



NOTICE OF MEETING OF THE CARSON CITY REGIONAL TRANSPORTATION COMMISSION (RTC)

Day: Wednesday
Date: November 13, 2019
Time: Begins immediately after the adjournment of the Carson Area Metropolitan Planning Organization meeting that begins at 4:30 p.m.
Location: Community Center, Sierra Room, 851 East William Street, Carson City, Nevada

AGENDA

AGENDA NOTES: The Regional Transportation Commission is pleased to make reasonable accommodations for members of the public who are disabled and wish to attend the meeting. If special arrangements for the meeting are necessary, please notify Regional Transportation Commission staff in writing at 3505 Butti Way, Carson City, Nevada, 89701, or call Lucia Maloney at (775) 887-2355 at least 24 hours in advance.

For more information or for copies of the supporting material regarding any of the items listed on the agenda, please contact Lucia Maloney, Transportation Manager, at (775) 887-2355. Additionally, the agenda with all supporting material is posted under "Agendas & Minutes" at www.carson.org/agendas, or is available upon request at 3505 Butti Way, Carson City, Nevada, 89701.

1. ROLL CALL AND DETERMINATION OF A QUORUM

2. AGENDA MANAGEMENT NOTICE: The Chair may take items on the agenda out of order; combine two or more agenda items for consideration; and/or remove an item from the agenda or delay discussion relating to an item on the agenda at any time.

3. DISCLOSURES: Any member of the RTC Board may inform the Chair of his or her intent to make a disclosure of a conflict of interest on any item appearing on the agenda or on any matter relating to the RTC's official business. Such disclosures must also be made at such time the specific agenda item is introduced.

4. PUBLIC COMMENT: Members of the public who wish to address the RTC may approach the podium and speak on any matter relevant to or within the authority of RTC. Comments are limited to three minutes per person per topic. If your item requires extended discussion, please request the Chair to calendar the matter for a future RTC meeting. No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an Agenda as an item upon which action may be taken.

5. APPROVAL OF MINUTES:

5-A For Possible Action – Discussion and possible approval of the October 9, 2019 draft minutes.

6. PUBLIC MEETING ITEM(S):

6-A For Information Only – Presentation and discussion regarding results of the 2019 South Carson Street Signal Re-timing project.

Staff Summary: Staff and University of Nevada, Reno (UNR) Center for Advanced Transportation Education and Research (CATER) will present the results of the 2019 South Carson Street Signal Re-timing project.

6-B For Information Only – Presentation and discussion regarding the 2019/2020 Snow Plow Routes.

Staff Summary: Carson City Public Works staff will present the 2019/2020 Priority 1 and Priority 2 Snow Plow Routes.

6-C For Possible Action – Discussion and possible action regarding a proposed development agreement template for pro-rata contributions to planned transportation infrastructure capital improvements on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Staff Summary: The Carson City Municipal Code requires that pro-rata contributions be provided by private development projects that have an impact on Carson City's transportation system. Staff has developed a development agreement template to be used to secure these funds for the proposed traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway. Staff seeks the Regional Transportation Commission's approval of the agreement template, authorization for the City Engineer to execute the agreement, and authorization to modify clerical, identifying, and other non-substantive terms of the agreement if need be to adapt it for use with a particular owner and/or developer.

6-D For Possible Action – Discussion and possible action regarding a proposed development agreement between Carson City, KR – Carson & Appion, LLC, and Andrew Head, LLC for a \$66,000 pro-rata contribution for the Dutch Bros. Coffee project at APN 009-268-02 toward a traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Staff Summary: The Carson City Municipal Code requires that pro-rata contributions are provided by private development projects that have an impact on Carson City's transportation system. The proposed development agreement provides for a \$66,000 pro-rata contribution for the Dutch Bros. Coffee project at APN 009-268-02 toward a traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway.

7. INTERNAL COMMUNICATIONS AND ADMINISTRATIVE MATTERS - Non-Action Items:

- 7-A Transportation Manager's Report
- 7-B Street Operations Activity Report

8. BOARD COMMENTS: For Information Only – Status reports and comments from the members of the RTC Board.

9. The Next Meeting is Tentatively Scheduled – 4:30 p.m., Wednesday, December 11, 2019, at the Sierra Room - Community Center, 851 East William Street.

10. PUBLIC COMMENT: Members of the public who wish to address the RTC Board may approach the podium and speak on any matter relevant to or within the authority of RTC. Comments are limited to three minutes per person per topic. If your item requires extended discussion, please request the Chair to calendar the matter for a future RTC meeting. No action may be taken upon a matter raised under this item of the agenda until the matter itself has been specifically included on an Agenda as an item upon which action may be taken.

11. ADJOURNMENT: For Possible Action

This agenda has been posted at the following locations:

City Hall, 201 North Carson Street
Community Center, Sierra Room, 851 East William Street
Carson City Library, Carson City Library, 900 North Roop Street
Carson City Public Works, 3505 Butti Way
Carson City Planning Division, 108 E. Proctor Street
Nevada Department of Transportation, 1263 S. Stewart Street, Carson City
City Website: www.carson.org/agendas
State Website: <https://notice.nv.gov>

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A regular meeting of the Carson City Regional Transportation Commission was scheduled to begin following adjournment of the Carson Area Metropolitan Planning Organization meeting on Wednesday, October 9, 2019 in the Community Center Sierra Room, 851 East William Street, Carson City, Nevada.

PRESENT: Chairperson Brad Bonkowski
Vice Chairperson Mark Kimbrough
Commissioner Lori Bagwell
Commissioner Greg Stedfield

STAFF: Darren Schulz, Public Works Department Director
Lucia Maloney, Transportation Manager
Dirk Goering, Senior Transportation Planner
Daniel Anderson, Transportation Planner/Analyst
Michael Reynolds, Transit Coordinator
Todd Reese, Deputy District Attorney
Tamar Warren, Senior Deputy Clerk

NOTE: A recording of these proceedings, the commission's agenda materials, and any written comments or documentation provided to the Clerk, during the meeting, are part of the public record. These materials are available for review, in the Clerk's Office, during regular business hours.

1. CALL TO ORDER AND DETERMINATION OF A QUORUM

(5:02:54) – Chairperson Bonkowski called the meeting to order at 5:02 p.m. Roll was called and a quorum was present. Commissioner Macquarie was absent.

2. AGENDA MANAGEMENT NOTICE

(5:03:20) – Chairperson Bonkowski entertained modifications to the agenda; however, none were forthcoming.

3. DISCLOSURES

(5:03:32) – Chairperson Bonkowski entertained disclosures; however, none were forthcoming.

4. PUBLIC COMMENT

(5:03:41) – Chairperson Bonkowski entertained public comments; however none were forthcoming.

5. APPROVAL OF MINUTES

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5-A FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE APPROVAL OF THE SEPTEMBER 11, 2019 DRAFT MINUTES.

(5:04:00) – Chairperson Bonkowski introduced this item and entertained a motion. Commissioner Bagwell moved to approve the minutes of the September 11, 2019 RTC meeting. Commissioner Stedfield seconded the motion which carried 4-0-0.

6. PUBLIC MEETING ITEM(S)

6-A FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE ACTION REGARDING THE FINAL TRANSIT DEVELOPMENT AND COORDINATED HUMAN SERVICES PLAN FOR JUMP AROUND CARSON (JAC) TRANSIT.

(5:04:21) – Chairperson Bonkowski introduced the item. Ms. Maloney explained that the Carson Area Metropolitan Planning Organization (CAMPO) had unanimously voted in support of the Transit Development and Coordinated Human Services Plan for Jump Around Carson (JAC) Transit earlier that evening. She also noted that public comment had been received regarding continued coordination with human services transit providers such as Uber Health. Ms. Maloney added that the CAMPO approval had included an edit in paragraph one of the plan's Introduction.

(5:05:15) – Ms. Maloney highlighted the Financial Information section of the Staff Report and read the information into the record.

(5:06:15) – Vice Chair Kimbrough inquired about the budgeting timeline and Ms. Maloney believed they can be flexible, depending on funding availability, and reminded the Commission that the lead time to obtain a bus was 10 months, once ordered. Chairperson Bonkowski entertained public comments and when none were forthcoming, a motion.

(5:08:42) – Commissioner Bagwell moved to approve the plan as presented, with the change on page one of the Introduction that strikes [the phrase] *ensures that the program*. The motion was seconded by Vice Chair Kimbrough. Motion carried 4-0-0.

6-B FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE ACTION REGARDING AMENDMENT #1 OF AN INTERLOCAL CONTRACT ALLOWING FOR PARTIAL REIMBURSEMENT FOR MEDICAID-ELIGIBLE PARATRANSIT SERVICES BETWEEN THE STATE OF NEVADA ACTING BY AND THROUGH ITS DEPARTMENT OF HEALTH AND HUMAN SERVICES AND CARSON CITY RTC TO EXTEND THE TERMINATION DATE TO JUNE 30, 2024 AND INCREASE THE CONTRACT MAXIMUM TO \$152,929.

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(5:09:12) – Chairperson Bonkowski introduced the item. Ms. Maloney gave background and presented the agenda materials which are incorporated into the record. Chairperson Bonkowski entertained Commissioner and public comments and when none were forthcoming, a motion.

(5:12:18) – Vice Chair Kimbrough moved to approve the contract amendment as presented, and to authorize the transportation manager to execute the amendment. The motion was seconded by Commissioner Bagwell and carried 4-0-0.

6-C FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE ACTION REGARDING A DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM UPDATE.

(5:12:55) – Chairperson Bonkowski introduced the item. Mr. Reynolds gave background and presented the Staff Report and the accompanying updated CAMPO and RTC Disadvantaged Business Enterprise (DBE) program document, all of which are incorporated into the record. He also indicated that no major changes were made to the document and that a line was added for the Chair’s signature. There were no member or public comments. Chairperson Bonkowski entertained a motion.

(5:14:09) – Commissioner Stedfield moved to approve the revised DBE Program as presented. Commissioner Bagwell seconded the motion which carried 4-0-0.

6-D FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE ACTION REGARDING AN APPLICATION TO THE CARSON AREA METROPOLITAN PLANNING ORGANIZATION (CAMPO) FOR FEDERAL TRANSIT ADMINISTRATION (FTA) SECTION 5339 GRANT FUNDING, AND TO AUTHORIZE THE RTC CHAIR TO SIGN THE FEDERAL TRANSIT ADMINISTRATION’S FEDERAL FISCAL YEAR 2019 CERTIFICATIONS AND ASSURANCES SECTION OF THE RTC APPLICATION FOR 5339 FUNDS.

(5:14:24) – Chairperson Bonkowski introduced the item. Mr. Reynolds presented the Staff Report and responded to clarifying questions. Ms. Maloney explained that should the grant be awarded, RTC would approve the purchase and choose whether to use the local match or not, adding that the match will be budgeted for in the upcoming fiscal year’s budget. Commissioner Bagwell also noted that the plan would be budgeted and approved by the Board of Supervisors. There were no public comments. Chairperson Bonkowski entertained a motion.

