHOE COUNTY AS DOCUMENT No. 1102164

NOTES

1. A Utility Easement is also hereby granted within each parcel for the exclusive purpose of installing and maintaining utility service facilities to that parcel at locations mutually agreed upon by the owner of record at the time of installation and the utility company.
2. Agreement of Covenants, Conditions and Establishment of Restrictions and Grants of Easements recorded May 15, 1990 as Document No. 1399888, official records of Washoe County.



VICINITY MAP



NUMBERED COURSES

REF. NO.	BEARING	DISTANCE
T 1	N86°21'00"E	8.69

CURVE DATA

CURVE NO.	DELTA	RADIUS	LENGTH
C 1	86°05'00"	42.83	64.35

OWNER'S CERTIFICATE

This is to certify that the undersigned, OZARK INVESTMENTS, INC. is the owner of the tract of land represented on this plat and has consented to the preparation and recordation of this plat and that the same is executed in compliance with and subject to the provisions of NRS Chapter 278.

1. The access and utility easements as shown hereon are hereby granted.

CHARLES L. COLLINGS, PRESIDENT
OZARK INVESTMENTS, INC.

1/29/90
DATE

NOTARY PUBLIC CERTIFICATE

STATE OF CALIFORNIA
SS
COUNTY OF YOLO

On this 29th day of January, 1990, personally appeared before me, a Notary Public, in the County of Yolo CHARLES L. COLLINGS, who acknowledged to me that he executed the above instrument. In witness whereof, hereunto set my hand and affix my official seal on the date and year first above written.

NOTARY PUBLIC

ANNA C. McGAGIN
NOTARY PUBLIC
YOLO COUNTY, CALIFORNIA
My Commission Expires May 3, 1993

SURVEYOR'S CERTIFICATE

I, RICHARD W. ARDEN, a Professional Land Surveyor in the State of Nevada, certify that:

1. This is a true and accurate representation of the lands surveyed under my supervision at the instance of OZARK INVESTMENTS, INC.
2. The lands surveyed lie within a portion of the NE1/4 of Section 10, T19N, R19E, MDM, and the survey was completed on December 29, 1989.
3. This plat complies with the applicable state statutes and any local ordinances.
4. The monuments are of the character shown and occupy the positions indicated and are sufficient for the survey to be retraced.

RICHARD W. ARDEN
PROFESSIONAL LAND SURVEYOR NO. 1643

TITLE COMPANY CERTIFICATE

The undersigned hereby certifies that this plat has been examined and the subdivider offering this map is the last title holder of record for all the lands delineated hereon, and the lands are free from any liens or encumbrances as of JANUARY 19 1990, and the only party holding a security interest on the property is NONE.

FIRST CENTENNIAL TITLE COMPANY

BY: _____ January 19, 1990
CHIEF TITLE OFFICER DATE

UTILITY COMPANIES' CERTIFICATE

The utility easements shown on this plat have been checked, accepted and approved by the undersigned public utility companies, and TCI of Nevada/Reno.

SIERRA PACIFIC POWER COMPANY — 1/9/90 DATE

NEVADA BELL — DATE

TCI OF NEVADA/RENO — 1-16-90 DATE

PARCEL MAP COMMITTEE CERTIFICATE

Approved and accepted by the Parcel Map Committee of the City of Reno, Washoe County, Nevada, this 21st day of May, 1990. Conditional approval of this map was granted by the Parcel Map Committee on the 24th day of April, 1990.

Kay K. Brown
CHAIRMAN, PARCEL MAP COMMITTEE

5/21/90
DATE

FILE NO. 1402000
FEE: $10.00
FILED FOR RECORD AT THE REQUEST OF SEA ENG. ON THIS 23 DAY OF MAY 1990, AT 44 MINUTES PAST 1 O'CLOCK, P.M., OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.

JOE MERCHEN
COUNTY RECORDER
BY: _____
DEPUTY

1402000

PARCEL MAP
FOR

OZARK INVESTMENTS, INC.

POR. NE1/4 SEC. 10, T19N, R19E, MDM
POR. BLOCKS A AND B, CLOVERDALE HEIGHTS SUBDIVISION
RENO WASHOE COUNTY NEVADA

sea CONSULTING ENGINEERS
SPARKS, NEVADA
LAS VEGAS, NEVADA
PHOENIX, ARIZONA

JOB NO.	1706-01-1
DESIGNED	R.H./J.A.H.
DRAWN	HP 1000A
COMP.	RH 5-15-90
CHECKED	RWA 5/21/90
DATE	JANUARY 1990
NO. SHEET	1 OF 1 SHEETS

