

Regular Town Council Workshop

January 22, 2024

1:30 PM

Town Council Chambers

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I. ZOOM LINK FOR PUBLIC PARTICIPATION

To join, click the link or copy to your browser: <https://us02web.zoom.us/j/81038148578?pwd=cElrNkoyNXNWblkxVThNOFF4clhlZz09>

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II. CALL TO ORDER AND ROLL CALL

III. EXECUTIVE SESSION

Recess meeting to executive session to consider matters concerning litigation to which the governing body is a party or proposed litigation to which the governing body may be a party in accordance with Wyoming Statute 16-4-405(a)(iii).

IV. WORKSHOP ITEMS

- A. Snow King and Willow Stop Sign (Brian Lenz, 30 min)
- B. Community Solar (Tanya Anderson & Johnny Ziem, 20 min)
- C. Equity Task Force Recommendations (Susan Scarlata & Equity Task Force, 120 min, 3-5pm)

V. MATTERS FROM MAYOR AND COUNCIL

VI. UPCOMING AGENDA UPDATE

- A. Council Priorities and Upcoming Agendas

VII. ADJOURN

Please note that at any point during the meeting, the Mayor may change the order of items listed on this agenda. In order to ensure that you are present at the time your item of interest is discussed, please join the meeting at the beginning to hear any changes to the schedule or agenda.

STAFF REPORT



Meeting Date:	January 22, 2024	Meeting Title:	Workshop
Submitting Department:	Public Works	Presenter:	Brian Lenz
Agenda Item:	Snow King Ave at Willow St – 4-way stop analysis	Public Comment:	Yes

Purpose & Policy Considerations.

The purpose of this item is for Council to consider additional traffic control and or calming at the intersection of Snow King Avenue and Willow Street (the “Intersection”).



PHOTO 1. The Intersection looking east on Snow King Ave.

Requested Action.

Staff requests Council review the outcome and recommendations of the traffic analysis at the intersection and staff's recommendation and provide direction on how to proceed.

Recommendations.

Staff recommend converting the intersection of Snow King Ave. and Willow Street to a 4-way stop and studying the intersection for driver compliance and performance.

Background.

In 2022 the Town installed a safe route for bikes marked with temporary bollards within the parking isles on both sides of the street along Willow Street from Snow King Avenue to Gill Avenue from about May to October for the warmer biking season.

At the March 20, 2023, Town Council Workshop the council approved the Willow safe route again for 2023. As part of that Willow Street Safe Routes / Bollard discussion Council with a 3-2 vote directed staff to prepare a staff report to consider a 4-way stop at the intersection of Snow King Avenue and Willow Street.

PURPOSE: The discussion at the March meeting pertained to whether a 4-way stop at the Intersection would improve safety for non-motorized users transitioning from Snow King Avenue to Willow Street using the Willow Safe Route. While some councilors were prepared to approve the conversion to a 4-way at that meeting others were cautious about the repercussions of costs, a poor functioning 4-way stop, and impacts to staff to conduct a study. Staff advised that typically, per industry standard, an engineering analysis is performed prior to installing a stop sign.

PROCESS: To evaluate the Intersection staff hired the consultants Jorgensen Associates and ALTA to monitor vehicle, bicycle, and pedestrian traffic in the intersection during our July peak season and compile a Traffic Analysis Memo. In addition to the work with consultants, Town Staff reviewed Jackson Police Department collision records for the intersection and conducted a short speed study. Comments from various internal departments were also solicited regarding the Intersection and converting it to a 4-way stop.

Analysis & Key Policy Questions.

COLLISION STUDY: Collision data for the intersection shows six collisions at this intersection since January 1, 2018.

Considerations for the collision study: Not all collisions are reported, many more collisions were reported in the Snow King and Love Ridge parking lots, and past performance does not assure future results.

SPEED STUDY: While speed was not the primary concern of this analysis, time allowed for a one-week study in October. The Police Department completed a traffic speed study between October 17th and 26th. The study was conducted for both directions of travel on Snow King Ave. This showed the volumes of vehicles, and speed of vehicles. A summary of the findings is in Table 1 below. About 18% of the vehicle traffic in each direction exceeded the speed limit. In summary, speed limit compliance doesn't appear to be a significant issue, though there is potential for enforcement. While collisions are not desirable, damage and injury are significantly less severe at speeds less than 20 MPH, which is approximately the average speed recorded. For pedestrians, cyclists, and other vulnerable road users in a collision with a vehicle, the survival rate increases as vehicle speeds decrease.

	AVERAGE WEEKDAY	AVERAGE WEEKEND	TOTAL	Average Speed	85 th Percentile
UNITS	No. of Vehicles	No. of Vehicles	No.	MPH	MPH
EASTBOUND	3027	2882	29,165	20.18	26
WESTBOUND	1807	1447	16,892	20.63	26

TABLE 1: SUMMARY OF SPEED STUDY

Considerations of the speed study include: it is just 10 days of data during the off season, peak hour volumes correspond to the peak hour volumes in the traffic analysis, and stop signs should not be used for speed control.

TRAFFIC ANALYSIS: The purpose of the analysis was to evaluate how the Intersection operates under existing conditions, model how it will likely function as an all-way stop, and provide alternatives to the all-way stop. The Intersection is currently controlled as a two-way stop and with one travel lane in each direction on each road. Willow St and the Snow King Center Drive are controlled by stop signs. The speed limit on both roads is 25 MPH. Turning movement counts were collected on July 13, 2023 and July 15, 2023, respectively for weekday and weekend representation. The study considered the peak hours of travel in the AM and PM for weekdays and at midday for the weekends.

A capacity analysis was modeled to assess the existing conditions at the intersection. Overall, the intersection operates favorably on the Snow King Ave approaches and with minor delays at approaches: less than 5 seconds on Snow King Ave, and 10-15 seconds on Willow St. The 95th percentile queues on the side street report not exceeding 70 feet (approximately 3-4 vehicles) during all peak periods. The pedestrian delays in the NB and SB directions were under 6 seconds.

Another capacity analysis was modeled to assess the potential impacts that may be experienced if the intersection were converted to an all-way stop. *This would deprioritize the main direction of vehicle traffic along Snow King Ave and would instead place a higher value on stopping traffic to facilitate more comfortable crossing opportunities for the considerable pedestrian and bicycle traffic at the intersection.* Overall, the model shows the intersection operates favorably with minor delays, 7-10 seconds, on all approaches during all three peak periods. This is an improvement to delay for the movements on Willow St. compared to the existing conditions, but an increase to delay for Snow King Ave. The 95th percentile queues modeled do not exceed 95 feet (approximately 5 vehicles) during all peak periods with this only occurring on the westbound approach. The analysis concludes that a 4-way stop may provide some tangible comfort and safety benefits to the pedestrians and bicyclists crossing at this intersection.

A comparison summary of the two models' findings is below.

Table 8: 2-Way to 4-Way Stop Delay Comparison

Intersection	Weekday AM		Weekday PM		Weekend MD	
	2-Way	4-Way	2-Way	4-Way	2-Way	4-Way
Snow King Ave at Willow St	A/4.0	A/9.3	A/6.1	A/9.0	A/3.8	A/8.0
<i>Eastbound</i>	A/2.9	A/9.8	A/3.0	A/9.7	A/2.2	A/8.3
<i>Westbound</i>	A/0.7	A/8.9	A/0.2	A/8.6	A/0.2	A/8.0
<i>Northbound</i>	C/15.3	A/8.5	C/15.7	A/8.2	B/11.4	A/7.7
<i>Southbound</i>	B/12.5	A/8.5	B/14.5	A/8.4	B/10.9	A/7.6

– Delay in seconds per vehicle

While the traffic analysis considered only the type of control at the Intersection there are other geometric elements that could improve pedestrian/bicycle/vulnerable user safety further. These alternatives are more expensive, take more time, and may involve additional analysis than adding stop signs but have the potential to benefit walkers, bikers, and drivers in different ways working with the stop signs or possibly eliminating the stop signs. A summary of the proposed alternatives is below. There are a couple of additional options not listed in the memorandum but are discussed in the alternatives section below.