(5:17:04) – Vice Chair Kimbrough moved to approve the FTA section 5339 grant application as presented, and to authorize the RTC Chair to sign the FTA Fiscal Year 2019 Certifications and Assurances section of the application. The motion was seconded by Commissioner Bagwell. Motion carried 4-0-0.

6-E FOR POSSIBLE ACTION – DISCUSSION AND POSSIBLE ACTION REGARDING AN APPLICATION TO CARSON AREA METROPOLITAN PLANNING

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ORGANIZATION FOR FEDERAL TRANSIT ADMINISTRATION (FTA) SECTION 5310 GRANT FUNDING, AND TO AUTHORIZE THE RTC CHAIR TO SIGN THE FEDERAL TRANSIT ADMINISTRATION FEDERAL FISCAL YEAR (FFY) 2019 CERTIFICATIONS AND ASSURANCES SECTION OF THE RTC APPLICATION FOR 5310 FUNDS.

(5:19:54) – Chairperson Bonkowski introduced the item. Mr. Reynolds presented the agenda materials. He, along with Ms. Maloney, also responded to clarifying questions. There were no public comments. Chairperson Bonkowski entertained a motion.

(5:22:27) – Commissioner Stedfield moved to approve the application as presented and to authorize the RTC Chair to sign the FTA Fiscal Year 2019 Certifications and Assurances section of the application. The motion was seconded by Commissioner Bagwell and carried 4-0-0.

7. INTERNAL COMMUNICATIONS AND ADMINISTRATIVE MATTERS - Non-Action Items:

7-A TRANSPORTATION MANAGER’S REPORT

(5:23:05) – Ms. Maloney invited the Commissioners and the public to learn more about the Western Nevada Safe Routes to School Program or the JAC Transit Program at the upcoming *Boonanza* event to be held on Tuesday, October 29, 2019, 4-7 p.m., at the Community Center and at the Library. She also provided an update on the October 2, 2019 Walk to School Day, which she stated was a “really successful” event. Ms. Maloney announced that the 2019 Nevada Traffic Safety Summit would take place on November 15-17, 2019 at the Nugget Casino in Sparks and noted that the registration was still open. Chairperson Bonkowski referenced a report that indicated lower fatalities in Nevada counties with the exception of Douglas County and Carson City, adding that 50 percent of those fatalities involved motorcycles. Ms. Maloney noted that the first day of the summit would focus on motorcycle safety.

7-B STREET OPERATIONS ACTIVITY REPORT

(5:27:10) – Ms. Maloney presented the agenda materials and reminded the Commissioners that the report represented the data as of August 2019. She also acknowledged the presence of Operations Manager Rick Cooley, who responded to clarifying questions.

7-C PROJECT STATUS REPORT

(5:33:06) – Mr. Goering noted that the Project Status Report will be updated every other month; however, significant changes will be brought forward in the Transportation Manager’s Report. He also reviewed the status report, which is incorporated into the record, and responded to clarifying questions. Commissioner Bagwell thanked Staff and praised them for the improved reports.

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7-D FUTURE AGENDA ITEMS

(5:47:33) – Chairperson Bonkowski introduced the item and Ms. Maloney reviewed a tentative list of agenda items for the November meeting. Chairperson Bonkowski entertained additional requests; however, none were forthcoming.

8. BOARD COMMENTS: For Information Only

(5:40:48) – Chairperson Bonkowski entertained comments from Commission members. Commissioner Stedfield noted an observation in Sacramento where the bicycle lanes had been placed between the curb and the parking areas.

9. The Next Meeting is Tentatively Scheduled for Wednesday, November 13, 2019, immediately following the 4:30 p.m. CAMPO meeting, in the Sierra Room, Carson City Community Center, 851 East William Street.

(5:52:01) – Chairperson Bonkowski read the agenda item into the record.

10. PUBLIC COMMENT

(5:52:20) – No public was present to comment.

11. ADJOURNMENT: For Possible Action

(5:52:35) – Chairperson Bonkowski adjourned the meeting at 5:52 p.m.

The Minutes of the October 9, 2019 Carson City Regional Transportation Commission meeting are so approved this 13th day of November, 2019.

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STAFF REPORT

Report To: The Carson City Regional Transportation Commission (RTC)

Meeting Date: November 13, 2019

Staff Contact: James Jacklett, Controls Systems Operations Manager

Agenda Title: For Information Only – Presentation and discussion regarding results of the 2019 South Carson Street Signal Re-timing project.

Staff Summary: Staff and University of Nevada, Reno (UNR) Center for Advanced Transportation Education and Research (CATER) will present the results of the 2019 South Carson Street Signal Re-timing project.

Agenda Action: Other/Presentation

Time Requested: 20 minutes

Proposed Motion

-N/A

Background/Issues & Analysis

Carson City Public Works contracted with UNR's CATER to re-time eight (8) intersections between Koontz Lane and Mica Drive on South Carson Street and US 395 in Carson City and northern Douglas County. New signal timing and coordination plans were developed for normal weekday AM, midday (MD), and PM peak periods, and one weekend daytime period.

For the new timings, cycle length and splits were re-designed to accommodate the current traffic demands as well as to relieve congestion due to oversaturated conditions in the southbound direction during the PM peak period. Offset and phasing sequences at each intersection were optimized to improve traffic progression for both the arterial traffic and the I-580 traffic turning south onto US 395.

The new timings were initially implemented in May 2019. The UNR research team continuously fine-tuned the timing plans based on field observations and feedback from City staff. The timing plans were finalized in September 2019, and no further citizen complaints have been received. A before-after analysis was performed based on the travel-run results, which showed an average 36.3% reduction in travel time and an average 65.1% reduction in number of stops through the corridor.

The UNR team observed several operational issues and challenges for the corridor which could affect the corridor performance: (1) frequent transitions caused mainly by emergency vehicles, pedestrians, and sometimes for unknown reasons (probably controller software bugs); (2) short peak flow surges that caused oversaturation at bottleneck intersections; (3) wide streets and intersections, which presented difficulties for accommodating pedestrian crossing times; and (4) disruptions of coordination due to incidents. These influences cannot be simply resolved by signal re-timing; therefore other operational strategies such as implementing an adaptive signal control system may be necessary for maintaining optimal operations.

Applicable Statute, Code, Policy, Rule or Regulation

-N/A

Financial Information

Is there a fiscal impact? Yes No

If yes, Fund Name, Account Name / Account Number: Streets Maintenance fund, Traffic Signal/Street Light account / 2563038-507774, Contract 1819-175.

Is it currently budgeted? Yes No

Explanation of Fiscal Impact: This project was budgeted and funded for \$24,000 from the Streets Maintenance fund, Traffic Signal/Street Light account. The project was completed within budget.

Alternatives

-N/A

Supporting Material

-Exhibit-1: 2019 South Carson Street Signal Re-timing Project Final Report

South Carson Street Signal Re-timing Project

Final Report

Prepared for
Carson City

Prepared by
Center for Advanced
Transportation Education
and Research (CATER)
University of Nevada, Reno

October 2019



University of Nevada, Reno

EXECUTIVE SUMMARY

This project involved re-timing of a total of eight intersections between Koontz Lane and Mica Drive on South Carson Street and Highway 395 in Carson City. New signal timing and coordination plans were developed for normal weekday AM, midday (MD), and PM peak periods, and one weekend daytime period.

For the new timings, cycle length and splits were re-designed to accommodate the current traffic demands as well as to relieve congestion due to oversaturated conditions in the southbound direction during the PM peak period. Offset and phasing sequence at each intersection were optimized to improve traffic progression for both the arterial traffic and the I-580 traffic turning south onto the arterial.

The new timings were initially implemented in May 2019. The UNR research team continuously fine-tuned the timing plans based on field observations and feedback from the City staff. The timing plans were finalized in September 2019, and no further citizen complaints have been received since then. A before-after analysis was performed based on the travel-run results, which showed an average 36.3% reduction in travel time and an average 65.1% reduction in stops.

The UNR team observed several operational issues and challenges for the corridor which could affect the corridor performance: (1) frequent transitions caused mainly by emergency vehicles, pedestrians, and sometimes for unknown reasons (probably controller software bugs); (2) short peak flow surges that caused oversaturation at bottleneck intersections; (3) wide streets and intersections, which presented difficulties for accommodating pedestrian crossing times; and (4) disruptions of coordination due to incidents. These influences cannot be simply resolved by signal re-timing; therefore other operational strategies such as implementing an adaptive signal control system may be necessary for maintaining optimal operations.

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1. INTRODUCTION

South Carson Street is a major signalized arterial in Carson City and also plays an important role in the regional transportation network. In order to improve traffic operations on the arterial, eight signals between Carson & Koontz and Hwy 395 & Mica, as shown in Figure 1, were re-timed by the Center for Advanced Transportation Education and Research (CATER) at the University of Nevada, Reno (UNR).

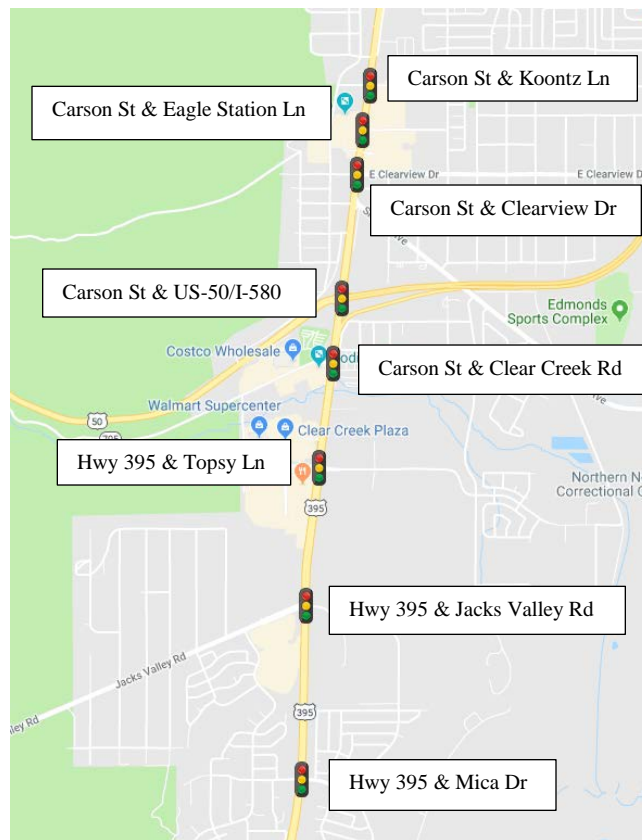


Figure 1. Project Location and Re-timed Signals

Based on NDOT's TRINA data¹, the annual average daily traffic (AADT) on the arterial was about 36,000 in 2018. Although there were distinctive directional flows during different peak periods, the traffic in both directions was generally heavy; therefore, achieving a two-way progression, while slightly favoring the peak direction, was the primary objective of the project.