CUMULATIVE INCREASES SHOWN ON THIS SHEET ARE ANY SUBSEQUENT CHANGES TO THIS MAP

2442

PARCEL MAP 2442

Appendix K

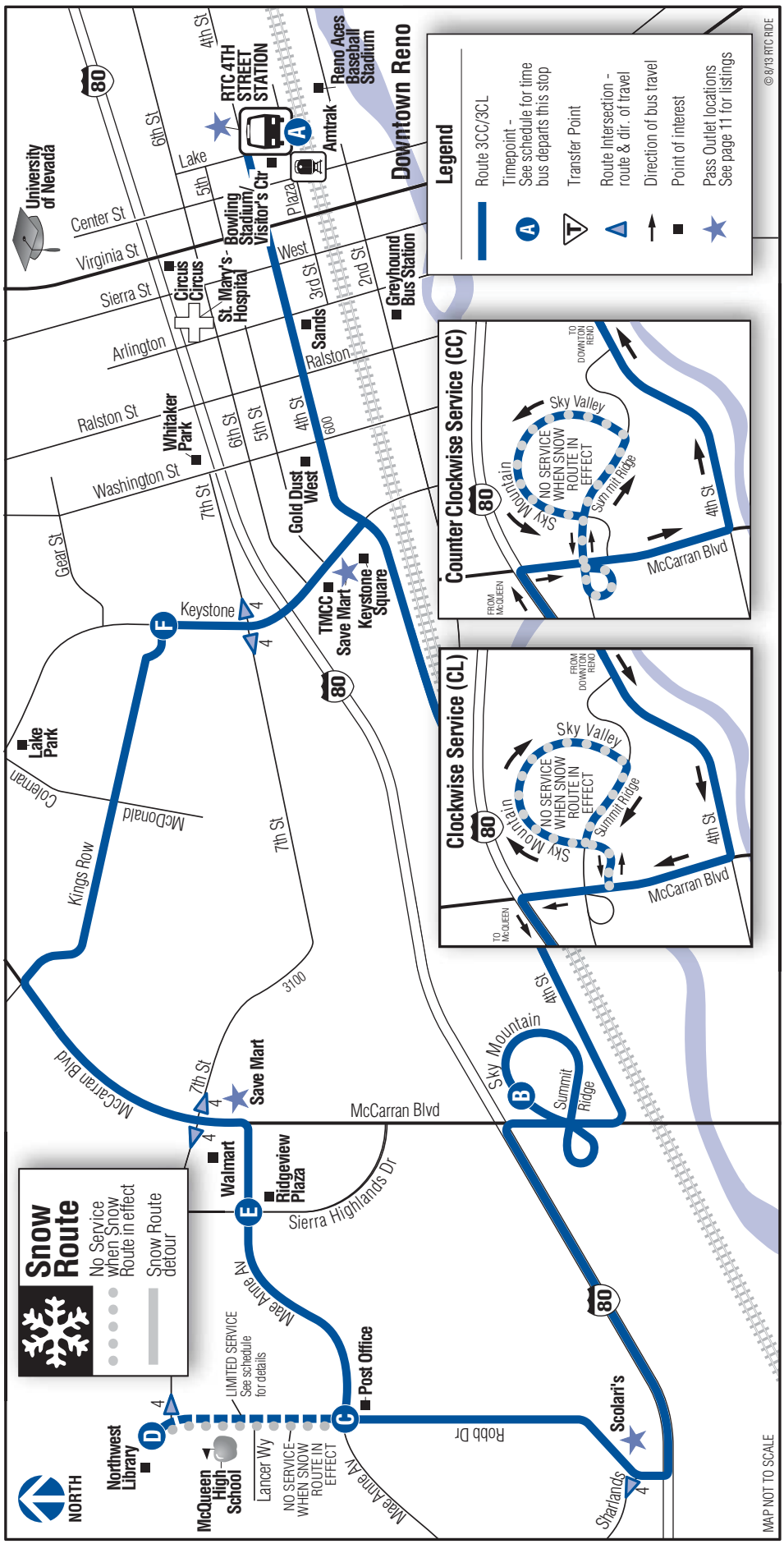
Transit Route Information

ROUTE 3CC/3CL

RTC 4TH STREET STATION

North Island

Kings Row/Sky Mountain



(Rt. 3CC/3CL continued on next page)

Kings Row/Sky Mountain CLOCKWISE (CL)

ROUTE 3CC/3CL
Monday - Friday

From Downtown Reno — *To Downtown Reno*

Comes from Route	Depart RTC 4TH STREET STATION (A)	Sky Mountain/ Summit Ridge (B)	Arrive Robb & Mae Anne (C)	Robb & Library (D)	Depart Robb & Mae Anne (C)	Mae Anne & Sierra Higlands (E)	Kings Row & University (F)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	5:15	5:27	5:37	—	5:43	5:46	5:54	6:08	18X
Gar	6:15	6:27	—	6:40	6:43	6:46	6:54	7:08	18X
18X	7:15	7:27	—	7:40	7:43	7:46	7:54	8:08	Gar
18X	8:15	8:27	8:37	—	8:43	8:46	8:54	9:08	3CL
3CL	9:15	9:27	9:37	—	9:43	9:46	9:54	10:08	3CL
3CL	10:15	10:27	10:37	—	10:43	10:46	10:54	11:08	3CL
3CL	11:15	11:27	11:37	—	11:43	11:46	11:54	**12:08**	3CL
3CL	**12:15**	**12:27**	**12:37**	—	**12:43**	**12:46**	**12:54**	**1:08**	3CL
3CL	**1:15**	**1:27**	—	**1:40**	**1:43**	**1:46**	**1:54**	**2:08**	18X
Gar	**2:15**	**2:27**	—	**2:40**	**2:43**	**2:46**	**2:54**	**3:08**	18X
18X	**3:15**	**3:27**	**3:37**	—	**3:43**	**3:46**	**3:54**	**4:08**	Gar
18X	**4:15**	**4:27**	**4:37**	—	**4:43**	**4:46**	**4:54**	**5:08**	3CL
3CL	**5:15**	**5:27**	**5:37**	—	**5:43**	**5:46**	**5:54**	**6:08**	3CL
3CL	**6:15**	**6:27**	**6:37**	—	**6:43**	**6:46**	**6:54**	**7:08**	3CL
3CL	**7:15**	**7:27**	**7:37**	—	**7:43**	**7:46**	**7:54**	**8:08**	3CL
3CL	**8:15**	**8:27**	**8:37**	—	**8:43**	**8:46**	**8:54**	**9:08**	3CL
3CL	**9:15**	**9:27**	**9:37**	—	**9:43**	**9:46**	**9:54**	**10:05**	Gar

Light Type = AM **Bold Type = PM**

COUNTER CLOCKWISE (CC)