Table 9: Alternative Intersection Treatments

2-Way Stop Control	4-Way Stop Control	All-Way Yield Control (not analyzed)
Raised Intersection	Raised Intersection	Mini roundabout
RRFB install	Protected Intersection	
Protected Intersection		

See the attached memorandum for complete details on the analysis and the alternatives.

Considerations for the study:

- The study was performed in July and only considers one weekday and one weekend day of data.
- The study did not include any major events at the Snow King Events Center, e.g. hockey, or winter conditions when the Snow King Ski area is open for skiing.
- Due to construction at 580 S. Willow St. (northeast corner of the intersection) the pedestrian walk on the north side of Snow King Ave. was a temporary construction sidewalk in the parking lane.
- The traffic volumes on Willow including volumes to and from Snow King is about half of the total volume on Snow King.
- Large events at the Snow King Events Center or the Snow King Hotel Resort may create pedestrian counts from time to time that are outliers to the typical operations of the intersection. This is likely the cause of the high pedestrian count for the weekday PM peak hour.
- The basis for the analysis is a model and only attempts to predict outcomes, it does not control the intersection or guarantee the outcome. All modeling was done using existing volumes and future traffic projections were not considered.

CORRIDOR ANALYSIS: The location of the adjacent stop control on Snow King Avenue is roughly 900 feet to the west at Cache Street and on Willow Street is approximately 750 feet to the north at Kelly Avenue. To the east about 300 feet south bound traffic on Vine St. and Snow King Loop have stop signs. Westbound traffic from the Snow King Hotel resort does not have a stop sign at Vine. See Figure 1 below for a map of the established stop signs in the area. Many commuters and START also use Snow King Avenue to Vine Street as a connection to Kelly Avenue and onto Eastern Jackson. The use of Vine avoids traffic on Willow as well as drainage pans at Karns Avenue and Kelly Avenue. During the safe route season, traffic calming measures include a temporary staging area with bollards on the southeast corner of the intersection to better facilitate crossing for northbound bikers, no parking on the southside of Snow King for 70 feet east of the intersection and the bus stops west of the Intersection improve visibility for all users, and the curb is bulbed out to narrow the road east of the Intersection.

Considerations for the corridor analysis include: converting the Intersection to a 4-way stop will create a pattern of stop signs on Snow King Avenue to Maple Way corridor of an all-way stop about every 900 feet (excluding the corridor along

Karns Meadow from Flat Creek Drive to Karns Meadow Drive), alternative routes to avoid this stop sign are primarily Kelly Ave. and Pearl Ave., the Willow safe corridor is currently only in place from May through October.

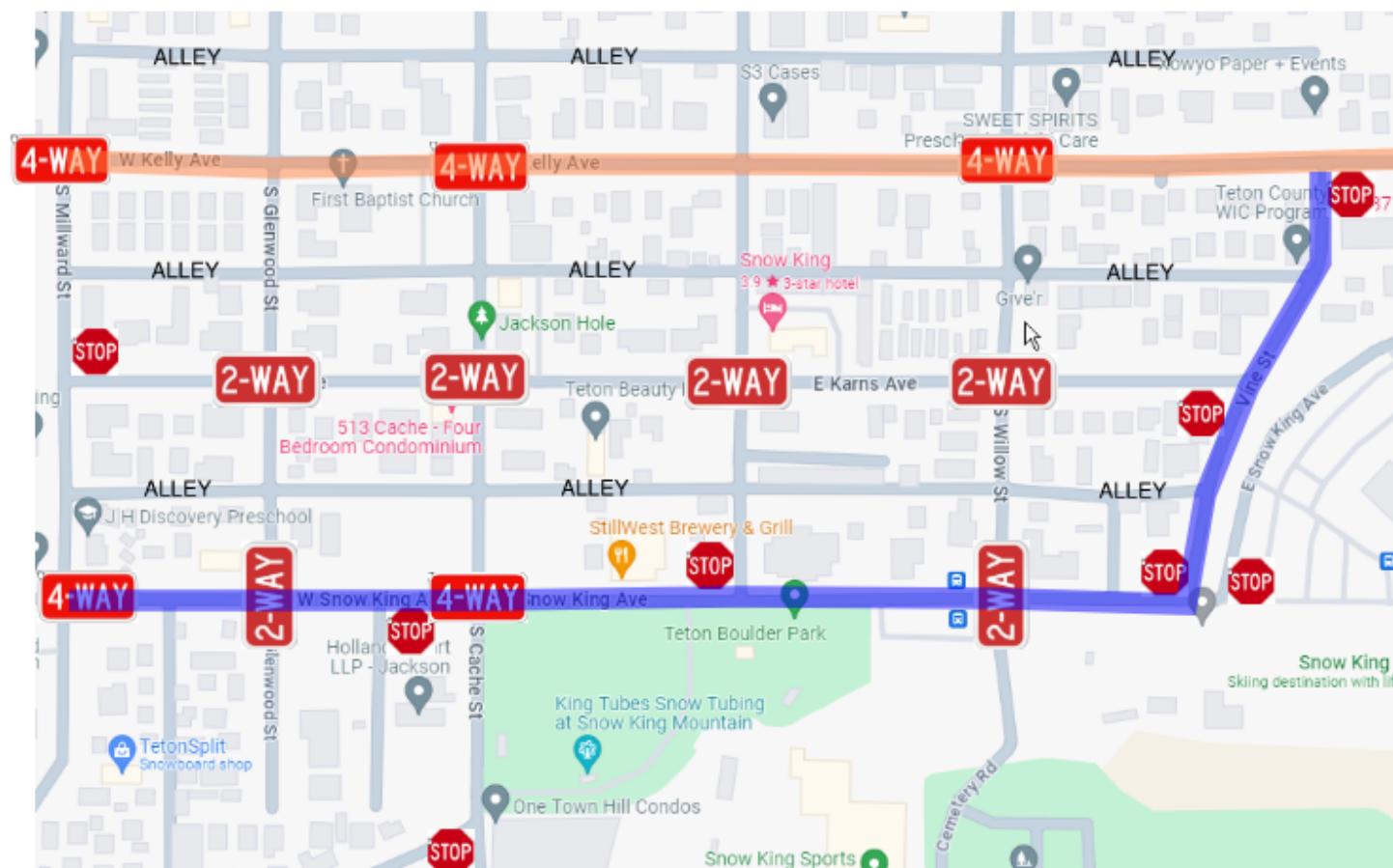


FIGURE 1: Established Stop signs in the vicinity of the INTERSECTION. 2-WAY stops are oriented in the direction of the stopped traffic and single Stop signs are located where only one leg of an intersection stops.

ALTERNATIVES ANALYSIS: Staff requested the alternatives analysis be included in the traffic analysis memorandum to educate staff, council, and public regarding the alternatives to the traditional stop sign, with the hope that ultimately when issues with intersections arise in the future the request is not to just add a stop sign but to consider all the possibilities to improve an intersection. The premise of the stop sign is that drivers will abide by it, at all times, 24 hours a day, 7 days a week, regardless of the conditions and if they don't then they will be cited for a moving violation. However, when a stop sign is installed in a location where it does not fulfill a need, command attention, garner the respect of the drivers, or see consistent enforcement, it may not be an effective tool. Whereas, a well-suited alternative treatment will fulfill the desired need, when needed, with attention, and garner the respect of all users, reducing confusion and allowing optimal use of the intersection.

For the sake of this discussion the following alternatives are most relevant at this juncture, but other treatments should be considered when contemplating future improvements.

All-way Stop:

- This is the Council requested alternative and involves converting the intersection to an all-way stop by installing two new stop signs on Snow King Ave.

- PROS: Is a quick and cost-effective solution. Traffic analysis shows that it will improve intersection performance for the north-south traffic on Willow. When stops are adhered to, it provides more comfortable crossing opportunities for pedestrians, bikers, and other vulnerable users.
- CONS: The default action for the intersection is that every vehicle stops every time and any time of the day regardless of activity in the intersection. Non-compliance may lead to a more dangerous intersection with a false sense of security for non-motorized users and potential for additional demands for enforcement. If the stop signs are not expected by drivers there is an increased potential for rear end collisions. Possible increases in vehicle speeds leaving the intersection or traffic shifts to other roads to avoid the stop signs. Will delay START bus routes. While delays on Willow are reduced, the delay along Snow King Avenue is almost doubled. While still within the tolerable range of delay the stop sign does increase the travel time for the higher volume road at the expense of improving travel time for the lower volume road. From the vehicle perspective the intersection functions well as is.
- Cost: Approximately \$1,200 plus staff labor, includes two stop ahead signs in addition to the new stop signs.