Among the eight signals, Carson & I-580/US-50 was considered as a critical one where traffic on both the arterial and the side street was heavy. For example, the PM peak period experienced heavy traffic for both the southbound through and the westbound left-turn movements, when oversaturation and queue spillback often occurred. The new timings

¹ The data is referred to the NDOT Traffic Information Systems (TRINA)

should improve the capacity at this bottleneck intersection, and provide progression that can benefit both the arterial and freeway traffic movements.

The remaining sections of this report will describe the details of the timing development, field implementation, performance evaluation, and the conclusions.

2. TIMING DEVELOPMENT

The timing development involved designing new cycle lengths, a time-of-day schedule, phase splits, offsets, and phasing sequences at each intersection for different peak periods.

2.1 Developing Cycle Lengths and Time-of-Day Schedule

Prior to the re-timing project, the arterial had four time-of-day plans and a schedule as shown in Table 1. It was noticed that the cycle lengths of these timing plans were not significantly different. Field observations revealed that this schedule design did more harm than good since each transition from one plan to another could last for more than five minutes, which resulted in additional vehicle delays and stops. Additionally, the previous 160-second plan did not provide sufficient capacity at several intersections during the PM peak period, such as Hwy 395 & Topsy, and Carson & Clear Creek, where the queues were spilling over in the southbound direction.

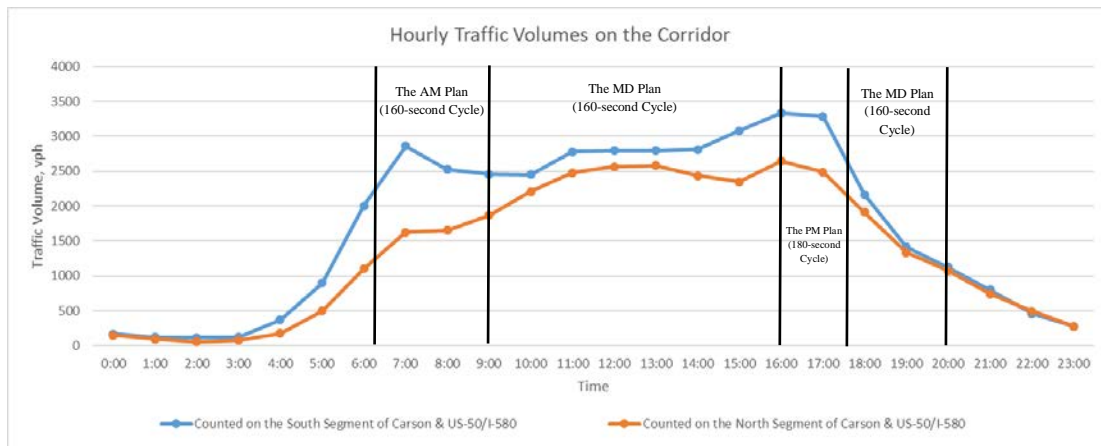
Table 1. Previous Time-of-day Plans

Cycle Length, sec	Time Periods
156	06:25 AM – 10:00 AM
148	10:00 AM – 11:30 AM
160	11:30 AM – 06:45 PM
156	06:45 PM – 08:00 PM

Based on the traffic counts collected in the field and the data published on the website of NDOT's Traffic Information System (TRINA), the UNR research team developed four time-of-day plans: 160-second cycle plans (AM and MD) and a 180-second cycle plan (PM) for weekdays, and a 160-second cycle for weekends, as shown in Table 2 and Figure 2.

Table 2. Newly Developed Time-of-day Plans

Plan Name	Cycle Length, sec	Time Periods
Weekday AM Plan	160	6:15 AM – 9:00 AM
Weekday MD Plan	160	9:00 AM – 4:00 PM; 5:45 PM – 8:00 PM
Weekday PM Plan	180	4:00 PM – 5:45 PM
Weekend Daytime Plan	160	8:30 PM – 6:30 PM



*Data collected on 06/20/2018

Figure 2. Weekday Time-of-Day Plans and Schedule based on Traffic Counts

The 160-second cycle plans seemed adequate to serve the traffic demands during both AM and MD peak periods on weekdays and the daytime peak period on Weekends. While the same 160-second cycle length was used for these periods, the splits and offsets were designed differently to fit the traffic patterns of each time period. The heaviest traffic volume was observed during the weekday PM peak period between 4:00 p.m. and 5:45 p.m. In order to serve this high traffic demand, a 180-second cycle length was used for the PM plan to mainly enhance the capacity in the southbound direction, especially at the bottleneck intersection of Carson St. & US-50/I-580.

2.2 Developing Phase Splits

While developing the new phase splits for the four timing plans, the following factors were taken into consideration.

- Newly updated Yellow and Red Clearance Intervals

Yellow and Red Clearance intervals were recently updated and the new timing plans adopted the latest such timing parameters.

- Newly updated pedestrian timings

Besides the Yellow and Red Clearance intervals, pedestrian timings were also updated according to the new MUTCD guidelines. The new timing plans adopted these new pedestrian timing parameters, mainly the WALK and the Flashing-Don't-Walk (FDW) intervals.

Due to the large size of the arterial and the new pedestrian timing parameters, pedestrian timings could not be accommodated in the phase splits at all of the intersections, thus signal transitions may occur when there are pedestrians crossing the arterial at signalized intersections. Frequent pedestrian crossing activities were observed at the following four intersections: Carson & Koontz, Carson & Eagle Station, Carson & Clearview, and Hwy 395

& Mica. Therefore, pedestrian timings were fully accommodated in the phase splits at these four intersections, but not at the other intersections.

- Advanced flashing signals

Advanced flashing signals were deployed at Carson & US-50/I-580, Hwy 395 & Jacks Valley, and Hwy 395 & Mica, which required modifications of the phase splits in the model to fit the actual field operations.

2.3 Developing offsets and phasing sequences

Offset and phasing sequence are two most important factors affecting arterial progression. For the new timing plans, offsets and phasing sequences at the study intersections were optimized to best achieve a two-way progression, although directional preferences were considered according to the directional flow proportions during different peak periods. While the new timing plans mainly focused on progression of the arterial through movements, progression of the heavy westbound left-turn movement from I-580 was also specifically considered. Figure 3 shows a comparison of the time-space diagrams between the previous timing plan and the new timing plan. The light green indicates the progression band for the westbound left-turn traffic flow I-580 (east-to-south). It can be noticed that the previous timing plan progressed the freeway left-turn traffic well; however, the majority southbound arterial traffic would stop on red at the next intersection (Old Clear Creek Rd). The new timing plan would progress the arterial traffic through the next intersection without stops, and still provide decent progression for the freeway traffic.

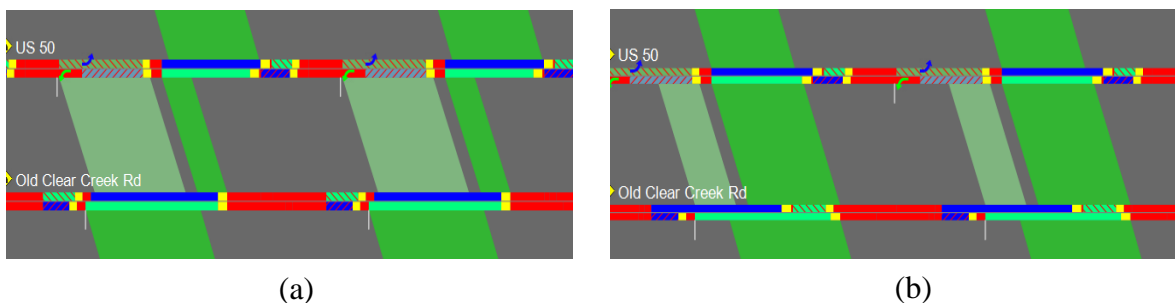


Figure 3. Southbound Progression shown on Time-Space Diagram (a: previous plan; b: new plan)

The details of the new timing plans are included in the Appendix at the end of this report.

3. FIELD IMPLEMENTATION

The new timing plans were initially implemented in May 2019. The UNR research team spent a significant amount of time fine-tuning the plans based on both field observations and feedback from the city staff. The new timing plans were finalized in September 2019. During the timing implementation and fine-tuning period, the UNR team identified several operations-related issues. These issues and the possible remedial measures are discussed next.

3.1 Signal Transitions

Frequent signal transitions were observed which resulted in disruption to normal signal coordination. Such transitions were mainly caused by emergency vehicle preemptions, pedestrian crossing activities, and some unknown controller software issues.

As mentioned in Section 2.2, not all of the intersections could accommodate the pedestrian timing in their phase splits, thus transitions would occur when there is a pedestrian crossing the intersection. Figure 4 shows such a transition event at the intersection of Carson St & Clear Creek Rd. To mitigate the transition impact, the transition method was changed to be “Dwell: 99 seconds”, which resulted in quicker transitions.

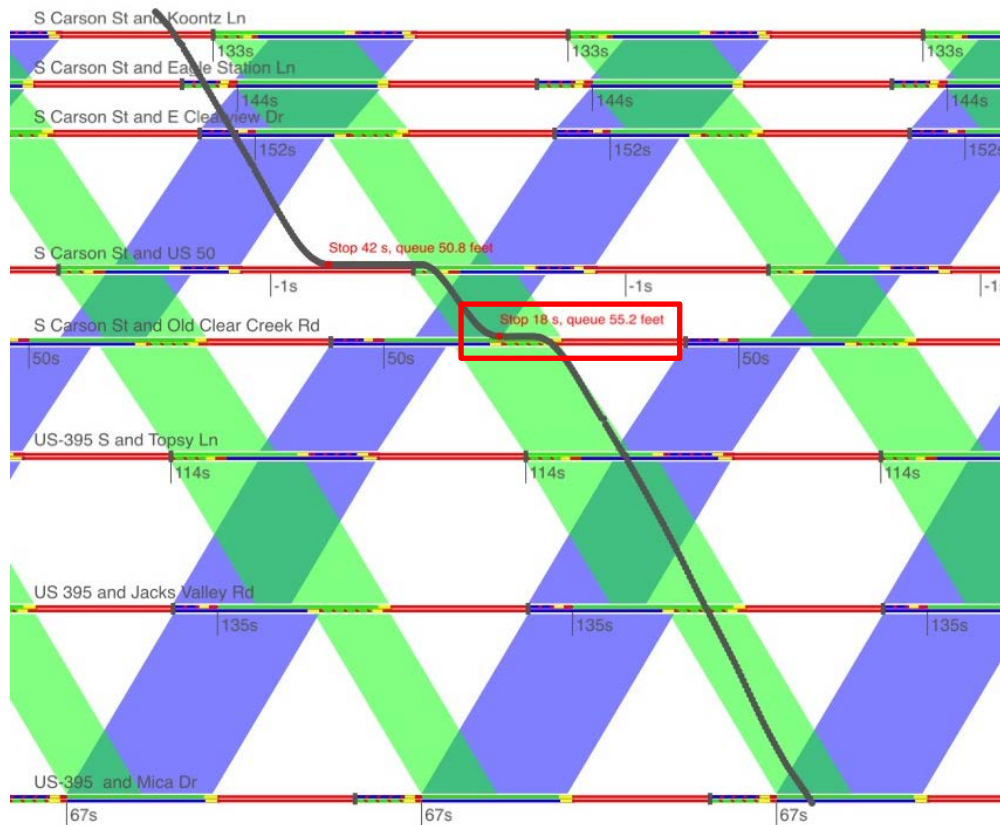


Figure 4. A Transition at Carson St & Clear Creek Rd (marked in the red box)

Signal transitions caused by emergency vehicle preemptions generally had a much larger impact on signal coordination as shown in Figure 5. In this case, a total of four signals marked in red were in transition (judged by the mismatch of the vehicle trajectory and the time-space diagram), which resulted in extra stops and delays.