*No Counter Clockwise (CC) Service on Saturday or Sunday

Monday - Friday

From Downtown Reno — *To Downtown Reno*

Comes from Route	Depart RTC 4TH STREET STATION (A)	Kings Row/ University (F)	Mae Anne & Sierra Higlands (E)	Arrive Robb & Mae Anne (C)	Robb & Library (D)	Depart Robb & Mae Anne (C)	Sky Mountain/ Summit Ridge (B)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	6:45	6:52	7:00	—	7:09	7:11	7:21	7:38	3CC
3CC	7:45	7:52	8:00	8:04	—	8:11	8:21	8:38	3CC
3CC	8:45	8:52	9:00	9:04	—	9:11	9:21	9:35	Gar
Gar	**2:45**	**2:52**	**3:00**	—	**3:09**	**3:11**	**3:21**	**3:38**	3CC
3CC	**3:45**	**3:52**	**4:00**	**4:04**	—	**4:11**	**4:21**	**4:38**	3CC
3CC	**4:45**	**4:52**	**5:00**	**5:04**	—	**5:11**	**5:21**	**5:38**	3CC
3CC	**5:45**	**5:52**	**6:00**	**6:02**	—	—	—	—	Gar

Light Type = AM **Bold Type = PM**

(Rt. 3 Saturday/Sunday schedule continued on next page)

ROUTE 3CC/3CL

(Continued from previous page)

Saturday — CLOCKWISE (CL) — Kings Row/Sky Mountain

From Downtown Reno — *To Downtown Reno*

Comes from Route	Depart RTC 4TH STREET STATION (A)	Sky Mountain/ Summit Ridge (B)	Arrive Robb & Mae Anne (C)	Robb & Library (D)	Depart Robb & Mae Anne (C)	Mae Anne & Sierra Highlands (E)	Kings Row/ University (F)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	5:15	5:27	5:37	—	5:43	5:46	5:54	6:08	3CL
3CL	6:15	6:27	6:37	—	6:43	6:46	6:54	7:08	3CL
3CL	7:15	7:27	7:37	—	7:43	7:46	7:54	8:08	3CL
3CL	8:15	8:27	8:37	—	8:43	8:46	8:54	9:08	3CL
3CL	9:15	9:27	9:37	—	9:43	9:46	9:54	10:08	3CL
3CL	10:15	10:27	10:37	—	10:43	10:46	10:54	11:08	3CL
3CL	11:15	11:27	11:37	—	11:43	11:46	11:54	**12:08**	3CL
3CL	**12:15**	**12:27**	**12:37**	—	**12:43**	**12:46**	**12:54**	**1:08**	3CL
3CL	**1:15**	**1:27**	**1:37**	—	**1:43**	**1:46**	**1:54**	**2:08**	3CL
3CL	**2:15**	**2:27**	**2:37**	—	**2:43**	**2:46**	**2:54**	**3:08**	3CL
3CL	**3:15**	**3:27**	**3:37**	—	**3:43**	**3:46**	**3:54**	**4:08**	3CL
3CL	**4:15**	**4:27**	**4:37**	—	**4:43**	**4:46**	**4:54**	**5:08**	3CL
3CL	**5:15**	**5:27**	**5:37**	—	**5:43**	**5:46**	**5:54**	**6:08**	3CL
3CL	**6:15**	**6:27**	**6:37**	—	**6:43**	**6:46**	**6:54**	**7:08**	3CL
3CL	**7:15**	**7:27**	**7:37**	—	**7:43**	**7:46**	**7:54**	**8:08**	3CL
3CL	**8:15**	**8:27**	**8:37**	—	**8:43**	**8:46**	**8:54**	**9:08**	3CL
3CL	**9:15**	**9:27**	**9:37**	—	**9:43**	**9:46**	**9:54**	**10:05**	Gar

Light Type = AM **Bold Type = PM**

Sunday/Holiday — CLOCKWISE (CL)