Rectangular Rapid Flashing Beacons (RRFB):

- Rectangular Rapid Flashing Beacons (RRFB) are pedestrian activated warning lights that flash with a yellow alternating pattern to alert vehicles to the presence of a pedestrian at the crossing. Cyclists can use these as well. If concerns arise about cyclists not pressing the push button, other devices such as radar or thermal cameras can be used to automatically activate the beacon. The RRFB shows a high percentage of yield compliance from previous studies.
- PROS: Activated as needed, Higher yield rates for pedestrians, Quick build and easy installation. Has an option for a flashing border ring on the pedestrian crossing sign in addition to the RRFBs. WYDOT installed signs with the border ring lights activated by pedestrians on W Broadway at El Abuelito and Mountain Modern, so it may be a familiar alternative to drivers.
- CONS: Bikes may not push the buttons, may require assemblies on both sides of the intersection. Sunrise and sunset light conditions may diminish the effect of the flashing beacons.
- Cost: \$10,000-15,000 depending on solar versus wired installation.

Raised Crosswalk

- Raised crosswalks are raised intersections' little brother and not dissimilar to a glorified speed bump. They are intended to slow down traffic entering the intersection, provide awareness for all users, and raise pedestrians and bikers to a higher height for better visibility. They are not mentioned in the memorandum but are included by staff as a more feasible option to the raised intersection.
- PROS: Always present and slows vehicles down at the intersection.
- CONS: Drainage modifications or ramping needed.
- Cost: Approximately \$15,000

Speed Bump (or Dip)

- Staff includes this as a possible quick-build or lower cost alternative that involves installing a prefabricated speed bump anchored across the road on the east and west sides of the intersection.
- PROS: Affordable and temporary alternative for the summer bike season while the Willow safe route is in place. Alerts drivers that the intersection requires attention and slower speeds. The raised option exists in the

Cottonwood Park Rangeview neighborhood. The dip option would remain in place for the winter and be plowable, reducing staff time to maintain. The dip option is similar to the valley gutter at Willow St. and Karns Ave. (though it would be less severe) that inherently slows driver speeds crossing the intersection.

- CONS: For snow removal operations the raised option would need to be removed for the winter season. The dip option is not as cost-effective and drainage for the dip option may be a challenge. Similar to our experience with public requests for stop signs, there will likely be an increase in requests for this treatment at other intersections, which would require policy development.
- Cost: Temporary speed bump \$1,500-5,000 depending on type of speed bump purchased; Speed dip approximately \$8,000.

Other Options: There are more options than those discussed above, which does not necessarily mean that they are bad options, just that they did not seem as applicable at this time. That said, staff are open to provide information about them, and possible quick-build or permanent options to implement.

MUTCD ANALYSIS: Published by the Federal Highway Administration (FHWA), the Manual on Uniform Traffic Control Devices (MUTCD) defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel. The MUTCD has established guidance to support engineering judgement on how to establish intersection control in a uniform manner. Based on the Collision Study, Speed Study, and Traffic Analysis this intersection does not meet the standard criteria for implementing an all-way stop. However, there is a desire to control vehicle conflicts with pedestrians and bikers which is one of the alternative criteria in the MUTCD.

Considerations for the MUTCD Analysis: Application of the MUTCD in this case is not a simple objective conclusion. The imbalance of traffic volumes and location of the intersection in the corridor may not be significant enough to warrant a stop sign or for drivers to expect the stop sign. There are improvements to the intersection that can be made that benefit the pedestrian/biker without the use of a stop sign.

The complete MUTCD standards, guidance, and support pertaining to stop signs can be found here: [MUTCD 2B.04-07](#).

OTHER CONSIDERATIONS: Other considerations and impacts of additional stop signs are impacts to transit, environmental impacts, economic impacts, changes in traffic patterns, and changes in driver habits.

With regards to transit, START provided basic comments regarding stop signs in general and relative to this particular location. In general, a stop sign that assists in the turning movement of a bus is beneficial and likely streamlines operations, whereas a stop sign that stops a bus on a through route will add time to the route. At present, Snow King Avenue is a through route and the addition of stop signs on Snow King Avenue at Willow Street would increase route time.

The resources on the environmental impacts of a stop sign are scattered and varied in their findings. Some attempted to quantify emissions of a stop and others were aggressive in promoting the removal of stop signs for environmental reasons. In general, it can be summed up that the longer a vehicle runs the more it will exhaust, thus leading to increases in pollution. The primary concern for the Town may be the increase in exhaust from START buses and increased run times. While minor for any individual user, for a fleet of buses operating almost continuously the impacts are more severe.

Similar to environmental impacts, the longer a vehicle trip takes the more energy is expended and in turn the more cost to supply the energy. Similar to environmental impacts above, the economic impacts to the individual user are not significant, but for the Town and our fleet of START buses there will be a cumulative cost.

New stop signs may lead to a change in driving patterns when drivers change their routes to avoid the new stop signs, which in some cases may put more traffic on roads that are not designed for higher volumes or increase the speed on those roads. In this case, it is likely that this additional stop may reduce the number of drivers using Vine Street to get from Kelly to Snow King Ave. and shift them to stay on Kelly and either use Willow or Cache to get to Snow King Ave. or vice versa. That said, it is difficult to predict actual changes in driving patterns. Figure 1 above shows that there are not many alternatives in this area, unless changes were made along Karns Ave.

Of course, the addition of the stop sign could possibly create the opposite effect of the described impacts by creating such delay that a driver chooses to leave the car at home and ride their bike or walk and utilize the stop to improve their trip. Staff does not expect this to happen at any significant scale.

CONCLUSIONS: Staff's preference is establishing road and intersection geometries in conjunction with calming features that allow safe and efficient travel on the Snow King Avenue corridor for all users without the use of stop signs. In the interim, staff recommends converting the intersection to a 4-way stop and studying the intersection for driver compliance. A successful 4-way stop implementation would see at least 85% compliance and service levels comparable to or better than the analysis modeling.

- Key Question #1: Does Council agree with Staff's recommendation for the interim to install a 4-way stop and study the intersection for driver compliance or would they prefer to proceed with one of the alternatives?

Possible Alternatives.

1. Status quo – maintain only the existing stops on Willow Street and the Snow King Events Center Drive.
2. Convert the intersection to an all-way stop, adding two additional stop signs with STOP AHEAD signs on Snow King Ave. on the east and west approaches.
3. Install Rectangular Rapid Flashing Beacons to be activated by pedestrians and bikers when they need to cross.
4. Direct Staff to pursue an alternative intersection design (speed bump/dip, protected intersection, raised intersection, mini-roundabout, any combination of the preceding, etc.).
5. Conduct a further study during the peak winter season to check for a warrant based on traffic volumes during the peak ski and Snow King Center season.
6. Other as directed by Council.

Comprehensive Plan & Priority Alignment.

The Project aligns with the following Comprehensive Plan elements:

- Common Value #3 *Quality of Life*
 - Principle 8.1 Maintain current, coordinated service delivery.

Fiscal Impact.

The cost of the traffic counts was \$1,085, at a discount. Use of cameras and AI significantly reduced cost of a typical intersection analysis. The cost of the traffic analysis and memo was \$6,275. This was the first analysis of this type with ALTA and included an Alternatives Analysis and it is expected that future analyses may be less.

Refer to estimated installation costs for the options stated in the Alternative Analysis sub-section above. Depending on the alternative selection and the installation funding could be handled with existing budgeted street funds, an amendment to the FY24 budget for pre-July 1 installation, or budgeted for in FY 25 for post July 1 installation.

Cost for compliance monitoring varies depending on the scope and methodology. An intern could do sporadic monitoring as part of their work, radar systems lease for about \$3,000 to \$5,000 per month, or we could invest in our own traffic camera for about \$8,000 plus analysis fees. While using cameras with AI for stop sign compliance is improving, radar

technology is the standard for enforcement and citation. The company that provides the radar system may be interested in providing a discount for a governmental study program. These costs are budgeted for in professional services.