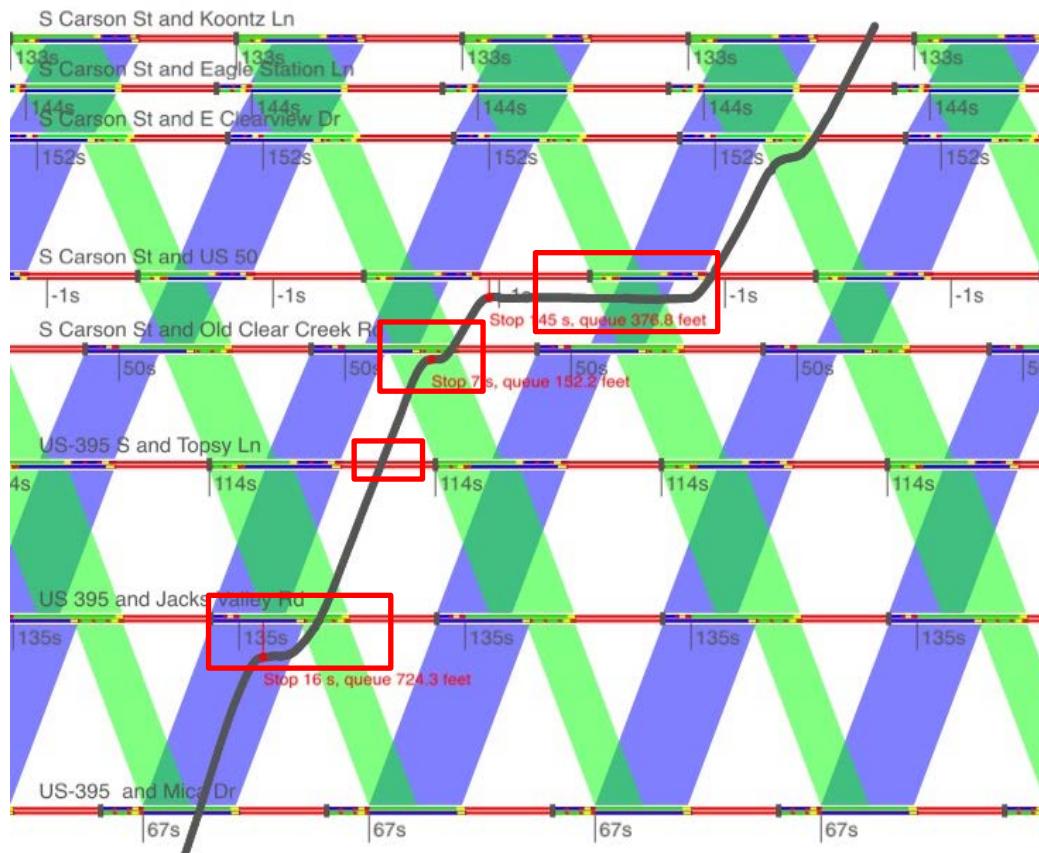


Figure 5. Transition Caused by a Preemption Event (marked in the red boxes)

The preemptions were mostly caused by fire engines and ambulances which were frequently observed, mainly due to a high number of fire stations near the corridor as noted in Figure 6.

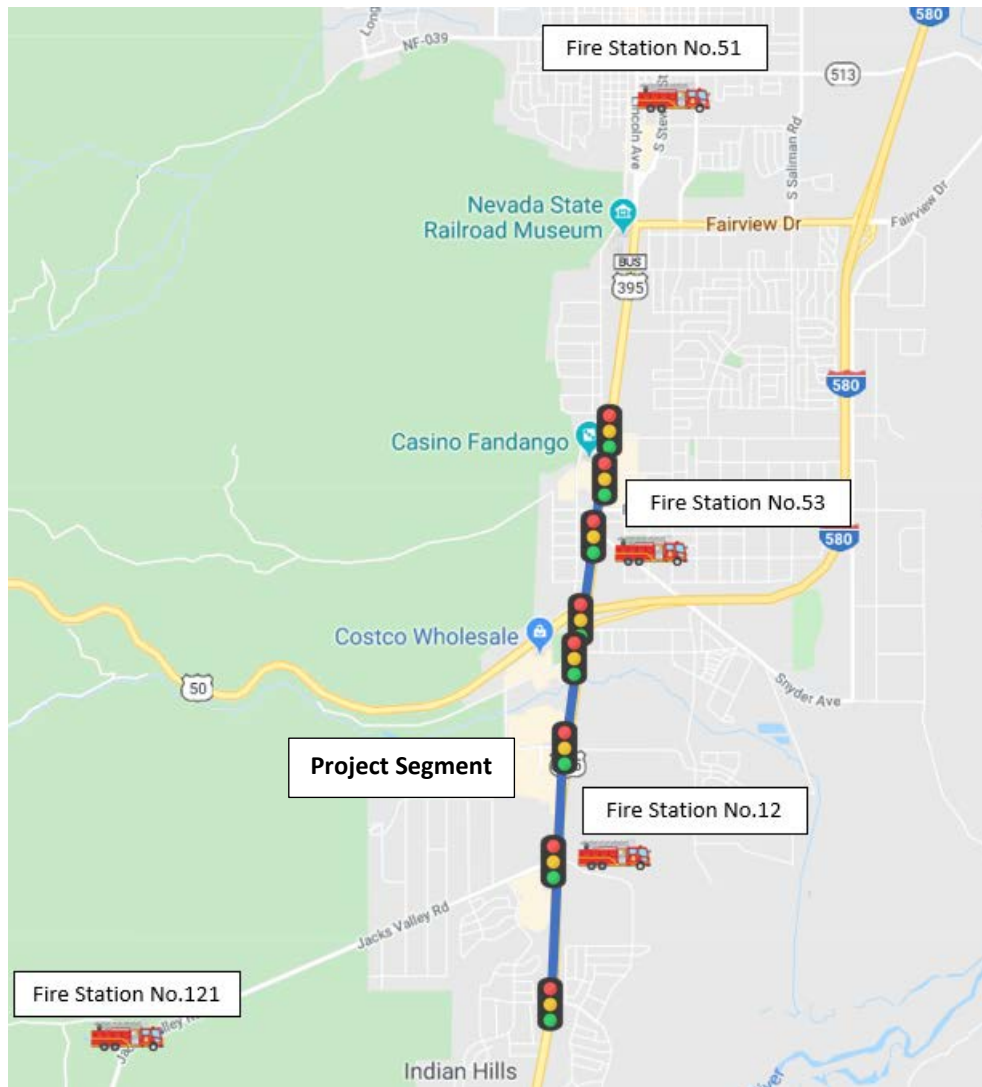


Figure 6. Fire Stations in the Surrounding Areas

3.2 Oversaturation

Oversaturation was observed during the PM peak period between Carson & US-50/I-580 and Hwy 395 & Topsy, where significant queue spillback was consistently noticed in the southbound direction. It generally took 2-3 cycles to go through a signal. The oversaturation was probably contributed by two factors: (1) a quick traffic demand surge around 5:00 p.m. and (2) imbalanced lane utilization. Vehicles in the southbound direction tended to mostly use the inside two lanes between Carson & Clear Creek and Hwy 395 & Topsy, causing queue spillback from the downstream intersection.

4. PERFORMANCE EVALUATION

The new timings were finalized in September 2019 and approved by the city staff. Since then, no major traveler complaints have been received. The UNR research team conducted a comprehensive before-after analysis to provide a quantitative based performance evaluation using the floating car travel run method.

Different from a typical before-after study adopted in the current practice, the UNR team used a state-of-the-art signal timing tool and the quality of signal timing performance index, where GPS vehicle travel trajectories were collected along with the time-space diagrams to provide a better visualization of the actual traffic progression. The quality of signal timing performance index not only can show the arterial improvement with the new timings, but also can indicate if there is additional room for further improvement.

Figure 7 illustrates an example of a comparison of the before-after MD plans where the probe vehicles' travel trajectories are laid on top of the time-space diagram. Improved progression can be easily noticed with the new timing plan by having significantly fewer stops along the arterial. The detailed measures of effectiveness for all of the timing plans are shown in Table 3 and the corresponding quality of signal timing performance indices are shown in Table 4. The results in Table 4 indicate that significant improvements were achieved for the arterial through traffic for all of the peak periods, although there was a slight deterioration for the freeway movement (I-580 westbound turning left to South Carson Street). This was somewhat expected as the previous timing purely focused on progressing the freeway traffic. The new timings were considered better to serve the overall traffic flow within the arterial segment.

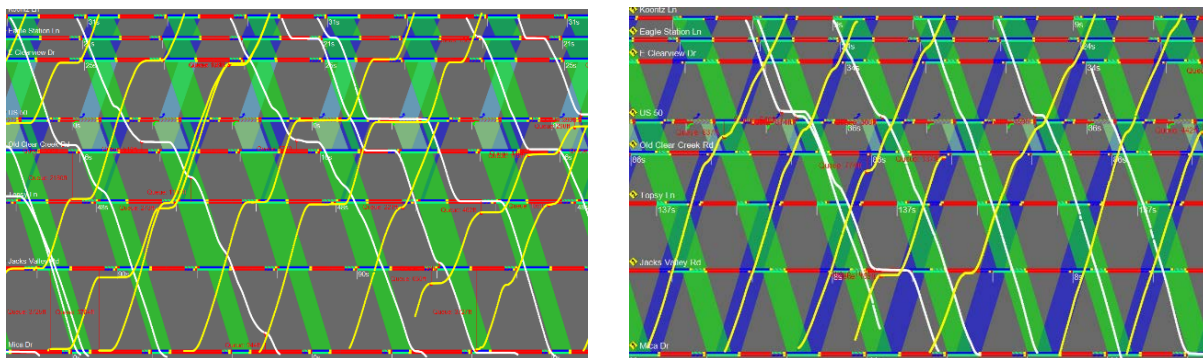


Figure 7. Probe Vehicle Trajectories for the MD Plan (a: before; b: after)

Table 3. Measures of Effectiveness of the Before-After Timing Plans

		Previous (Before) Timings		New (After) Timings			
		Travel Time (minute)	Stops	Travel Time (minute)	Improved by	Stops	Reduced Stops
AM	NB	8.61	3.7	5.02	41.7%	0.8	2.9
	SB	6.12	2.6	4.53	26.0%	0.4	2.2
	Freeway	2.72	0.3	2.88	-5.9%	0.5	-0.2
MD	NB	6.27	2.8	4.89	22.0%	0.3	2.5
	SB	6.13	2.5	4.61	24.8%	0.5	2.0
	Freeway	2.61	0.1	2.96	-13.4%	0.15	-0.1
PM	NB	9.67	4.2	5.58	42.3%	1	3.2
	SB	12.85	5.6	7.51	41.6%	1.6	4.0
	Freeway	6.25	1.2	6.83	-9.3%	1.9	-0.7

Table 4. Quality of Signal Timing Performance Index

	Before Timings	New Timings
AM	D-	A
MD	D+	A+
PM	F	B+

5. SUMMARY AND CONCLUSIONS

This project involved re-timing of a total of eight intersections between Koontz Lane and Mica Drive on South Carson Street and Highway 395 in Carson City. New signal timing and coordination plans were developed and implemented for normal weekday AM, MD, and PM peak periods, and one weekend daytime period.