From Downtown Reno — *To Downtown Reno*

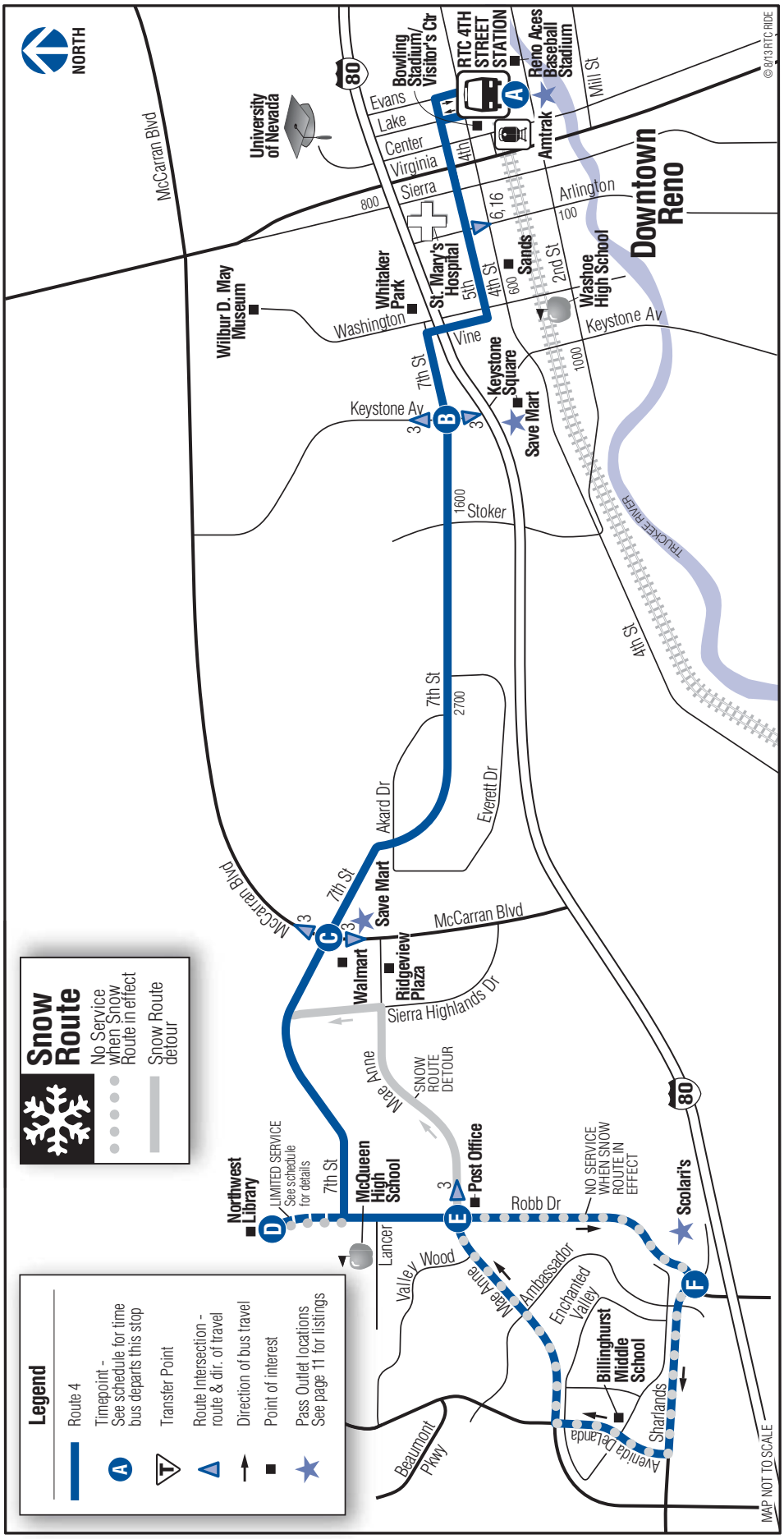
Comes from Route	Depart RTC 4TH STREET STATION (A)	Sky Mountain/ Summit Ridge (B)	Arrive Robb & Mae Anne (C)	Robb & Library (D)	Depart Robb & Mae Anne (C)	Mae Anne & Sierra Highlands (E)	Kings Row/ University (F)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	6:15	6:27	6:37	—	6:43	6:46	6:54	7:08	3CL
3CL	7:15	7:27	7:37	—	7:43	7:46	7:54	8:08	3CL
3CL	8:15	8:27	8:37	—	8:43	8:46	8:54	9:08	3CL
3CL	9:15	9:27	9:37	—	9:43	9:46	9:54	10:08	3CL
3CL	10:15	10:27	10:37	—	10:43	10:46	10:54	11:08	3CL
3CL	11:15	11:27	11:37	—	11:43	11:46	11:54	**12:08**	3CL
3CL	**12:15**	**12:27**	**12:37**	—	**12:43**	**12:46**	**12:54**	**1:08**	3CL
3CL	**1:15**	**1:27**	**1:37**	—	**1:43**	**1:46**	**1:54**	**2:08**	3CL
3CL	**2:15**	**2:27**	**2:37**	—	**2:43**	**2:46**	**2:54**	**3:08**	3CL
3CL	**3:15**	**3:27**	**3:37**	—	**3:43**	**3:46**	**3:54**	**4:08**	3CL
3CL	**4:15**	**4:27**	**4:37**	—	**4:43**	**4:46**	**4:54**	**5:08**	3CL
3CL	**5:15**	**5:27**	**5:37**	—	**5:43**	**5:46**	**5:54**	**6:08**	3CL
3CL	**6:15**	**6:27**	**6:37**	—	**6:43**	**6:46**	**6:54**	**7:05**	Gar

Light Type = AM **Bold Type = PM**

ROUTE 4

RTC 4TH STREET STATION

North Island



(Rt. 4 continued on next page)

ROUTE 4
Monday - Friday

(Continued from previous page)

West Seventh

From Downtown Reno — *To Downtown Reno*

Comes from Route	Depart RTC 4TH STREET STATION (A)	7th & Keystone (B)	7th & McCarran (C)	Robb & Library (D)	Robb & Mae Anne (E)	Sharlands & Robb (F)	Robb & Mae Anne (E)	7th & McCarran (C)	7th & Keystone (B)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	—	—	—	—	5:04	5:07	5:12	5:16	5:24	5:38	4
4	5:45	5:52	5:57	6:02	6:04	6:07	6:12	6:16	6:24	6:38	4
4	6:45	6:52	6:57	7:02	7:04	7:07	7:12	7:16	7:24	7:38	4
4	7:45	7:52	7:57	8:02	8:04	8:07	8:12	8:16	8:24	8:38	4
4	8:45	8:52	8:57	9:02	9:04	9:07	9:12	9:16	9:24	9:38	4
4	9:45	9:52	9:57	10:02	10:04	10:07	10:12	10:16	10:24	10:38	4
4	10:45	10:52	10:57	11:02	11:04	11:07	11:12	11:16	11:24	11:40	4
4	11:45	11:52	11:57	**12:02**	**12:04**	**12:07**	**12:12**	**12:16**	**12:24**	**12:40**	4
4	**12:45**	**12:52**	**12:57**	**1:02**	**1:04**	**1:07**	**1:12**	**1:16**	**1:24**	**1:40**	4
4	**1:45**	**1:52**	**1:57**	**2:02**	**2:04**	**2:07**	**2:12**	**2:16**	**2:24**	**2:40**	4
4	**2:45**	**2:52**	**2:57**	**3:02**	**3:04**	**3:07**	**3:12**	**3:16**	**3:24**	**3:40**	4
4	**3:45**	**3:52**	**3:57**	**4:02**	**4:04**	**4:07**	**4:12**	**4:16**	**4:24**	**4:40**	4
4	**4:45**	**4:52**	**4:57**	**5:02**	**5:04**	**5:07**	**5:12**	**5:16**	**5:24**	**5:40**	4
4	**5:45**	**5:52**	**5:57**	**6:02**	**6:04**	**6:07**	**6:12**	**6:16**	**6:24**	**6:38**	4
4	**6:45**	**6:52**	**6:57**	**7:02**	**7:04**	**7:07**	**7:12**	**7:16**	**7:24**	**7:38**	4
4	**7:45**	**7:52**	**7:57**	**8:02**	**8:04**	**8:07**	**8:12**	**8:16**	**8:24**	**8:38**	4
4	**8:45**	**8:52**	**8:57**	**9:02**	**9:04**	**9:07**	**9:12**	**9:16**	**9:24**	**9:38**	4
4	**9:45**	**9:52**	**9:57**	**10:02**	**10:04**	**10:07**	**10:12**	**10:16**	**10:24**	**10:38**	4
4	**10:45**	**10:52**	**10:57**	**11:02**	**11:04**	**11:07**	**11:12**	**11:16**	**11:24**	**11:35**	Gar