Staff Impact.

The Town Engineer and Public Works Director contributed approximately 8 hours managing the traffic analysis and reviewing alternatives, and 16 hours preparing this staff report. Staff from Administration and Legal Departments, the Regional Transportation Planning Administrator, the Police Department, and the Pathways Coordinator contributed approximately another 10 hours total reviewing these items. The total combined is approximately 34 hours of staff time.

The estimated time for Engineering to manage consultant and design is about 8 hours, depending on the direction from Council.

The estimated time to manage construction/installation is about 12 hours of engineering time, depending on the direction from Council.

Attachments or Links.

1. Alta Traffic Analysis Memorandum – 9/28/2023
2. WYDOT Collision Study
3. Town Speed Study
4. Intersection Safety Myth – Intersection Safety Brief

Suggested Motion.

I move to direct staff to convert the intersection of Snow King Ave. and Willow Street to a 4-way stop and study the intersection for driver compliance and performance *[or Council's alternate direction]*.



To: Brian Lenz, PE, Town of Jackson, WY

From: Matt Fralick, PE, PTOE; Joe Gilpin; Alta Planning + Design

Date: September 28, 2023

Re: Snow King Ave and Willow St Traffic Analysis

Introduction

In April 2023, the Town of Jackson reached out to Alta Planning + Design (Alta) to perform a traffic analysis for the intersection of Snow King Ave and Willow St. The Town would like to better understand the operations of an all-way stop controlled intersection in regards to all users. With close proximity to the Snow King resort and the parking lot leading to the Snow King Sports and Events Center, this intersection experiences a high volume of pedestrians and bicycles, as well as having a START bus stop in close proximity. The intersection also recently became an important node in the Town's protected bike lane network with seasonal bollard protected bike lanes along Snow King Ave to the west, which now connect to the Town Center through an extension onto Willow Street with a new protected bike lane that was first installed in 2022. The intersection is a key pedestrian and bicycle focal point. The following memo provides a detailed analysis of the intersection, how it operates today and whether or not the intersection will continue to operate well if it is converted to an all-way stop.

Existing Conditions

The intersection of Snow King Ave and Willow St is currently a two-way stop-controlled intersection with one lane in each direction. Willow St runs in the north-south direction, and Snow King Ave runs in the east-west direction. Willow St is controlled by stop signs. The west leg of the intersection includes bus stops on both sides of the roadway. The southern leg of the intersection leads to the Ice Arena parking lot and the Aspen Hill Cemetery. The east leg of the intersection leads to the Snow King Mountain Resort. The north leg of the intersection leads to Downtown through a residential area. The posted speed limit on Snow King Ave is 25 miles per hour. The posted speed limit on Willow St is 25 miles per hour. Figure 1 shows the project site and the surrounding land use.

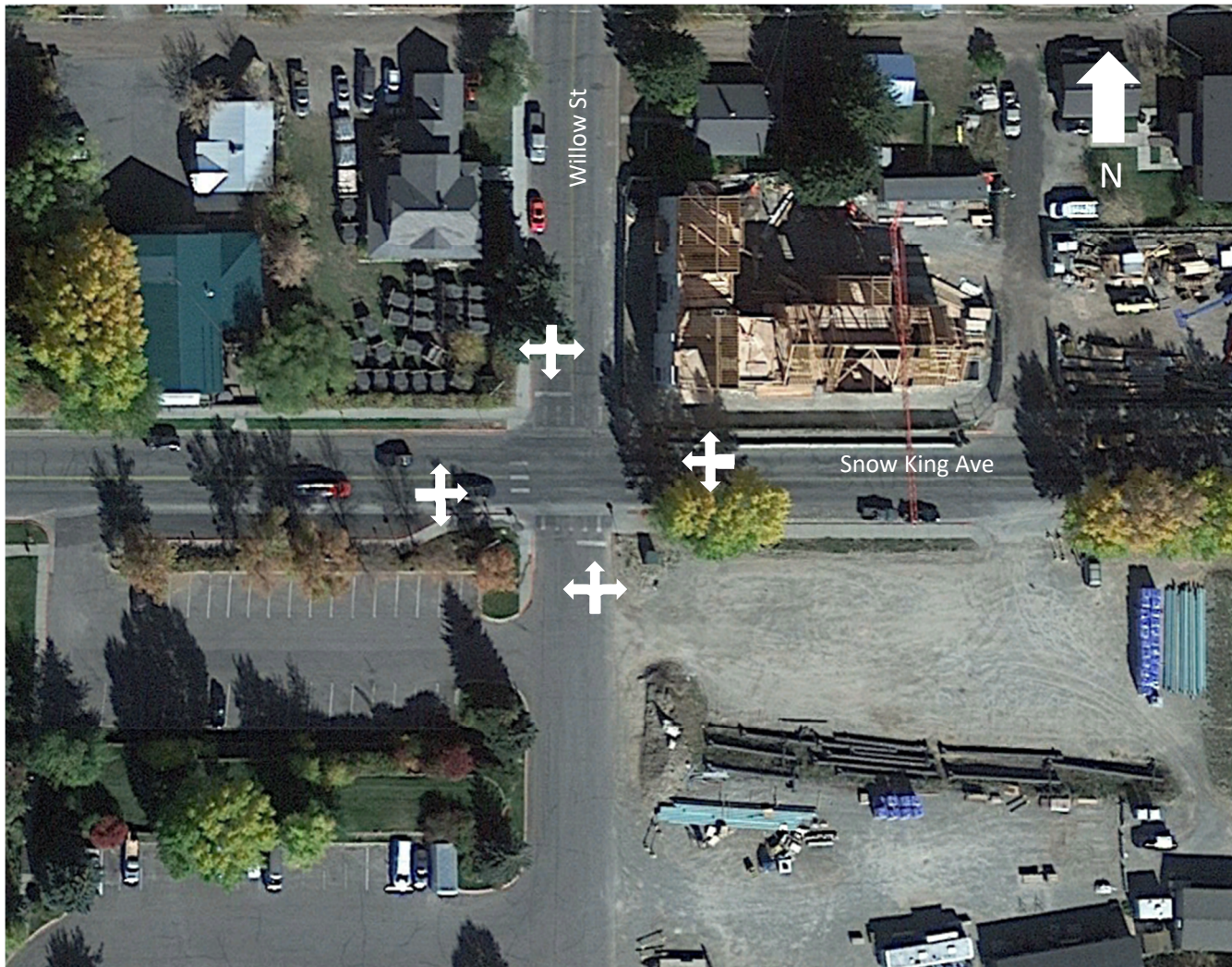


Figure 1: Existing Conditions of Snow King Ave and Willow St

Turning movement counts were collected at the project intersection on Thursday, July 13, 2023, from 7:00 AM to 9:00 AM and from 4:00 to 6:00 PM. Weekend counts were collected on Saturday July 15, 2022, from the 10:00 AM to 2:00 PM. These days were chosen to represent the summer “high season” peak and should be representative of the largest volume of traffic this intersection would experience without special events. The peak hours were found to be 8:00 to 9:00 AM and from 4:30 to 5:30 PM during the weekday and from 1:00 to 2:00 PM on the weekend.

Table 1 shows the existing AM, PM, and weekend midday (MD) counts for the project intersection. Table 2 shows the total AM, PM, and weekend MD vehicle and bike totals during the peak 1-hour. The collected turning movement counts can be found in **Appendix A**.