A comprehensive before-after study was performed to assess the effectiveness of the new timing plans. Probe vehicle travel run results showed an average of 36.3% reduction in travel time and an average of 65.1% reduction in stops for the arterial through traffic. The quality of signal timing performance indices showed B+ and A for the new timing plans, indicating very satisfactory results.

Several operational issues and challenges were observed which could negatively affect the arterial performance, which include: (1) frequent transitions caused mainly by emergency vehicles, pedestrians, and sometimes for unknown reasons (probably controller software bugs); (2) short peak flow surges that caused oversaturation at bottleneck intersections; (3)

wide streets and intersections, which presented difficulties for accommodating pedestrian crossing times; and (4) disruptions of coordination due to incidents. These influences cannot be simply resolved by signal re-timing; therefore other operational strategies such as implementing an adaptive signal control system may be necessary for maintaining optimal operations.

In addition, the city is planning to reduce the segment north of Carson & Clearview from three lanes in each direction to two lanes. This lane reduction could potentially result in capacity insufficiency; therefore, the arterial may need to be re-timed to accommodate the geometric and traffic flow changes.

APPENDIX – TIMING SHEETS

- The AM plan

Timing Sheet for Carson & Koontz

Carson St and Koontz Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		11		12		9		8
Ped Clearance		10		25		8		20
Yellow	3.8	5.0	3.0	3.4	4.1	4.6	3	3.3
All-Red	2.5	1.4	3.3	1.7	2.7	1	2.9	2
Split	20	72	22	45	27	65	22	46
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	133							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Eagle Station

Carson St and Eagle Station Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		9		12		7		
Ped Clearance		13		30		21		
Yellow	3.8	4.9	3	3.4	4	4.6	3	3.2
All-Red	3.3	1	3.6	2.2	3.7	1	3.3	2.4
Split	24	70	17	49	25	69	28	38
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	144							
Offset Reference:	Bgn Green							
Sequence:	11							

Timing Sheet for Carson & Clearview

Carson St and Clearview Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		10				8		10
Ped Clearance		22				11		28
Yellow	4.2	5.4	3	4.8	4.4	5.1	3.7	3.7
All-Red	3.6	1.9	3.7	4.1	3.3	1	2.8	1.4
Split	27	68	32	33	25	70	20	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	152							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & US-50 (Spoooner)

Carson St and Spooner								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8				7		9
Ped Clearance		28				24		31
Yellow	4.7	5.2	4.1	5.2	4.3	5.1	4.7	4.7
All-Red	5.2	1	6.7	1.1	6.3	1	5.9	1.1
Split	21	62	58	19	27	56	45	32
Coordinate Phase			x					
Recall Mode								
Cycle Length:	160		Notes: fixed force-off; Phase 8 violates Ped timing					
Offset:	4							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Clear creek

Carson St and Clear creek Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		12		11		10		
Ped Clearance		14		34		20		
Yellow	4.3	5.2	3	3.3	4.3	5.2	3	3.5
All-Red	4.6	1	3.8	2.8	4.8	1	4.1	2.7
Split	27	78	30	25	24	81	36	19
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off; Phase 4 violates Ped timing					
Offset:	50							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Topsy

Hwy 395 and Topsy Lane								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		10		8		
Ped Clearance		15		31		16		
Yellow	4.2	6.3	3	3.6	5.2	5	3	3.2
All-Red	5	1	3.8	2.1	4.9	1	4.3	2.7
Split	25	69	18	48	31	63	30	36
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	114							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Jacks Valley

Hwy 395 and Jacks Valley Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8		10		7		
Ped Clearance		6		25		14		
Yellow	4.6	5.4	3	4	4.5	5.5	3.1	3.2
All-Red	4.5	1	3.8	1.4	3.8	1	3.3	2.3
Split	32	67	20	41	20	79	27	34
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off; Phase 4 violates Ped timing					
Offset:	129							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Mica

Hwy 395 and Mica Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		9		7		10
Ped Clearance		6		25		5		24
Yellow	5.7	5.5	3.3	3.3	4.6	6.1	3	4.7
All-Red	2.8	1	2.6	2.1	3	1	2.8	2.2
Split	30	69	16	45	30	69	16	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	67							
Offset Reference:	Bgn Green							
Sequence:	11							

- The MD plan

Timing Sheet for Carson & Koontz

Carson St and Koontz Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		11		12		9		8
Ped Clearance		10		25		8		20
Yellow	3.8	5.0	3.0	3.4	4.1	4.6	3	3.3
All-Red	2.5	1.4	3.3	1.7	2.7	1	2.9	2
Split	20	72	22	46	27	65	22	46
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	9							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Eagle Station

Carson St and Eagle Station Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		9		12		7		
Ped Clearance		13		30		21		
Yellow	3.8	4.9	3	3.4	4	4.6	3	3.2
All-Red	3.3	1	3.6	2.2	3.7	1	3.3	2.4
Split	24	70	17	49	25	69	28	38
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	24							
Offset Reference:	Bgn Green							
Sequence:	11							

Timing Sheet for Carson & Clearview

Carson St and Clearview Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		10				8		10
Ped Clearance		22				11		28
Yellow	4.2	5.4	3	4.8	4.4	5.1	3.7	3.7
All-Red	3.6	1.9	3.7	4.1	3.3	1	2.8	1.4
Split	27	68	32	33	25	70	20	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	34							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & US-50 (Spoooner)

Carson St and Spooner								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8				7		9
Ped Clearance		28				24		31
Yellow	4.7	5.2	4.1	5.2	4.3	5.1	4.7	4.7
All-Red	5.2	1	6.7	1.1	6.3	1	5.9	1.1
Split	21	62	58	19	27	56	45	32
Coordinate Phase			x					
Recall Mode			Max					
Cycle Length:	160		Notes: fixed force off; Phase 8 violates Ped timing					
Offset:	36							
Offset Reference:	Bgn Green							
Sequence:	16							

Timing Sheet for Carson & Clear creek

Carson St and Clear creek Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		12		11		10		
Ped Clearance		14		34		20		
Yellow	4.3	5.2	3	3.3	4.3	5.2	3	3.5
All-Red	4.6	1	3.8	2.8	4.8	1	4.1	2.7
Split	27	78	25	30	24	81	36	19
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off; Phase 4 violates Ped timing					
Offset:	86							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Topsy

Hwy 395 and Topsy Lane								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		10		8		
Ped Clearance		15		31		16		
Yellow	4.2	6.3	3	3.6	5.2	5	3	3.2
All-Red	5	1	3.8	2.1	4.9	1	4.3	2.7
Split	25	69	18	48	28	66	30	36
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	137							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Jacks Valley

Hwy 395 and Jacks Valley Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8		10		7		
Ped Clearance		6		25		14		
Yellow	4.6	5.4	3	4	4.5	5.5	3.1	3.2
All-Red	4.5	1	3.8	1.4	3.8	1	3.3	2.3
Split	30	66	22	42	25	71	43	21
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	8							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Mica

Hwy 395 and Mica Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		9		7		10
Ped Clearance		6		25		5		24
Yellow	5.7	5.5	3.3	3.3	4.6	6.1	3	4.7
All-Red	2.8	1	2.6	2.1	3	1	2.8	2.2
Split	30	69	16	45	30	69	16	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	77							
Offset Reference:	Bgn Green							
Sequence:	11							

- The PM plan

Timing Sheet for Carson & Koontz

Carson St and Koontz Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		11		12		9		8
Ped Clearance		10		25		8		20
Yellow	3.8	5.0	3.0	3.4	4.1	4.6	3	3.3
All-Red	2.5	1.4	3.3	1.7	2.7	1	2.9	2
Split	28	85	24	43	31	81	24	43
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off					
Offset:	13							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Eagle Station

Carson St and Eagle Station Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		9		12		7		
Ped Clearance		13		30		21		
Yellow	3.8	4.9	3	3.4	4	4.6	3	3.2
All-Red	3.3	1	3.6	2.2	3.7	1	3.3	2.4
Split	26	86	20	48	26	86	25	43
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off					
Offset:	28							
Offset Reference:	Bgn Green							
Sequence:	11							

Timing Sheet for Carson & Clearview

Carson St and Clearview Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		10				8		10
Ped Clearance		22				11		28
Yellow	4.2	5.4	3	4.8	4.4	5.1	3.7	3.7
All-Red	3.6	1.9	3.7	4.1	3.3	1	2.8	1.4
Split	25	86	30	39	25	86	25	44
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off					
Offset:	43							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & US-50 (Spoooner)

Carson St and Spooner								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8				7		9
Ped Clearance		28				24		31
Yellow	4.7	5.2	4.1	5.2	4.3	5.1	4.7	4.7
All-Red	5.2	1	6.7	1.1	6.3	1	5.9	1.1
Split	23	72	65	20	25	70	51	34
Coordinate Phase			x					
Recall Mode			Max					
Cycle Length:	180		Notes: fixed force-off; Phase 8 violates Ped timing					
Offset:	23							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Clear creek

Carson St and Clear creek Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		12		11		10		
Ped Clearance		14		34		20		
Yellow	4.3	5.2	3	3.3	4.3	5.2	3	3.5
All-Red	4.6	1	3.8	2.8	4.8	1	4.1	2.7
Split	25	101	30	24	25	101	34	20
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off; Phase 4 violates Ped timing					
Offset:	81							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Topsy

Hwy 395 and Topsy Lane								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		10		8		
Ped Clearance		15		31		16		
Yellow	4.2	6.3	3	3.6	5.2	5	3	3.2
All-Red	5	1	3.8	2.1	4.9	1	4.3	2.7
Split	30	90	40	20	33	87	40	20
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off					
Offset:	124							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Jacks Valley

Hwy 395 and Jacks Valley Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8		10		7		
Ped Clearance		6		25		14		
Yellow	4.6	5.4	3	4	4.5	5.5	3.1	3.2
All-Red	4.5	1	3.8	1.4	3.8	1	3.3	2.3
Split	32	83	35	30	28	87	44	21
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off; Phase 4 violates Ped timing					
Offset:	0							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Mica