Saturday

Gar	—	—	—	—	6:04	6:07	6:12	6:16	6:24	6:38	4
4	6:45	6:52	6:57	7:02	7:04	7:07	7:12	7:16	7:24	7:38	4
4	7:45	7:52	7:57	8:02	8:04	8:07	8:12	8:16	8:24	8:38	4
4	8:45	8:52	8:57	9:02	9:04	9:07	9:12	9:16	9:24	9:38	4
4	9:45	9:52	9:57	10:02	10:04	10:07	10:12	10:16	10:24	10:38	4
4	10:45	10:52	10:57	11:02	11:04	11:07	11:12	11:16	11:24	11:38	4
4	11:45	11:52	11:57	**12:02**	**12:04**	**12:07**	**12:12**	**12:16**	**12:24**	**12:38**	4
4	**12:45**	**12:52**	**12:57**	**1:02**	**1:04**	**1:07**	**1:12**	**1:16**	**1:24**	**1:38**	4
4	**1:45**	**1:52**	**1:57**	**2:02**	**2:04**	**2:07**	**2:12**	**2:16**	**2:24**	**2:38**	4
4	**2:45**	**2:52**	**2:57**	**3:02**	**3:04**	**3:07**	**3:12**	**3:16**	**3:24**	**3:38**	4
4	**3:45**	**3:52**	**3:57**	**4:02**	**4:04**	**4:07**	**4:12**	**4:16**	**4:24**	**4:38**	4
4	**4:45**	**4:52**	**4:57**	**5:02**	**5:04**	**5:07**	**5:12**	**5:16**	**5:24**	**5:38**	4
4	**5:45**	**5:52**	**5:57**	**6:02**	**6:04**	**6:07**	**6:12**	**6:16**	**6:24**	**6:38**	4
4	**6:45**	**6:52**	**6:57**	**7:02**	**7:04**	**7:07**	**7:12**	**7:16**	**7:24**	**7:38**	4
4	**7:45**	**7:52**	**7:57**	**8:02**	**8:04**	**8:07**	**8:12**	**8:16**	**8:24**	**8:38**	4
4	**8:45**	**8:52**	**8:57**	**9:02**	**9:04**	**9:07**	**9:12**	**9:16**	**9:24**	**9:35**	Gar

Sunday/Holiday

Gar	—	—	—	—	6:04	6:07	6:12	6:16	6:24	6:38	4
4	6:45	6:52	6:57	7:02	7:04	7:07	7:12	7:16	7:24	7:38	4
4	7:45	7:52	7:57	8:02	8:04	8:07	8:12	8:16	8:24	8:38	4
4	8:45	8:52	8:57	9:02	9:04	9:07	9:12	9:16	9:24	9:38	4
4	9:45	9:52	9:57	10:02	10:04	10:07	10:12	10:16	10:24	10:35	Gar
Gar	**2:45**	**2:52**	**2:57**	**3:02**	**3:04**	**3:07**	**3:12**	**3:16**	**3:24**	**3:38**	4
4	**3:45**	**3:52**	**3:57**	**4:02**	**4:04**	**4:07**	**4:12**	**4:16**	**4:24**	**4:38**	4
4	**4:45**	**4:52**	**4:57**	**5:02**	**5:04**	**5:07**	**5:12**	**5:16**	**5:24**	**5:38**	4
4	**5:45**	**5:52**	**5:57**	**6:02**	**6:04**	**6:07**	**6:12**	**6:16**	**6:24**	**6:38**	4
4	**6:45**	**6:52**	**6:57**	**7:02**	**7:04**	**7:07**	**7:12**	**7:16**	**7:24**	**7:38**	4
4	**7:45**	**7:52**	**7:57**	**8:02**	**8:04**	**8:07**	**8:12**	**8:16**	**8:24**	**8:38**	4
4	**8:45**	**8:52**	**8:57**	**9:02**	**9:04**	**9:07**	**9:12**	**9:16**	**9:24**	**9:35**	Gar