Table 1: Weekday AM, PM, and Weekend MD Peak 1-Hour Turning Movement Counts

Intersection	Weekday AM				Weekday PM				Weekend MD			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
Snow King Ave at Willow St												
Eastbound Vehicles	83	88	51	19	88	132	12	14	45	103	8	21
Bikes	20	10	8	-	24	16	1	-	20	10	0	-
Westbound Vehicles	10	96	12	8	3	90	16	56	2	74	15	0
Bikes	0	5	0	-	0	12	0	-	1	10	0	-
Northbound Vehicles	15	3	6	37	15	6	9	262	11	5	8	112
Bikes	3	0	1	-	4	2	1	-	1	4	0	-
Southbound Vehicles	11	15	51	4	22	4	118	15	15	4	47	5
Bikes	2	0	8	-	1	2	32	-	5	2	15	-

Table 2: Weekday AM, PM, and Weekend MD Peak 1-Hour Totals

Intersection	Weekday AM		Weekday PM		Weekend MD	
	Vehicles	Bikes	Vehicles	Bikes	Vehicles	Bikes
Snow King Ave at Willow St						
Eastbound	222	38	232	42	156	30
Westbound	118	5	109	12	91	11
Northbound	24	4	30	7	24	5
Southbound	77	10	144	35	66	22

Capacity analysis was conducted using Synchro version 11 to assess the existing conditions at the intersection. Reports were created to provide the delay and level of service (LOS), as well as 95th percentile queues. LOS is a measure of the delay experienced by stopped vehicles at intersections. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers. The delay limits for each category, based on the *Highway Capacity Manual*, sixth edition, are shown in Table 3.

Table 3: Level of Service Delay Limits

LOS	Unsignalized Intersection Delay per Vehicle (sec/veh)
A	≤10.0
B	10.1–15.0
C	15.1–25.0
D	25.1–35.0
E	35.1–50.0
F	> 50.0

Due to Synchro's limited capabilities with bike volumes the operational impacts of the significant existing bicycle activity are difficult to account for. It should be noted that there is no industry accepted practice for this analysis, consequently a methodology must be created from assumptions, which are noted as follows:

- Through bike movements in the east-west directions were not modeled as they could run concurrently with through vehicle movements when traversing the intersection.
- Left turn bike movements were added to the vehicle left turning movement counts and the right turn bike movements were added to the vehicle right turning movement counts. To account for some bike movements having two or more riders make the turn at the same time, the left turn bike movements were reduced by 25% and the right turn bike movements were reduced by 75%. The right turns were reduced at a higher percentage rate since they can slip around traffic easier without increasing vehicle delay.
- Note that the volume adjustment will have a greater effect on the 4-way stop controlled analysis than the existing conditions.

The existing conditions were modeled in Synchro using the collected turning movement counts for both the weekday AM and PM peaks, as well as the Weekend MD peak conditions. Table 4 reports the delay in seconds per vehicle and the corresponding LOS for the existing conditions AM and PM peaks. Table 5 reports the 95th percentile queues in feet for the existing conditions in the AM and PM peaks. Overall, the intersection operates favorably with an LOS of A on the Snow King Ave approaches and an LOS of B to C on the Willow St approaches in both the AM and PM peaks, respectively. The 95th percentile queues on the side street report not exceeding 70 feet (approximately 3-4 vehicles) during all peak periods. The pedestrian delays in the NB and SB directions were under 5 seconds and 6 seconds in the AM and PM peak, respectively. The pedestrian delay in the NB and SB directions for the weekend MD peak was under 5 seconds. The Synchro reports can be found in **Appendix B**.

Table 4: Existing Conditions Operational Analysis

Intersection	Weekday AM		Weekday PM		Weekend MD	
	LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²
Snow King Ave at Willow St	A	4.0	A	6.1	A	3.8
<i>Eastbound</i>	A	2.9	A	3.0	A	2.2
<i>Westbound</i>	A	0.7	A	0.2	A	0.2
<i>Northbound</i>	C	15.3	C	15.7	B	11.4
<i>Southbound</i>	B	12.5	B	14.5	B	10.9

1 – Level of Service – see Table 2

2 – Delay in seconds per vehicle

Table 5: Existing Conditions 95th Percentile Queue Summary

Intersection	Weekday AM			Weekday PM			Weekend MD		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Snow King Ave at Willow St									
<i>Eastbound</i>	-	40	-	-	55	-	-	30	-
<i>Westbound</i>	-	20	-	-	27	-	-	20	-
<i>Northbound</i>	-	50	-	-	46	-	-	42	-
<i>Southbound</i>	-	61	-	-	70	-	-	49	-

– Units are in feet

4-Way Stop Scenario

In addition to the existing conditions, the project team modeled the potential impacts that may be experienced if the intersection were converted to an all-way stop. This would deprioritize the main direction of vehicle traffic along Snow King Ave and would instead place a higher value on stopping traffic to facilitate more comfortable crossing opportunities for the considerable pedestrian and bicycle traffic at the intersection.

The 4-way stop conditions were modeled in Synchro using the same counts as the existing conditions. Table 6 reports the delay in seconds per vehicle and the corresponding LOS for the existing conditions AM and PM peaks. Table 7 reports the 95th percentile queues in feet for the 4-way stop conditions in the AM, PM, and weekend peaks. Table 8 reports the LOS and delay in seconds for all peak periods between the 2-way stop and the 4-way stop analysis. Overall, the intersection operates favorably with an LOS of A on all approaches during all three peak periods. This is an improvement to delay for the movements on Willow St. compared to the existing conditions. The 95th percentile queues modelled do not exceed 95 feet (approximately 5 vehicles) during all peak periods with this only occurring on the westbound leg. In reality, these queues may be slightly smaller as the software is treating some bikes as cars with the bikes being in the bike lane in actuality and not occupying space in the travel lane. This is a minor increase to queueing compared to the existing conditions. Figure 2 shows the max 95th percentile queues compared to each other for the existing conditions and 4-way stop conditions. The Synchro reports for the 4-way stop scenario can be found in **Appendix C**.

Table 6: 4-Way Stop Operations Analysis

Intersection	Weekday AM		Weekday PM		Weekend MD	
	LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²
Snow King Ave at Willow St	A	9.3	A	9.0	A	8.0
<i>Eastbound</i>	A	9.8	A	9.7	A	8.3
<i>Westbound</i>	A	8.9	A	8.6	A	8.0
<i>Northbound</i>	A	8.5	A	8.2	A	7.7
<i>Southbound</i>	A	8.5	A	8.4	A	7.6

1 – Level of Service – see Table 2

2 – Delay in seconds per vehicle

Table 7: 4-Way Stop 95th Percentile Queue Summary

Intersection	Weekday AM			Weekday PM			Weekend MD		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Snow King Ave at Willow St									
<i>Eastbound</i>	-	76	-	-	95	-	-	63	-
<i>Westbound</i>	-	66	-	-	70	-	-	63	-
<i>Northbound</i>	-	50	-	-	49	-	-	41	-
<i>Southbound</i>	-	60	-	-	70	-	-	51	-

– Units are in feet

Table 8: 2-Way to 4-Way Stop Delay Comparison

Intersection	Weekday AM		Weekday PM		Weekend MD	
	2-Way	4-Way	2-Way	4-Way	2-Way	4-Way
Snow King Ave at Willow St	A/4.0	A/9.3	A/6.1	A/9.0	A/3.8	A/8.0
<i>Eastbound</i>	A/2.9	A/9.8	A/3.0	A/9.7	A/2.2	A/8.3
<i>Westbound</i>	A/0.7	A/8.9	A/0.2	A/8.6	A/0.2	A/8.0
<i>Northbound</i>	C/15.3	A/8.5	C/15.7	A/8.2	B/11.4	A/7.7
<i>Southbound</i>	B/12.5	A/8.5	B/14.5	A/8.4	B/10.9	A/7.6