Hwy 395 and Mica Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		9		7		10
Ped Clearance		6		25		5		24
Yellow	5.7	5.5	3.3	3.3	4.6	6.1	3	4.7
All-Red	2.8	1	2.6	2.1	3	1	2.8	2.2
Split	27	90	18	45	27	90	18	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	180		Notes: fixed force-off					
Offset:	31							
Offset Reference:	Bgn Green							
Sequence:	12							

- The weekend plan

Timing Sheet for Carson & Koontz

Carson St and Koontz Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		11		12		9		8
Ped Clearance		10		25		8		20
Yellow	3.8	5.0	3.0	3.4	4.1	4.6	3	3.3
All-Red	2.5	1.4	3.3	1.7	2.7	1	2.9	2
Split	20	72	22	46	27	65	22	46
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	9							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Eagle Station

Carson St and Eagle Station Ln								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		9		12		7		
Ped Clearance		13		30		21		
Yellow	3.8	4.9	3	3.4	4	4.6	3	3.2
All-Red	3.3	1	3.6	2.2	3.7	1	3.3	2.4
Split	24	70	17	49	25	69	28	38
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	24							
Offset Reference:	Bgn Green							
Sequence:	11							

Timing Sheet for Carson & Clearview

Carson St and Clearview Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		10				8		10
Ped Clearance		22				11		28
Yellow	4.2	5.4	3	4.8	4.4	5.1	3.7	3.7
All-Red	3.6	1.9	3.7	4.1	3.3	1	2.8	1.4
Split	27	68	32	33	25	70	20	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	28							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & US-50 (Spoooner)

Carson St and Spooner								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8				7		9
Ped Clearance		28				24		31
Yellow	4.7	5.2	4.1	5.2	4.3	5.1	4.7	4.7
All-Red	5.2	1	6.7	1.1	6.3	1	5.9	1.1
Split	21	62	58	19	27	56	45	32
Coordinate Phase			x					
Recall Mode			Max					
Cycle Length:	160		Notes: fixed force off; Phase 8 violates Ped timing					
Offset:	36							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Clear creek

Carson St and Clear creek Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		12		11		10		
Ped Clearance		14		34		20		
Yellow	4.3	5.2	3	3.3	4.3	5.2	3	3.5
All-Red	4.6	1	3.8	2.8	4.8	1	4.1	2.7
Split	24	59	25	51	28	55	36	41
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	112							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Topsy

Hwy 395 and Topsy Lane								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		10		8		
Ped Clearance		15		31		16		
Yellow	4.2	6.3	3	3.6	5.2	5	3	3.2
All-Red	5	1	3.8	2.1	4.9	1	4.3	2.7
Split	25	69	18	48	28	66	30	36
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	137							
Offset Reference:	Bgn Green							
Sequence:	15							

Timing Sheet for Carson & Jacks Valley

Hwy 395 and Jacks Valley Rd								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		8		10		7		
Ped Clearance		6		25		14		
Yellow	4.6	5.4	3	4	4.5	5.5	3.1	3.2
All-Red	4.5	1	3.8	1.4	3.8	1	3.3	2.3
Split	30	66	22	42	25	71	43	21
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	8							
Offset Reference:	Bgn Green							
Sequence:	12							

Timing Sheet for Carson & Mica

Hwy 395 and Mica Dr								
Parameters	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Direction	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Walk		7		9		7		10
Ped Clearance		6		25		5		24
Yellow	5.7	5.5	3.3	3.3	4.6	6.1	3	4.7
All-Red	2.8	1	2.6	2.1	3	1	2.8	2.2
Split	30	69	16	45	30	69	16	45
Coordinate Phase						x		
Recall Mode		Max				Max		
Cycle Length:	160		Notes: fixed force-off					
Offset:	77							
Offset Reference:	Bgn Green							
Sequence:	11							

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STAFF REPORT

Report To: The Carson City Regional Transportation Commission (RTC)

Meeting Date: November 13, 2019

Staff Contact: Rick Cooley, Operations Manager

Agenda Title: **For Information Only** – Presentation and discussion regarding the 2019/2020 Snow Plow Routes.

Staff Summary: Carson City Public Works staff will present the 2019/2020 Priority 1 and Priority 2 Snow Plow Routes.

Agenda Action: Other/Presentation

Time Requested: 10 minutes

Proposed Motion

-N/A

Background/Issues & Analysis

Carson City Public Works staff maintains the snow plow routes map. The routes are thoroughly reviewed annually ahead of each winter season. Significant changes to the route map are approved by the RTC. No significant changes have been made to the route map in the past several years.

Applicable Statute, Code, Policy, Rule or Regulation

-N/A

Financial Information

Is there a fiscal impact? Yes No

If yes, Fund Name, Account Name / Account Number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact:

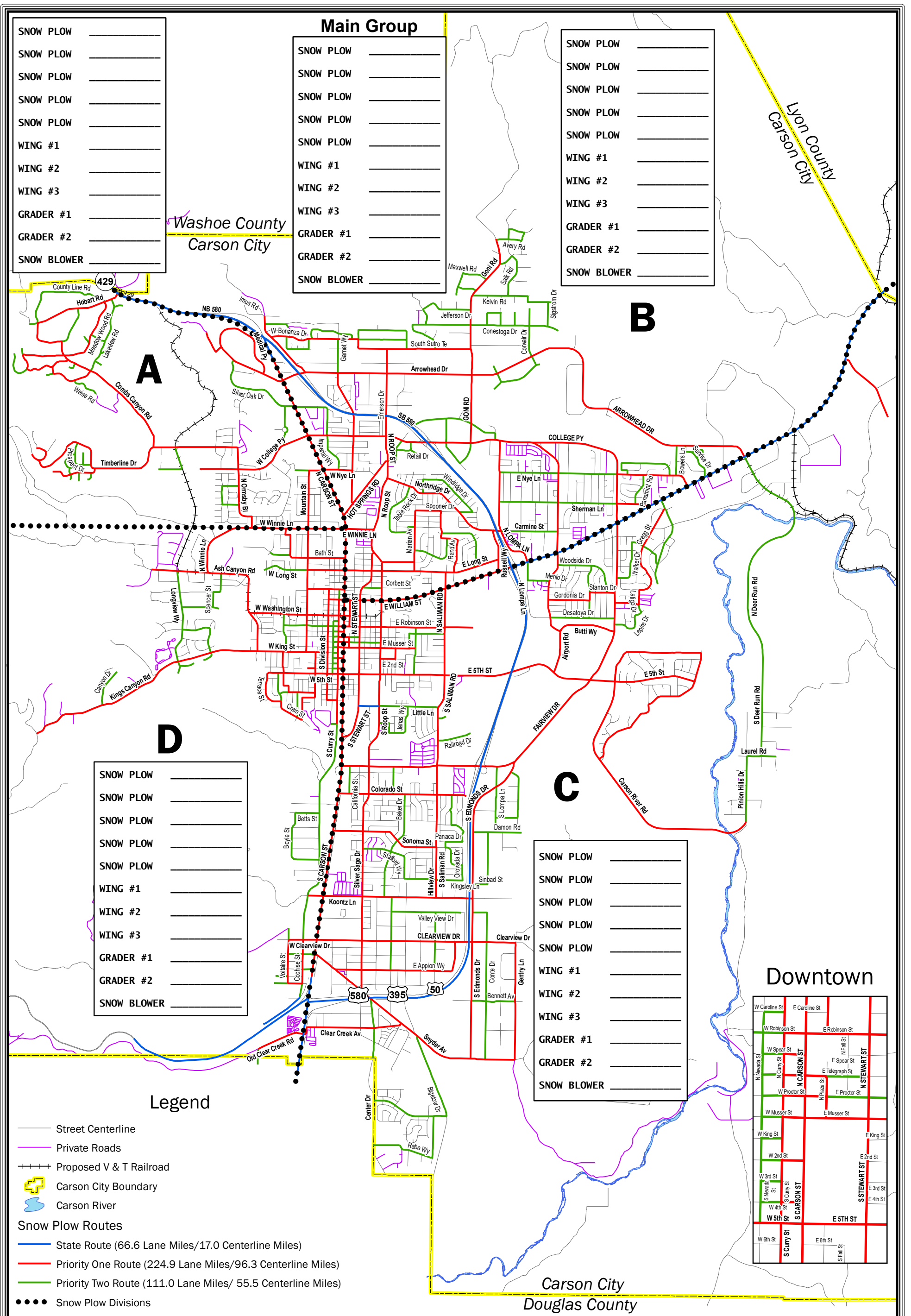
Alternatives

-N/A

Supporting Material

-Exhibit-1: 2019/2020 Snow Plow Routes Map

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SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
WING #1	_____
WING #2	_____
WING #3	_____
GRADER #1	_____
GRADER #2	_____
SNOW BLOWER	_____

SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
WING #1	_____
WING #2	_____
WING #3	_____
GRADER #1	_____
GRADER #2	_____
SNOW BLOWER	_____

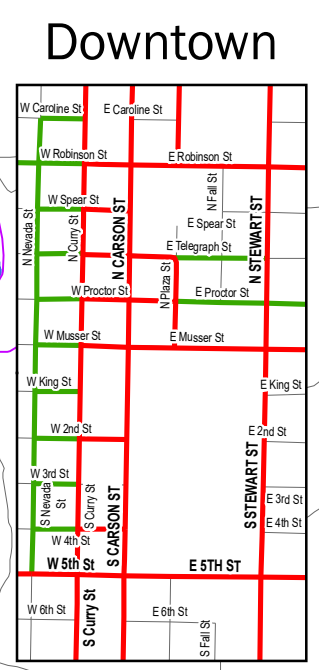
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
WING #1	_____
WING #2	_____
WING #3	_____
GRADER #1	_____
GRADER #2	_____
SNOW BLOWER	_____

SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
WING #1	_____
WING #2	_____
WING #3	_____
GRADER #1	_____
GRADER #2	_____
SNOW BLOWER	_____

SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
SNOW PLOW	_____
WING #1	_____
WING #2	_____
WING #3	_____
GRADER #1	_____
GRADER #2	_____
SNOW BLOWER	_____

Legend

- Street Centerline
- Private Roads
- ++++ Proposed V & T Railroad
- ⬡ Carson City Boundary
- 🌊 Carson River
- Snow Plow Routes**
- State Route (66.6 Lane Miles/17.0 Centerline Miles)
- Priority One Route (224.9 Lane Miles/96.3 Centerline Miles)
- Priority Two Route (111.0 Lane Miles/ 55.5 Centerline Miles)
- Snow Plow Divisions



THIS MAP IS FOR ILLUSTRATIVE PURPOSES ONLY. IT DOES NOT REPRESENT A SURVEY. NO LIABILITY IS ASSUMED AS TO THE SUFFICIENCY OR ACCURACY OF THE DATA DELINEATED HEREON.