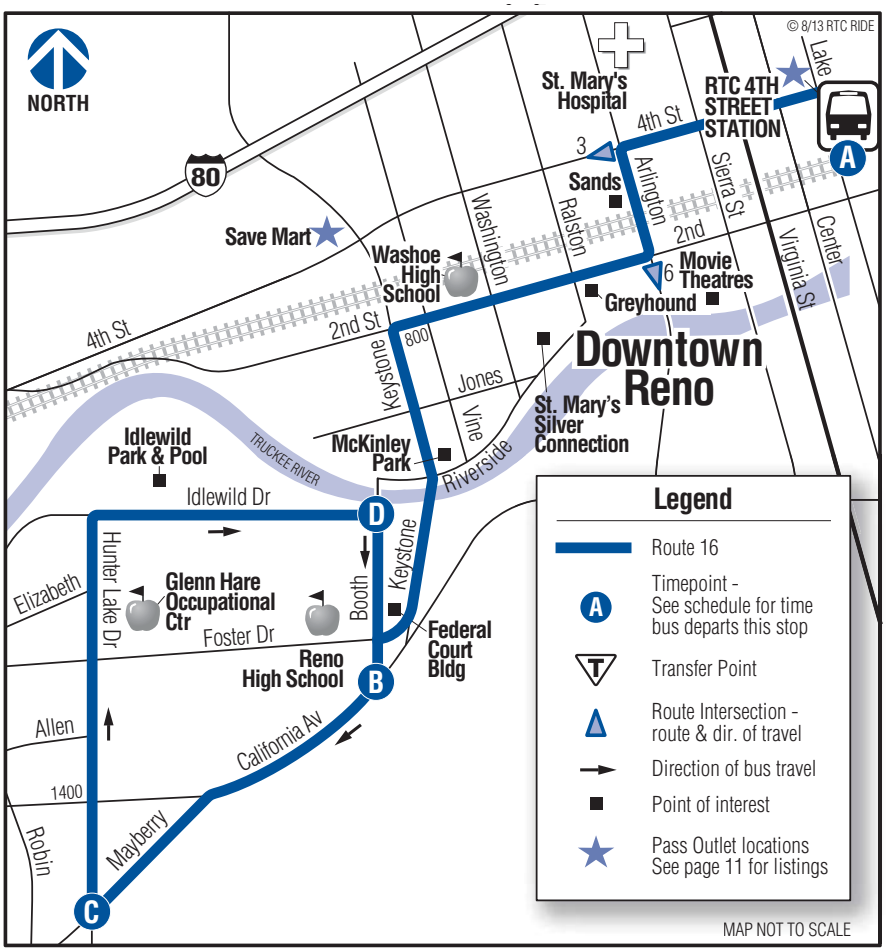
Light Type = AM **Bold Type = PM**

ROUTE 16

RTC 4TH STREET STATION

North Island

Idlewild



(Rt. 16 continued on next page)

Idlewild

ROUTE 16
Monday - Friday

From Downtown Reno — *To Downtown Reno*

Comes from Route	Depart RTC 4TH STREET STATION (A)	Booth & California (B)	Mayberry & Hunter Lake (C)	Idlewild & Booth (D)	Arrive RTC 4TH STREET STATION (A)	Changes to Route
Gar	5:15	5:21	5:24	5:29	5:40	17
17	6:15	6:21	6:24	6:29	6:40	17
17	7:15	7:21	7:24	7:29	7:40	17
17	8:15	8:21	8:24	8:29	8:40	17
17	9:15	9:21	9:24	9:29	9:40	17
17	10:15	10:21	10:24	10:29	10:40	17
17	11:15	11:21	11:24	11:29	11:40	17
17	**12:15**	**12:21**	**12:24**	**12:29**	**12:40**	17
17	**1:15**	**1:21**	**1:24**	**1:29**	**1:40**	17
17	**2:15**	**2:21**	**2:24**	**2:29**	**2:40**	17
17	**3:15**	**3:21**	**3:24**	**3:29**	**3:40**	17
17	**4:15**	**4:21**	**4:24**	**4:29**	**4:40**	17
17	**5:15**	**5:21**	**5:24**	**5:29**	**5:40**	17
17	**6:15**	**6:21**	**6:24**	**6:29**	**6:40**	17
17	**7:15**	**7:21**	**7:24**	**7:29**	**7:40**	17
17	**8:15**	**8:21**	**8:24**	**8:29**	**8:40**	17
17	**9:15**	**9:21**	**9:24**	**9:29**	**9:40**	17
17	**10:15**	**10:21**	**10:24**	**10:29**	**10:38**	Gar

Saturday/Sunday/Holiday

Gar	6:15	6:21	6:24	6:29	6:40	17
17	7:15	7:21	7:24	7:29	7:40	17
17	8:15	8:21	8:24	8:29	8:40	17
17	9:15	9:21	9:24	9:29	9:40	17
17	10:15	10:21	10:24	10:29	10:40	17
17	11:15	11:21	11:24	11:29	11:40	17
17	**12:15**	**12:21**	**12:24**	**12:29**	**12:40**	17
17	**1:15**	**1:21**	**1:24**	**1:29**	**1:40**	17
17	**2:15**	**2:21**	**2:24**	**2:29**	**2:40**	17
17	**3:15**	**3:21**	**3:24**	**3:29**	**3:40**	17
17	**4:15**	**4:21**	**4:24**	**4:29**	**4:40**	17
17	**5:15**	**5:21**	**5:24**	**5:29**	**5:40**	17
17	**6:15**	**6:21**	**6:24**	**6:29**	**6:40**	17
17	**7:15**	**7:21**	**7:24**	**7:29**	**7:40**	17

Light Type = AM **Bold Type = PM**

Appendix L

Keystone Avenue / King's Row Multi-way Stop Control Warrant Analysis

Traffic Engineering & Transportation Planning

March 28, 2014

Chris Martinovich, P.E.
Jacobs Engineering Group
985 Damonte Ranch Parkway
Reno, NV 89521

Multi-Way Stop Warrant Analysis – Keystone Avenue / Kings Row

EXECUTIVE SUMMARY

The study intersection does not currently meet the criteria specified in the MUTCD multi-way stop warrant analysis, Section 2B.07, to justify a multi-way stop control. Our findings are based on the combination of existing traffic volumes, field data analysis, observations of the intersection itself, and collision data analysis. However, consideration should be given to improving sight distance for vehicles on the Kings Row approach to Keystone Avenue, particularly for the eastbound left-turn movement.

METHODOLOGY

The decision whether or not to install multi-way stop controls is based on an engineering study primarily considering the criteria outlined in Manual on Uniform Traffic Control Devices (MUTCD) commonly referred to as "warrants". Section 2B.07 of the MUTCD outlines the nationally recognized procedures established by the Federal Highway Administration. This study provides a step by step analysis of the warrants.

COLLISION DATA ANALYSIS

Criteria A of the multi-way stop warrants was not included in this analysis because traffic control signals are not being considered at this intersection. Criteria A is therefore not applicable.