– Delay in seconds per vehicle

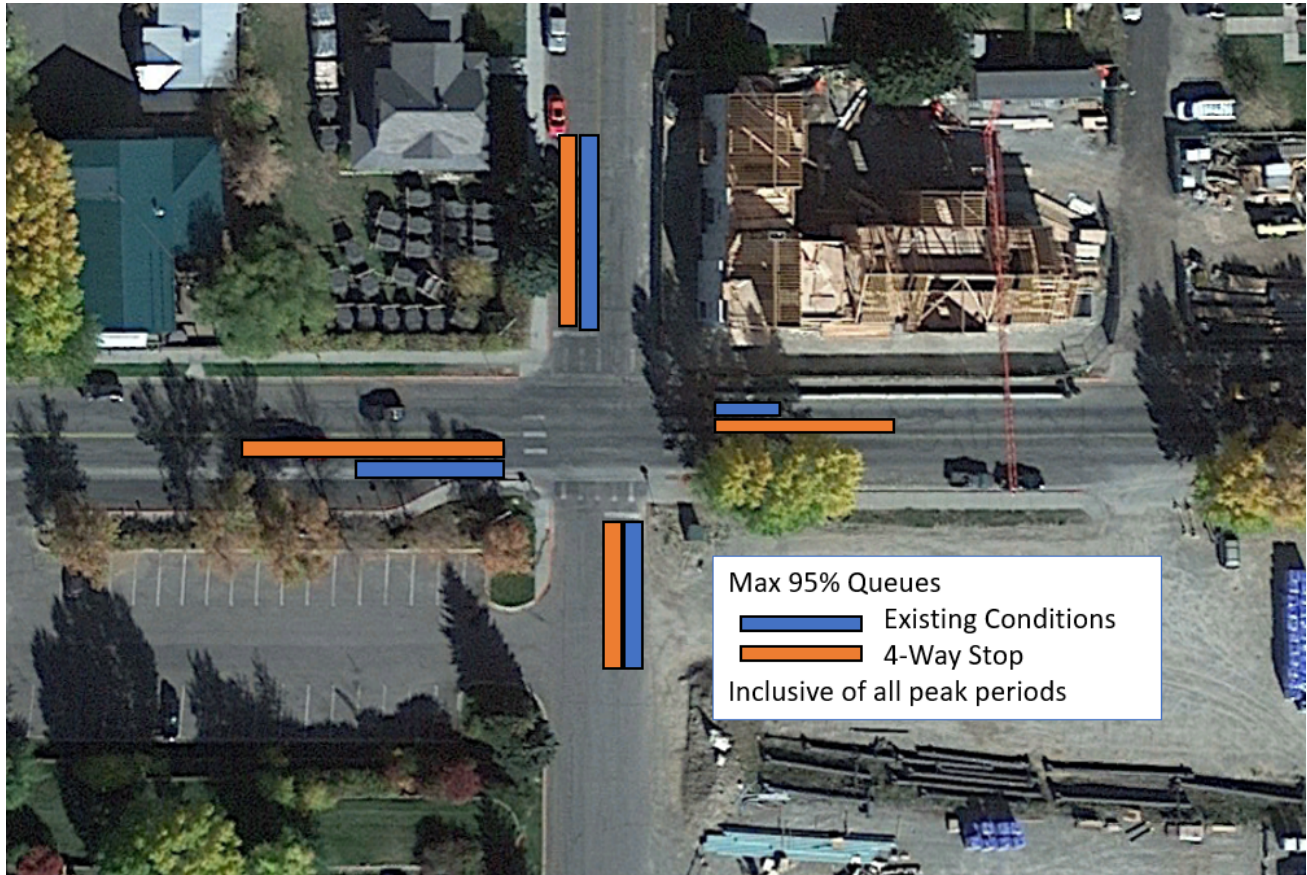


Figure 2: Comparison of Max 95th Percentile Queues

Alternative Solutions

The traffic analysis in this memo considers only the type of control at the intersection rather than other geometric elements that could improve pedestrian and/or bicycle safety further. It should be noted that adding stop signs is an inexpensive and quick improvement; however, there are other improvements that can be implemented that will benefit people walking, biking and driving in different ways within the same types of intersection control. These options are presented in table 9, though they may involve additional analysis, funding, and time to implement.

Table 9: Alternative Intersection Treatments

2-Way Stop Control	4-Way Stop Control	All-Way Yield Control (not analyzed)
Raised Intersection	Raised Intersection	Mini roundabout
RRFB install	Protected Intersection	
Protected Intersection		

Mini Roundabout

A mini roundabout at this location would have an approximate diameter of 25 feet and provide a physical object in the roadway that all vehicles would have to traverse around. Mini roundabouts can be installed as a permanent installation or as a quick build option using flex post, planters, or some other material. Mini roundabouts are great at controlling speeds through intersections but can make left turn movements for heavier vehicles (fire, transit) difficult. The following are a few pros and cons for mini roundabouts.

Pros:

- Helps reduce speeds through the intersection
- Quick build installation options

Cons:

- Plowing issues if snowfall is high and covers the infrastructure
- Larger vehicles have trouble making turn movements



Mini-Roundabout

Raised Intersection

A raised intersection would elevate the entire intersection at the crossing, providing a vertical grade change for vehicles in all directions when entering the intersection. This treatment will slow down vehicles entering the intersection and provides more awareness to all users. With the amount of water or runoff from the surrounding area

the intersection may experience, drainage could prove a challenge. The following are a few pros and cons for raised crossings.

Pros:

- Slows vehicles down at the intersection
- Awareness drawn to the crossing in regard to all users

Cons:

- Drainage modifications needed with implementation
- Expensive for a full build
- Plowing concerns



Raised intersection

Rectangular Rapid Flashing Beacon

Rectangular Rapid Flashing Beacons (RRFB) are pedestrian activated warning lights that flash with a yellow alternating pattern to alert vehicles to the presence of a pedestrian at the crossing. Cyclists can use these as well. If concerns arise to cyclists not pressing the push button, other devices such as radar or thermal cameras can be used to automatically activate the beacon. The RRFB shows a high percentage of yield compliance from previous studies. The following are a few pros and cons for RRFB's.

Pros:

- Higher yield rate for pedestrians
- Quick-build and easy installation
- Relatively inexpensive compared to a full build out of the intersection

Cons:

- Bikes may not push the push button, though there are alternatives to help handle this
- May require a RRFB assemblies on both the east and west legs of the intersection



RRFB on the South Park Loop Pathway

Protected Intersection

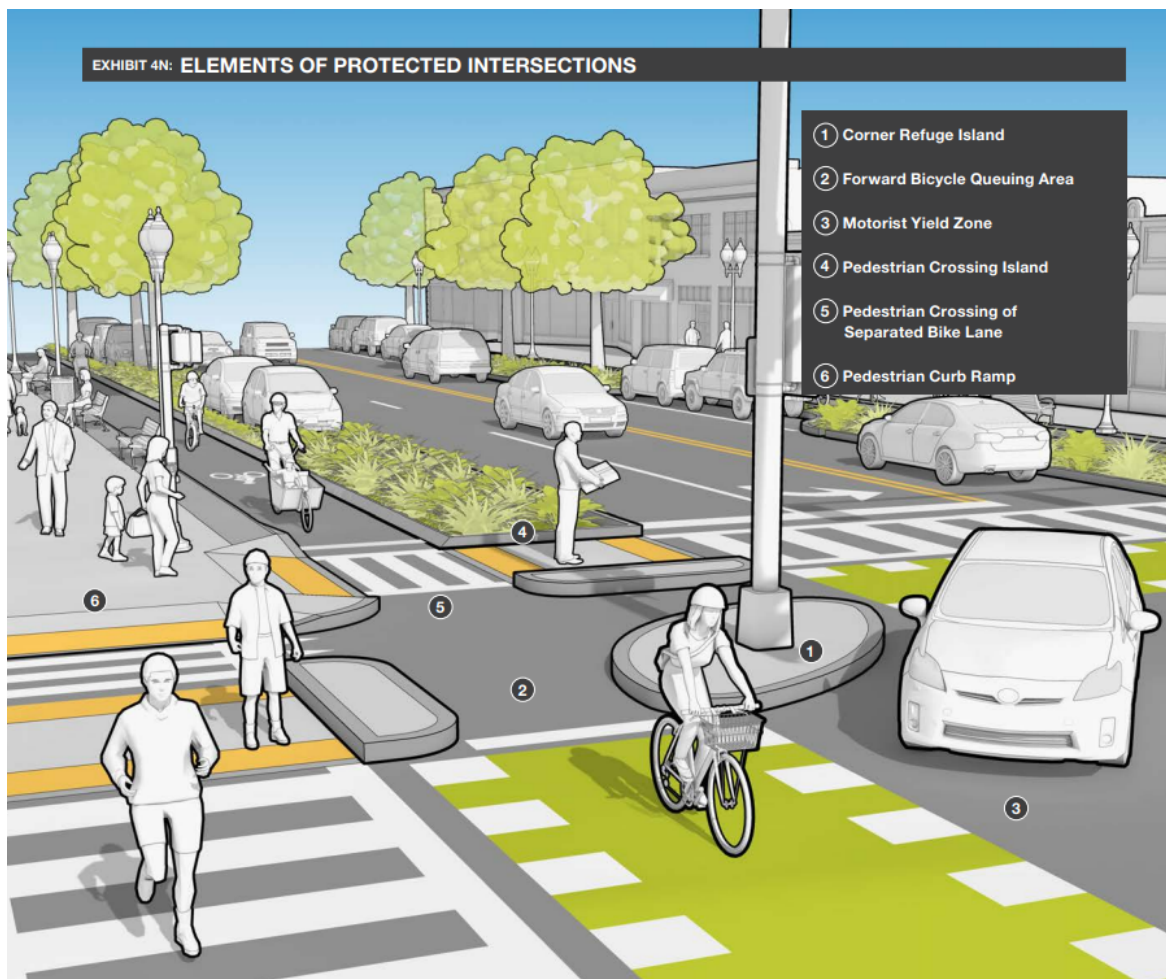
A protected intersection would provide space for pedestrians at the corners of the intersection to wait, in addition to shortening the length of the crossing. The bump outs on each corner will decrease the width of the available space at the intersection causing vehicles to slow down through it. Jackson is currently designing two similar protected intersections. This example at King/Gill would be similar in concept to Willow/Snow King. The following are a few pros and cons for the protected intersection. A protected intersection can be implemented with either 2-way or 4-way stop control.