Carson City Public Works
3505 Butti Way
Carson City, NV 89701
(775) 283-7394

1" = 4,000'

Carson City Snow Plow Routes 2019-2020

Date: _____ Shift: _____



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STAFF REPORT

Report To: The Carson City Regional Transportation Commission (RTC)

Meeting Date: November 13, 2019

Staff Contact: Lucia Maloney, Transportation Manager

Agenda Title: For Possible Action – Discussion and possible action regarding a proposed development agreement template for pro-rata contributions to planned transportation infrastructure capital improvements on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Staff Summary: The Carson City Municipal Code requires that pro-rata contributions be provided by private development projects that have an impact on Carson City's transportation system. Staff has developed a development agreement template to be used to secure these funds for the proposed traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway. Staff seeks the Regional Transportation Commission's approval of the agreement template, authorization for the City Engineer to execute the agreement, and authorization to modify clerical, identifying, and other non-substantive terms of the agreement if need be to adapt it for use with a particular owner and/or developer.

Agenda Action: Formal Action/Motion

Time Requested: 15 minutes

Proposed Motion

I move to approve the development agreement template as presented, and to authorize the City Engineer to execute agreements and modify the non-substantive terms as discussed on the record.

Background/Issues & Analysis

The Carson City Municipal Code (CCMC) Title 18 Appendix section 12.13.3.3(6)(b)((3)) requires that private development projects generating transportation impacts contribute a pro-rata share to needed transportation system improvements. A traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway has been indicated as necessary by several traffic impact studies for developments on and around South Carson Street between Clearview Drive and the Interstate 580 freeway. The owner's pro rata share percent is based on the number of trips anticipated to be generated and distributed to South Carson Street as a direct result of the owner's project, as determined by a traffic impact study, as compared with the baseline number of trips on South Carson Street.

The total estimated cost of the traffic control device is One Million Two Hundred Thousand Dollars and no cents (\$1,200,000). Development and approval of individual development agreements for pro-rata contribution can be inefficient and time consuming, and a template has been developed to be used on an ongoing basis for development agreements concerning South Carson Street between Clearview Drive and the Interstate 580 freeway. Staff recommends approval of the development agreement template for pro-rata contributions as provided in Exhibit-1, and requests approval to authorize the City Engineer to execute these agreements and to modify clerical, identifying, and other non-substantive terms of the agreement as needed be to adapt it for use with a particular owner and/or developer in accordance with approved project permit conditions.

Applicable Statute, Code, Policy, Rule or Regulation

-CCMC Title 18 Appendix Section 12.13.3.3(6)(b)((3)).

Financial Information

Is there a fiscal impact? Yes No

If yes, Fund Name, Account Name / Account Number:

Is it currently budgeted? Yes No

Explanation of Fiscal Impact: Approval of the development agreement template does not in and of itself result in a fiscal impact. Execution of future agreements for individual development projects would result in revenue to the RTC fund for construction of a traffic control device and associated intersection improvements, or similar solution, on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Alternatives

-Do not approve the agreement template and provide alternate direction to staff.

Supporting Material

-Exhibit-1: Development Agreement Template for Pro-Rata Contributions

Board Action Taken:

Motion: _____

1) _____

2) _____

Aye/Nay

(Vote Recorded By)

**SOUTH CARSON STREET TRAFFIC LIGHT
DEVELOPMENT AGREEMENT**

Date: _____

Project: _____

Owner: _____

Owner's Address: _____

APN(s): _____

Project Address(es): _____

Permit Number: _____

Owner's Pro Rata Share Percent: _____

Owner's Pro Rata Share Amount: _____

Excess Funds, If Any, To Be Returned To:

Owner; or to

This Development Agreement ("Agreement") is made by between the Owner stated above, and the person to whom excess funds, if any, should be returned ("Payee"), and Carson City, a consolidated municipality ("City"). Owner, City, and Payee may be individually referred to as "Party" and collectively referred to as "Parties."

RECITALS:

WHEREAS, Article 6, Section 6.010 and 6.020 of the Carson City Charter provide that the Carson City Board of Supervisors may authorize local improvements, including “[s]treet projects,” Carson City Charter, § 6.010(10); and

WHEREAS, the Carson City Regional Transportation Commission (“RTC”) was created in accordance with Chapter 277A of the Nevada Revised Statutes (“NRS”) and Chapter 11.20 of the Carson City Municipal Code (“CCMC”), and is authorized, among other things, to enter into and execute contracts related to the construction of street and highway projects, and has been delegated the authority to perform certain specific duties and responsibilities by the Carson City Board of Supervisors, including the authority to implement and manage street and highway projects, prepare and submit grant requests, oversee public transit operations and maintenance, and other related matters; and

WHEREAS, the Owner has submitted plans for approval for the development of the Project at the APNs; and

WHEREAS, the development of the Project will contribute to the traffic on South Carson Street, necessitating an additional traffic control device and associated intersection improvements, or similar solution, between Clearview Drive and the Interstate 580 freeway; and

WHEREAS, Owner has agreed to contribute a pro rata share to a traffic control device and associated intersection improvements, or similar solution, on South Carson Street between Clearview Drive and the Interstate 580 freeway (the “traffic control device”);

NOW, THEREFORE, the Parties, in consideration of the provisions herein and other good and valuable considerations, do hereby agree as follows:

1. Owner agrees to contribute to City security in the form of cash in the amount stated on page one as Owner’s Pro Rata Share Amount for the the traffic control device. The total cost of the traffic control device is estimated to be One Million Two Hundred Thousand Dollars and no cents (\$1,200,000). If the total cost of the traffic control device exceeds One Million Two Hundred Thousand Dollars and no cents (\$1,200,000), Owner shall have no further obligation to contribute and the Owner’s Pro Rata Share Amount shall be limited to the amount stated on page

one. City will make all reasonable efforts to enter into a development agreement similar to this Agreement for any development for which a traffic impact study demonstrates that the development will contribute to the number of trips on South Carson Street between Clearview Drive and the Interstate 580 freeway.

2. City shall place the funds for the pro rata share contribution to the traffic control device in an account designated for construction of the traffic control device. If the traffic control device is not constructed, City will return the Pro Rata Share Amount to the Payee designated on page one by the Owner. If the Owner's Pro Rata Share Amount at the time of construction is less than that stated on page one of this Agreement, the excess funds will be returned to the Payee after construction of the traffic control device is completed. No interest will be due on any returned funds. Once constructed, the traffic control device will remain, or if not already City property become, the property of Carson City.

3. Owner and Payee agree that the ultimate construction, location, and design of the a traffic control device is within the sole discretion of the City. Owner and Payee agree to release City from and against all liability, claims, actions, damages, losses, and expenses, including, without limitation, reasonable attorney fees and costs, incurred by Owner or Payee arising out of City's design and location of the traffic control device. City does not waive and intends to assert any and all available NRS Chapter 41 immunity in all cases.

4. Unless otherwise specifically provided herein, all notices, demands or other communications given hereunder shall be in writing and shall be deemed to have been duly delivered upon personal delivery, overnight delivery service, or mailing by United States mail, postage prepaid, by certified mail, return receipt requested, addressed as follows:

OWNER: (To Owner at Owner's Address stated above)

PAYEE: (To Payee at Payee's Address stated above)

CITY: Carson City Development Services
Attn: City Engineer
108 E. Proctor St.
Carson City, NV 89701

Addresses may be changed by any party by giving notice to the other parties in writing of a change of address. Such change shall be deemed to have been effectively noticed five days after mailed by the party changing address. Notices shall be effective upon receipt or refusal.

5. This Agreement constitutes the entire agreement of the Parties and is the complete and exclusive statement of the promises, representations, negotiations, discussions, and other agreements that may have been made in connection with the subject matter hereof. Nothing in this Agreement shall be deemed to supersede or nullify any other development agreement between any or all of the Parties, except that this Agreement governs the pro rata share contribution for a traffic control device.

6. This Agreement will bind the heirs, executors, administrators, successors, and assigns of the respective Parties. No Party may assign, transfer or delegate any rights, obligations, or duties under this Agreement without the prior written consent of the other Party.

7. This Agreement is made and entered into for the sole protection and benefit of Owner, Payee, and City and their permitted successors and assigns. No person other than Owner, Payee, and City shall have any right of action based upon any provision of this Agreement. Payee shall only have a right of action to payment of excess funds, if any exist, as designated by Owner and as specified in this Agreement.

8. Nothing contained in this Agreement shall create any partnership, joint venture or agency relationship between City, Owner, and Payee.

9. This Agreement may only be amended in writing by the parties hereto.

10. This Agreement may be executed by City, Owner and Payee in multiple counterparts, each of which shall be considered an original, and all of which shall constitute a single agreement.

11. The laws of the State of Nevada shall govern the interpretation and construction of this Agreement. The Parties consent to the jurisdiction of, and agree that disputes will be resolved by, the courts of the First Judicial District Court of the State of Nevada in Carson City.

12. Pursuant to NRS 239.010, information or documents may be open to public inspection and copying. City will have the duty to disclose particular information or documents, unless they are made confidential by law or a common law balancing of interest.

13. The Parties represent and warrant that the person executing this Agreement on behalf of each respective Party has full power and authority to enter into this Agreement.

14. No Party shall be deemed to be in violation of this Agreement if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, acts of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds or storms. In such an event the intervening cause must not be through the fault of the Party asserting such an excuse, and the excused Party is obligated to promptly perform in accordance with the terms of the Agreement after the intervening cause ceases.

(The remainder of this page is blank; the signature blocks continue on the next page.)

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year written above.

OWNER:

By: _____

Its: _____

Date: _____

PAYEE (if different than Owner):

By: _____

Its: _____

Date: _____

CITY:

By: _____

Daniel Stucky, P.E.
City Engineer

Date: _____



STAFF REPORT

Report To: The Carson City Regional Transportation Commission (RTC)

Meeting Date: November 13, 2019

Staff Contact: Lucia Maloney, Transportation Manager

Agenda Title: For Possible Action – Discussion and possible action regarding a proposed development agreement between Carson City, KR – Carson & Appion, LLC, and Andrew Head, LLC for a \$66,000 pro-rata contribution for the Dutch Bros. Coffee project at APN 009-268-02 toward a traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Staff Summary: The Carson City Municipal Code requires that pro-rata contributions are provided by private development projects that have an impact on Carson City's transportation system. The proposed development agreement provides for a \$66,000 pro-rata contribution for the Dutch Bros. Coffee project at APN 009-268-02 toward a traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway.

Agenda Action: Formal Action/Motion

Time Requested: 15 minutes

Proposed Motion

I move to approve the development agreement as presented, and to authorize the City Engineer to execute the agreement.

Background/Issues & Analysis

The Carson City Municipal Code (CCMC) Title 18 Appendix section 12.13.3.3(6)(b)((3)) requires that private development projects generating transportation impacts contribute a pro-rata share to needed transportation system improvements. The proposed development agreement provides a \$66,000 pro-rata contribution for the Dutch Bros. Coffee project at APN 009-268-02 toward a traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway. A traffic control device on South Carson Street between Clearview Drive and the Interstate 580 freeway has been indicated as necessary by several traffic impact studies for developments on and around South Carson Street between Clearview Drive and the Interstate 580 freeway. The owner's pro rata share percent was based on the number of trips anticipated to be generated and distributed to South Carson Street as a direct result of the owner's project, as determined by a traffic impact study, as compared with the baseline number of trips on South Carson Street. The total estimated cost of the traffic control device is One Million Two Hundred Thousand Dollars and no cents (\$1,200,000).