Criteria B states that a multi-way stop installation is warranted if 5 or more reported crashes in a 12 month period are susceptible to correction by a multi-way stop installation. We requested and obtained recent 3-year (January 2010 to June 2013) accident history data for the study intersection from NDOT. Crash data is shown in **Attachment A**. Upon reviewing the collision data, five or more crashes (in a 12 month period) were reported only for the year of 2011. Out of those five crashes, only two of them occurred due to "Failure to yield right of way". Only 1 crash was reported in 2012 and 4 crashes were reported in 2010. Hence, Criteria B is not satisfied.

FIELD DATA ANALYSIS

Intersection turning movement counts were performed for the eight highest hours of a typical weekday in November, 2013 while local schools were in regular session. The eight highest hours of the day were determined from available 24-hour hose count data. The existing traffic volumes are shown in **Figure 1**.

Criteria C.1 requires the combined vehicular volumes on the major street approaches to average "at least 300 vehicles per hour for any 8 hours of an average day". The data shows that the average of the total vehicular volume on the major street approaches averages 773.625 vehicles per hour (vph), which exceeds the required 300 vph. Criteria C.1 is met.

The Criteria C.2 requires that both of the following items be satisfied: 1) "The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, 2) with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the highest hour." The data shows that the intersection currently exceeds this volume requirement with an average of 248.375 units per hour. It should be noted that all right-turn movements, which account for 95% of vehicular traffic on eastbound Kings Row, are included in this volume. However, the delay requirement (part 2) is not met. The average delay to minor street vehicular traffic during the AM peak hour is calculated at 14.5 seconds and average delay during the PM peak hour is calculated to be 12.4 seconds. Although the traffic volumes are exceeded, because the delay to minor approach traffic does not meet the required 30 seconds per vehicle, Criteria C.2 is not met. This factor must be satisfied to warrant multi-way stop control.

The allowed reduction of the required vehicular volume warrants allowed in Criteria C.3 is not applicable to this intersection because the 85th percentile approach speed of major-street traffic does not exceed 40 mph. It is a moot point anyway since the volumes are already met in Criteria C.1 and C.2.

Criteria D is not satisfied due to the total number of collisions in a 12 month period equaling two, which is half of the reduced requirement stated in Criteria D of 4 total collisions.

SIGHT LINE CONSIDERATIONS

Intersection sight distance is a key aspect of intersection operations and safety and should be considered when evaluating intersection control strategies. Although not one of the specific warrant criteria outlined in the MUTCD, it is a factor commonly addressed in an engineering study.

Available sight distance from the Kings Row approach to the Kings Row/Keystone Avenue intersection is somewhat limited by a large tree which hangs over the street and a masonry wall with a turret like feature (a.k.a. the castle) located in the northwest quadrant of the intersection. In order to see around these objects, drivers making eastbound left-turns must move beyond the stop bar to see conflicting traffic on the southbound approach. The eastbound left-turn movement in particular could be eased by trimming the tree. Consideration should also be given to modifying the masonry wall (castle) to increase sight distance. We suspect that sight lines are contributing factor to delay and any turning difficulty at the

intersection. The sight lines can be improved however, and are not significant enough to justify multi-way stop controls at this location.

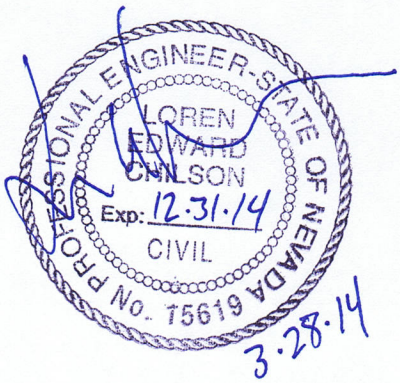
SUMMARY

Based on the data collected, and the analysis of that data, we find that this intersection does not currently meet the requirements for multi-way stop control. The collision data shows that the reported collisions at the intersection are below the required five or more in a 12-month period. Although the traffic volume thresholds in Criteria C.1 and C.2 are exceeded, the required delay to minor street traffic in C.2 is not met. Criteria C.3 is not a consideration since the C.1 and C.2 volumes are satisfied. Criteria D is not satisfied since criteria C.2 is not met. Therefore, Criterion B, C.2, C.3, and D are not satisfied.

Implementation of a multi-way stop control at the study intersection would cause increased delays to the major-street approaches but provide only minimal reduction in the delay to the minor street approach. In weighing the pros and cons of implementing multi-way stop control, consider not only that none of the criteria satisfied, but also that the benefits to implementing a multi-way stop control are heavily outweighed by the drawback of increasing vehicle delay on the major-street approaches. This minimal reduction of delay on the minor-street approaches does not justify increases in delay on the major-street approaches.

Consideration should be given to improving with sight distance for the eastbound traffic at the intersection. We recommend trimming the overhanging tree to provide increased sight distance, and investigation into potentially removing or relocating the masonry wall features that restrict sight lines.

Sincerely,
TRAFFIC WORKS, LLC



Loren E. Chilson, PE
Principal

Attachments:

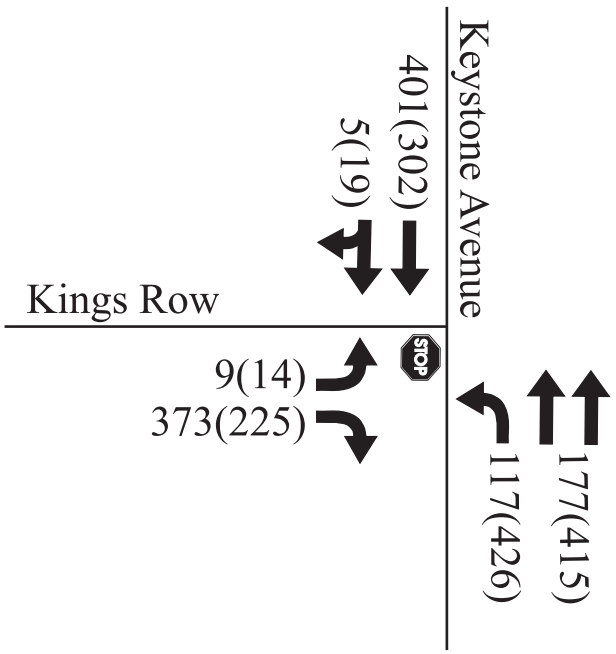
Figure 1: Existing Traffic Volumes
Attachment A: Crash Data