Pros:

- Shortens pedestrian crossing
- Slows vehicles through the intersection

Cons:

- Full reconstruction of the intersection required



Elements of a Protected Intersection

Picture Credit to MassDOT Separated Bike Lane Planning & Design Guide, Chapter 4

Conclusion

The intersection of Snow King Ave and Willow St operates favorably from the perspective of vehicle delay in the existing conditions, though pedestrian and bicycle operations for crossing users may not be comfortable. The 95th percentile queues remain under 100 feet in both options and the overall intersection operates at a LOS B or better during all peak periods. Converting the intersection to a 4-way stop would not cause significant travel delay to motorists and may provide some tangible comfort and safety benefits to the substantial volumes of pedestrians and bicyclists crossing at this intersection. Delay becomes more balanced with slightly increased delays (still within LOS A range) in the EB and WB directions with queues and delay decreasing slightly in the NB and SB directions. Regarding the other options, all of the alternatives could work well with the exception of the mini roundabout due to the difficulty heavy vehicles would have making left turns. The Town of Jackson can be confident in any of the options dependent on funding, timing and interest.



Appendix A

Processed Turning Movement Counts

Intersection: E Snow King Ave at S Willow St

Time Collected: 7:00 - 9:00 AM

Date Collected: 7/13/2023

Peak Hour: 8:00 - 9:00 AM

		SB			WB			NB			EB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
AM	Vehicle	1	2	18	2	16	3	1	0	1	17	20	4
		1	4	11	2	17	2	4	1	0	15	13	14
		2	3	9	2	18	1	4	0	2	12	22	8
		4	6	8	4	39	5	2	2	2	22	29	23
	HV	1	0	3	0	6	1	1	0	0	2	4	0
	TOTAL	11	15	51	10	96	12	15	3	6	83	88	51
	HV%	13%	0%	7%	0%	7%	9%	9%	0%	0%	3%	5%	0%
	PHF	0.92			0.61			1.00			0.75		
	Bikes	2	0	8	0	5	0	3	0	1	20	10	8
	Peds	4			8			37			19		

Intersection: E Snow King Ave at S Willow St

Time Collected: 4:00 - 6:00 PM

Date Collected: 7/13/2023

Peak Hour: 4:30 - 5:30 PM

		SB			WB			NB			EB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
PM	Vehicle	7	0	28	0	22	6	5	3	2	17	24	4
		4	0	30	0	34	3	2	0	0	12	29	3
		6	2	27	2	18	2	1	0	3	17	42	3
		4	2	25	1	15	4	4	3	3	22	34	1
	HV	0	0	0	0	1	1	0	0	0	2	3	0
	TOTAL	22	4	118	3	90	16	15	6	9	88	132	12
	HV%	0%	0%	0%	0%	1%	7%	0%	0%	0%	3%	2%	0%
	PHF	0.99			0.74			0.75			0.94		
	Bikes	1	2	32	0	12	0	4	2	1	24	16	1
	Peds	15			56			262			14		

Intersection: E Snow King Ave at S Willow St

Time Collected: 10:00 AM - 2:00 PM

Date Collected: 7/15/2023

Peak Hour: 1:00 - 2:00 PM

		SB			WB			NB			EB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
PM	Vehicle	3	3	12	0	17	3	3	2	3	7	31	3
		3	0	14	1	12	4	2	3	1	11	20	1
		3	0	11	0	27	6	3	0	4	6	22	2
		2	1	6	0	17	1	2	0	0	6	27	2
	HV	0	0	0	0	1	1	0	0	0	0	3	0
	TOTAL	15	4	47	2	74	15	11	5	8	45	103	8
	HV%	0%	0%	0%	0%	1%	7%	0%	0%	0%	0%	3%	0%
	PHF	0.92			0.69			0.86			0.95		
	Bikes	5	2	15	1	10	0	1	4	0	20	10	0
	Peds	5			0			112			21		



Appendix B

Existing Conditions Synchro Outputs

HCM 6th TWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	88	51	10	96	12	15	3	6	11	15	51
Future Vol, veh/h	83	88	51	10	96	12	15	3	6	11	15	51
Conflicting Peds, #/hr	8	0	19	19	0	8	4	0	37	37	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	61	61	61	100	100	100	92	92	92
Heavy Vehicles, %	3	5	0	0	7	9	9	0	0	13	0	7
Mvmt Flow	111	117	68	16	157	20	15	3	6	12	16	55
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	185	0	0	204	0	0	631	609	207	622	633	179
Stage 1	-	-	-	-	-	-	392	392	-	207	207	-
Stage 2	-	-	-	-	-	-	239	217	-	415	426	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.19	6.5	6.2	7.23	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.5	-	6.23	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.5	-	6.23	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.581	4	3.3	3.617	4	3.363
Pot Cap-1 Maneuver	1384	-	-	1380	-	-	384	412	839	384	400	851
Stage 1	-	-	-	-	-	-	619	610	-	770	734	-
Stage 2	-	-	-	-	-	-	749	727	-	594	589	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	1355	-	-	312	360	795	334	350	841
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	360	-	334	350	-
Stage 1	-	-	-	-	-	-	553	545	-	695	719	-
Stage 2	-	-	-	-	-	-	672	712	-	514	526	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.9			0.7			15.3			12.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	375	1373	-	-	1355	-	-	564				
HCM Lane V/C Ratio	0.064	0.081	-	-	0.012	-	-	0.148				
HCM Control Delay (s)	15.3	7.9	0	-	7.7	0	-	12.5				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0	-	-	0.5				

Approach

Approach Direction	EB
Median Present?	No
Approach Delay(s)	4.7
Level of Service	A

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	184
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.46
Prob of Blocked Lane	0.27
Delay for adq Gap	10.13
Avg Ped Delay (s)	4.69

Approach

Approach Direction	WB
Median Present?	No
Approach Delay(s)	4.7
Level of Service	A

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	184
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.46
Prob of Blocked Lane	0.27
Delay for adq Gap	10.13
Avg Ped Delay (s)	4.69

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	403	438	428	432	445	430
Vehs Exited	406	435	425	432	447	428
Starting Vehs	6	1	2	2	4	0
Ending Vehs	3	4	5	2	2	1
Travel Distance (mi)	73	78	76	77	80	77
Travel Time (hr)	3.4	3.7	3.6	3.6	3.7	3.6
Total Delay (hr)	0.3	0.3	0.3	0.3	0.3	0.3
Total Stops	109	109	105	121	110	111
Fuel Used (gal)	2.8	3.1	2.9	3.1	3.1	3.0