Applicable Statute, Code, Policy, Rule or Regulation

-CCMC Title 18 Appendix Section 12.13.3.3(6)(b)((3)).

Financial Information

Is there a fiscal impact? Yes No

If yes, Fund Name, Account Name / Account Number: RTC Fund, Developer Contributions / 2503082-475100

Is it currently budgeted? Yes No

Explanation of Fiscal Impact: Execution of this development agreement would result in revenue to the RTC fund for construction of a traffic control device and associated intersection improvements, or similar solution, on South Carson Street between Clearview Drive and the Interstate 580 freeway. If the traffic control device is not constructed, the funds would be returned as provided in the agreement.

Alternatives

-Do not approve the development agreement and provide alternate direction to staff.

Supporting Material

-Exhibit-1: Dutch Bros. Coffee Project Development Agreement

Board Action Taken:

Motion: _____

1) _____

Aye/Nay

2) _____

(Vote Recorded By)

**SOUTH CARSON STREET TRAFFIC LIGHT
DEVELOPMENT AGREEMENT**

Project: Dutch Bros. Coffee

Owner: KR – Carson & Appion, LLC

Owner’s Address: 10795 W. Twain Ave., Suite 100

Las Vegas, NV 89135

Tenant: Andrew Head, LLC

APN(s): 009-268-02

Project Address(es): 211 Appion Way

Carson City, NV 89703

Permit Number: 191342

Pro Rata Share Percent: 5.5%

Pro Rata Share Amount: \$66,000.00

This Development Agreement (“Agreement”), dated as of the date of the last signature below, is made by between the Owner and Tenant stated above, and Carson City, a consolidated municipality (“City”). Owner, Tenant, and City may be individually referred to as “Party” and collectively referred to as “Parties.”

RECITALS:

WHEREAS, Article 6, Section 6.010 and 6.020 of the Carson City Charter provide that the Carson City Board of Supervisors may authorize local improvements, including “[s]treet projects,” Carson City Charter, § 6.010(10); and

WHEREAS, the Carson City Regional Transportation Commission (“RTC”) was created in accordance with Chapter 277A of the Nevada Revised Statutes (“NRS”) and Chapter 11.20 of the Carson City Municipal Code (“CCMC”), and is authorized, among other things, to enter into and execute contracts related to the construction of street and highway projects, and has been delegated the authority to perform certain specific duties and responsibilities by the Carson City

Board of Supervisors, including the authority to implement and manage street and highway projects, prepare and submit grant requests, oversee public transit operations and maintenance, and other related matters; and

WHEREAS, the Owner has submitted plans for approval for the development of the Project at the APNs; and

WHEREAS, the development of the Project will contribute to the traffic on South Carson Street, necessitating an additional traffic control device and associated intersection improvements, or similar solution, between Clearview Drive and the Interstate 580 freeway; and

WHEREAS, Owner has agreed to pay the Pro Rata Share Amount of Sixty-Six Thousand and 00/100ths Dollars (\$66,000.00) contribution to a traffic control device and associated intersection improvements, or similar solution, on South Carson Street between Clearview Drive and the Interstate 580 freeway (the “traffic control device”); and

WHEREAS, Tenant has agreed to contribute an amount equal to the Pro Rata Share Amount to Owner in relation to a separate lease agreement, including any amendment thereto, by and between Owner and Tenant;

NOW, THEREFORE, the Parties, in consideration of the provisions herein and other good and valuable considerations, do hereby agree as follows:

1. Owner agrees to contribute to City security in the form of cash in the amount stated on page one as Owner’s Pro Rata Share Amount for the the traffic control device. The total cost of the traffic control device is estimated to be One Million Two Hundred Thousand Dollars and no cents (\$1,200,000). City will make all reasonable efforts to enter into a development agreement similar to this Agreement for any development for which a traffic impact study demonstrates that the development will contribute to the number of trips on South Carson Street between Clearview Drive and the Interstate 580 freeway.

2. The City shall place the funds for the pro rata share contribution to the traffic control device in an account designated for construction of the traffic control device. If the total cost of the traffic control device exceeds One Million Two Hundred Thousand Dollars and no cents (\$1,200,000), Owner and Tenant shall have no further obligation to contribute and the Owner’s

Pro Rata Share Amount, which shall be limited to the amount stated on page one. If the traffic control device is not constructed, then the City will return the Pro Rata Share Amount directly to the Tenant. If the Owner's Pro Rata Share Amount at the time of construction is less than that stated on page one of this Agreement, the excess funds will be returned to the Tenant after construction of the traffic control device is completed. No interest will be due on any funds returned to Tenant under this Agreement. Once constructed, the traffic control device will remain, or if not already City property become, the property of Carson City.

3. Owner and Tenant agree that the ultimate construction, location, and design of the a traffic control device is within the sole discretion of the City. Owner and Tenant agree to release City from and against all liability, claims, actions, damages, losses, and expenses, including, without limitation, reasonable attorney fees and costs, incurred by Owner or Tenant arising out of City's design and location of the traffic control device. City does not waive and intends to assert any and all available NRS Chapter 41 immunity in all cases.

4. Unless otherwise specifically provided herein, all notices, demands or other communications given hereunder shall be in writing and shall be deemed to have been duly delivered upon personal delivery, overnight delivery service, or mailing by United States mail, postage prepaid, by certified mail, return receipt requested, addressed as follows:

OWNER: KR – Carson & Appion, LLC
10795 W. Twain Ave. Suite 100
Las Vegas, NV 89135

TENANT: Andrew Head, LLC
1231 S. Carson St.
Carson City, Nevada 89701

CITY: Carson City Development Services
Attn: City Engineer
108 E. Proctor St.
Carson City, NV 89701

Addresses may be changed by any party by giving notice to the other parties in writing of a change of address. Such change shall be deemed to have been effectively noticed five days after mailed by the party changing address. Notices shall be effective upon receipt or refusal.

5. This Agreement constitutes the entire agreement of the Parties and is the complete and exclusive statement of the promises, representations, negotiations, discussions, and other agreements that may have been made in connection with the subject matter hereof. Nothing in this Agreement shall be deemed to supersede or nullify any other development agreement between City, Owner, and Tenant, or between any of them, except that this Agreement governs the pro rata share contribution for a traffic control device.

6. This Agreement will bind the heirs, executors, administrators, successors, and assigns of the respective Parties. No Party may assign, transfer or delegate any rights, obligations, or duties under this Agreement without the prior written consent of the other Party.

7. This Agreement is made and entered into for the sole protection and benefit of Owner, Tenant, and City and their permitted successors and assigns. No person other than Owner, Tenant, and City shall have any right of action based upon any provision of this Agreement.

8. Nothing contained in this Agreement shall create any partnership, joint venture or agency relationship between City, Owner, and Tenant.

9. This Agreement may only be amended in writing by the parties hereto.

10. This Agreement may be executed by City, Tenant, and Owner in multiple counterparts, each of which shall be considered an original, and all of which shall constitute a single agreement.

11. The laws of the State of Nevada shall govern the interpretation and construction of this Agreement. The Parties consent to the jurisdiction of, and agree that disputes will be resolved by, the courts of the First Judicial District Court of the State Of Nevada in Carson City.

12. Pursuant to NRS 239.010, information or documents may be open to public inspection and copying. City will have the duty to disclose particular information or documents, unless they are made confidential by law or a common law balancing of interest.

13. The Parties represent and warrant that the person executing this Agreement on behalf of each respective Party has full power and authority to enter into this Agreement.

14. No Party shall be deemed to be in violation of this Agreement if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, acts of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds or storms. In such an event the intervening cause must not be through the fault of the Party asserting such an excuse, and the excused Party is obligated to promptly perform in accordance with the terms of the Agreement after the intervening cause ceases.

(The remainder of this page is blank; the signature blocks continue on the next page.)

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year written above.

OWNER:

By: _____

Its: Principal

TENANT:

By: _____

Its: Principal

CITY:

Daniel Stucky, P.E.
City Engineer



Carson City Regional Transportation Commission
Item for Commission Information

RTC Meeting Date: November 13, 2019
To: Regional Transportation Commission
From: Justin Tiarney, Street Supervisor
Date Prepared: October 31, 2019
Subject Title: Street Operations Activity Report
Staff Summary: Monthly Status Report for the Commission’s Information

**Carson City Public Works, Street Operations Division
Status Report to RTC: Activities of September 2019**

Street Repair and Maintenance

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Crack Seal Operation (blocks of sealant used)	0	-
Street Patching Operation (tons of asphalt)	66	141
Pot Holes Repaired	0	-

Tree Care and Maintenance

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Tree Pruning Operations	46	426
Tree Removal	7	9
Tree Replacement	0	3
Tree Care Chemical Treatment	0	0
Tree Work for Other Departments	0	3
Weed Abatement Chemical Sprayed (gallons applied)	0	3300

Concrete Repair and Maintenance

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Concrete Poured (yards)	31	116
Curb & Gutter (linear feet)	339	797
Sidewalk & Flat Work (sq/ft)	448	3464
Wheel Chair Ramps	0	0
Misc.	0	245

Grading and Shoulder Maintenance

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Dirt Road Work/Misc	Crews removed 400 yards of dirt on Sierra Vista to improve the drainage and falling debris.	340
Shoulder Work on Asphalt Roads	550	1505
Debris Cleaned	0	500

Storm Water

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Sediment Removed from Ditches (yards)	72	373
Lineal foot of ditch cleared	0	1427
Pipe Hydro Flushed (linear feet)	0	420
Drainage Inlets Cleaned	0	0
Sediment Removed from Ditches (yards)	72	373

Sweeper Operations

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Curb Miles Swept	699	1920
Material Picked Up (yards)	222	597
City Parking Lots Swept	4	11

Trucking Bins

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Bins Hauled for Waste Water Treatment Plant (yards)	27	102
Bins Hauled for Sweeping Operation (yards)	42	114
Equipment Transported for other Departments	0	0

Banner and Decorations Activities

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Banner Operations Carson Street	4	12
Changed Lamp Post Banners	0	0
Installed Christmas Decorations	0	0
Removed Christmas Decorations	0	0

Signs and Markings

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Signs Made	5	21
Signs Replaced	3	29
Sign Post Replaced	4	12
Signs Replaced due to Graffiti Damage	1	11
Delineators Replaced	1	13
Cross Walks Painted	46	150
Stop Bars Painted	51	131
Yield Bars Painted	14	70
Right Arrows Painted	17	22
Left Arrows Painted	99	121
Straight Arrows Painted	3	4
Stop (word) Painted	3	9
Only (word) Painted	11	11
Bike Symbol & Arrow	0	0
Install Street, bicycle, and pedestrian counters	6	22
Curb Painted (linear feet)	0	0

Weather Events

ACTIVITIES	QUANTITIES/COMMENTS	FYTD
Snow and Ice Control	0	0
Rain Event/Flood Control	0	0
Wind	0	0