TRAFFIC WORKS

8 Hour Approach Volumes

Time	Minor Street Approaches	Major Street Approaches
7:00 - 8:00	373	700
8:00 - 9:00	374	608
11:00 - 12:00	140	538
12:00 - 13:00	177	647
13:00 - 14:00	150	629
15:00 - 16:00	285	903
16:00 - 17:00	246	984
17:00 - 18:00	242	1180

Peak Hour Turn Movements



TRAFFIC WORKS LLC

NO SCALE

Legend

xx(xx) - AM(PM) Volumes

STOP - Stop Sign

- Lane Configurations

Figure 1

Keystone Avenue & Kings Row
Multi-Way Stop Analysis

Existing Traffic Volumes

Attachment A

INTERSECTION DETAIL
KEYSTONE AVE @ KINGS ROW
01 JAN 10 - 15 JUN 13

Query: QRY_CRASH

Crash Severity	Crash_Date	Crash Year	Crash_Time	Primary_Street	Distance	Dir	Secondary_Street	Weather	Fatalities	Injured	Property_Damage_Only	Injury_Type	Crash_Type	Total Vehicles	V1_Type	V1_Dir	V1 Drvr Age	V1_Lane_Num	V1_Action	V1_Driver_Factor	V1_Vehicle_Factor	V1_Most_Harmful_Event	V1 Seq Event1	V1 Seq Event2	V2_Type	V2_Dir	V2_Lane_Num	V2_Action	Roadway_Factor	Lighting_Cond	Factors_Env	Agency
PROPERTY DAMAGE	02-Sep-2010	2010	08:10 PM	KEYSTONE AVE		AT INT	KINGS ROW	CLEAR			PDO		ANGLE	2	SEDAN, 4 DOOR	W	20	2	UNKNOWN		UNKNOWN				CARRY-ALL	N	2	GOING STRAIGHT	DRY		UNKNOWN	RPD
INJURY ACCIDENT	12-Aug-2010	2010	06:47 AM	KEYSTONE AVE		AT INT	KINGS ROW	CLEAR		1		B	NON-COLLISION	1	SEDAN, 4 DOOR	S	17		TURNING RIGHT	APPARENTLY NORMAL	FAILED TO YIELD RIGHT OF WAY		PEDESTRIAN						DRY	DAYLIGHT	NONE	RPD
INJURY ACCIDENT	09-Nov-2010	2010	05:43 PM	KEYSTONE AVE		AT INT	KINGS ROW	CLEAR		1		C	ANGLE	2	CARRY-ALL	S	21	1	TURNING LEFT	APPARENTLY NORMAL	FAILED TO YIELD RIGHT OF WAY				SEDAN, 4 DOOR	S	1	GOING STRAIGHT	DRY	DARK - SPOT LIGHTING	NONE	RPD
INJURY ACCIDENT	08-Mar-2010	2010	06:33 PM	KEYSTONE AVE		AT INT	KINGS ROW	CLEAR		1		A	NON-COLLISION	1	PICKUP	N	61		TURNING LEFT	APPARENTLY NORMAL	FAILED TO YIELD RIGHT OF WAY		PEDESTRIAN						DRY	DARK - SPOT LIGHTING	NONE	RPD
PROPERTY DAMAGE	09-Apr-2011	2011	11:22 AM	KEYSTONE AVE		AT INT	KINGS ROW	CLEAR			PDO		ANGLE	2	PICKUP	E			TURNING LEFT	APPARENTLY NORMAL	FAILED TO YIELD RIGHT OF WAY; HIT AND RUN				PICKUP	S		GOING STRAIGHT				RPD
PROPERTY DAMAGE	28-Sep-2012	2012	07:30 PM	KINGS ROW		AT INT	KEYSTONE AVE	CLEAR			PDO		ANGLE	2	CARRY-ALL	N			TURNING LEFT		UNKNOWN				SEDAN, 4 DOOR	E		STOPPED				RPD
INJURY ACCIDENT	06-Jan-2011	2011	07:07 AM	KINGS ROW		AT INT	KEYSTONE AVE	CLEAR		1		C	ANGLE	1	SEDAN, 4 DOOR	E	75	1	GOING STRAIGHT	ILLNESS; OBSTRUCTED VIEW	VISIBILITY OBSTRUCTED; RAN OFF ROAD		FENCE/WALL						DRY	DAWN	NONE	RPD
INJURY ACCIDENT	19-May-2011	2011	04:05 PM	KINGS ROW		AT INT	KEYSTONE AVE	CLEAR		1		B	NON-COLLISION	1	CARRY-ALL	E	28		TURNING RIGHT	APPARENTLY NORMAL	FAILED TO YIELD RIGHT OF WAY		PEDESTRIAN						DRY	DAYLIGHT	NONE	RPD
PROPERTY DAMAGE	18-Aug-2011	2011	10:25 PM	KINGS ROW	60	W	KEYSTONE AVE	CLEAR			PDO		HEAD-ON	3		E			GOING STRAIGHT	HAD BEEN DRINKING	HIT AND RUN							PARKED				RPD
INJURY ACCIDENT	19-Mar-2011	2011	05:53 PM	KINGS ROW	100	W	KEYSTONE AVE	CLEAR		1		C	ANGLE	2	SEDAN, 4 DOOR	E	17	1	MAKING U-TURN	APPARENTLY NORMAL	OTHER IMPROPER DRIVING				SEDAN, 4 DOOR	E	1	GOING STRAIGHT	DRY	DUSK	NONE	RPD
									Sum: 0	Sum: 9	Count: 4																					
									Count: 0	Count: 6																						