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	403	438	428	432	445	430
Vehs Exited	406	435	425	432	447	428
Starting Vehs	6	1	2	2	4	0
Ending Vehs	3	4	5	2	2	1
Travel Distance (mi)	73	78	76	77	80	77
Travel Time (hr)	3.4	3.7	3.6	3.6	3.7	3.6
Total Delay (hr)	0.3	0.3	0.3	0.3	0.3	0.3
Total Stops	109	109	105	121	110	111
Fuel Used (gal)	2.8	3.1	2.9	3.1	3.1	3.0

Queuing and Blocking Report

AM Peak

09/27/2023

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	45	63	84
Average Queue (ft)	12	3	19	34
95th Queue (ft)	40	20	50	61
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

HCM 6th TWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	132	12	3	90	16	15	6	9	22	4	118
Future Vol, veh/h	88	132	12	3	90	16	15	6	9	22	4	118
Conflicting Peds, #/hr	56	0	14	14	0	56	15	0	262	262	0	15
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	74	74	74	75	75	75	99	99	99
Heavy Vehicles, %	3	2	0	0	1	7	0	0	0	0	0	0
Mvmt Flow	94	140	13	4	122	22	20	8	12	22	4	119
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	200	0	0	167	0	0	567	557	423	804	552	204
Stage 1	-	-	-	-	-	-	349	349	-	197	197	-
Stage 2	-	-	-	-	-	-	218	208	-	607	355	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1366	-	-	1423	-	-	437	442	635	304	444	842
Stage 1	-	-	-	-	-	-	671	637	-	809	742	-
Stage 2	-	-	-	-	-	-	789	734	-	487	633	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1293	-	-	1404	-	-	335	379	470	194	381	786
Mov Cap-2 Maneuver	-	-	-	-	-	-	335	379	-	194	381	-
Stage 1	-	-	-	-	-	-	609	578	-	705	700	-
Stage 2	-	-	-	-	-	-	654	693	-	323	575	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	3			0.2			15.7			14.5		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	376	1293	-	-	1404	-	-	525				
HCM Lane V/C Ratio	0.106	0.072	-	-	0.003	-	-	0.277				
HCM Control Delay (s)	15.7	8	0	-	7.6	0	-	14.5				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	1.1				

Approach

Approach Direction	EB
Median Present?	No
Approach Delay(s)	5.9
Level of Service	B

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	222
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No

Critical Headway (s)	12.14
Prob of Delayed X-ing	0.53
Prob of Blocked Lane	0.31
Delay for adq Gap	11.25
Avg Ped Delay (s)	5.93

Approach

Approach Direction	WB
Median Present?	No
Approach Delay(s)	5.9
Level of Service	B

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	222
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No

Critical Headway (s)	12.14
Prob of Delayed X-ing	0.53
Prob of Blocked Lane	0.31
Delay for adq Gap	11.25
Avg Ped Delay (s)	5.93

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	486	530	488	523	491	503
Vehs Exited	482	532	487	519	488	502
Starting Vehs	2	6	2	5	1	2
Ending Vehs	6	4	3	9	4	5
Travel Distance (mi)	88	97	89	94	90	92
Travel Time (hr)	4.3	4.7	4.3	4.7	4.4	4.5
Total Delay (hr)	0.5	0.5	0.5	0.7	0.5	0.5
Total Stops	209	216	196	218	207	208
Fuel Used (gal)	3.5	3.8	3.4	3.8	3.5	3.6

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00					
End Time	6:00					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	486	530	488	523	491	503
Vehs Exited	482	532	487	519	488	502
Starting Vehs	2	6	2	5	1	2
Ending Vehs	6	4	3	9	4	5
Travel Distance (mi)	88	97	89	94	90	92
Travel Time (hr)	4.3	4.7	4.3	4.7	4.4	4.5
Total Delay (hr)	0.5	0.5	0.5	0.7	0.5	0.5
Total Stops	209	216	196	218	207	208
Fuel Used (gal)	3.5	3.8	3.4	3.8	3.5	3.6

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	38	44	86
Average Queue (ft)	20	6	20	43
95th Queue (ft)	55	27	46	70
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

HCM 6th TWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	103	8	2	74	15	11	5	8	15	4	47
Future Vol, veh/h	45	103	8	2	74	15	11	5	8	15	4	47
Conflicting Peds, #/hr	21	0	0	0	0	21	5	0	112	112	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	69	69	69	86	86	86	92	92	92
Heavy Vehicles, %	0	3	0	0	1	7	0	0	0	0	0	0
Mvmt Flow	47	108	8	3	107	22	13	6	9	16	4	51
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	150	0	0	116	0	0	363	362	224	471	355	144
Stage 1	-	-	-	-	-	-	206	206	-	145	145	-
Stage 2	-	-	-	-	-	-	157	156	-	326	210	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1444	-	-	1485	-	-	597	569	820	506	574	909
Stage 1	-	-	-	-	-	-	801	735	-	863	781	-
Stage 2	-	-	-	-	-	-	850	772	-	691	732	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1415	-	-	1485	-	-	540	537	733	421	541	887
Mov Cap-2 Maneuver	-	-	-	-	-	-	540	537	-	421	541	-
Stage 1	-	-	-	-	-	-	772	709	-	816	764	-
Stage 2	-	-	-	-	-	-	791	755	-	583	706	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.2			0.2			11.4			10.9		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	591	1415	-	-	1485	-	-	687				
HCM Lane V/C Ratio	0.047	0.033	-	-	0.002	-	-	0.104				
HCM Control Delay (s)	11.4	7.6	0	-	7.4	0	-	10.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.3				

Approach

Approach Direction	EB
Median Present?	No
Approach Delay(s)	4.5
Level of Service	A

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	177
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.45
Prob of Blocked Lane	0.26
Delay for adq Gap	9.94
Avg Ped Delay (s)	4.47

Approach

Approach Direction	WB
Median Present?	No
Approach Delay(s)	4.5
Level of Service	A

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	177
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.45
Prob of Blocked Lane	0.26
Delay for adq Gap	9.94
Avg Ped Delay (s)	4.47

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	1:45	1:45	1:45	1:45	1:45	1:45
End Time	3:00	3:00	3:00	3:00	3:00	3:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	338	334	325	352	333	336
Vehs Exited	337	333	323	354	334	336
Starting Vehs	2	1	2	4	3	0
Ending Vehs	3	2	4	2	2	1
Travel Distance (mi)	63	62	60	66	62	63
Travel Time (hr)	2.8	2.8	2.8	3.0	2.9	2.9
Total Delay (hr)	0.2	0.2	0.2	0.2	0.2	0.2
Total Stops	86	88	95	105	97	94
Fuel Used (gal)	2.4	2.3	2.2	2.4	2.2	2.3

Interval #0 Information Seeding

Start Time	1:45
End Time	2:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	2:00					
End Time	3:00					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	338	334	325	352	333	336
Vehs Exited	337	333	323	354	334	336
Starting Vehs	2	1	2	4	3	0
Ending Vehs	3	2	4	2	2	1
Travel Distance (mi)	63	62	60	66	62	63
Travel Time (hr)	2.8	2.8	2.8	3.0	2.9	2.9
Total Delay (hr)	0.2	0.2	0.2	0.2	0.2	0.2
Total Stops	86	88	95	105	97	94
Fuel Used (gal)	2.4	2.3	2.2	2.4	2.2	2.3

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	51	40	60
Average Queue (ft)	7	2	16	29
95th Queue (ft)	30	20	42	49
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0



Appendix C

4-Way Stop Conditions Synchro Outputs

HCM 6th AWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	88	51	10	96	12	15	3	6	11	15	51
Future Vol, veh/h	83	88	51	10	96	12	15	3	6	11	15	51
Peak Hour Factor	0.75	0.75	0.75	0.61	0.61	0.61	1.00	1.00	1.00	0.92	0.92	0.92
Heavy Vehicles, %	3	5	0	0	7	9	9	0	0	13	0	7
Mvmt Flow	111	117	68	16	157	20	15	3	6	12	16	55
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	8.9	8.5	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	37%	8%	14%
Vol Thru, %	12%	40%	81%	19%
Vol Right, %	25%	23%	10%	66%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	222	118	77
LT Vol	15	83	10	11
Through Vol	3	88	96	15
RT Vol	6	51	12	51
Lane Flow Rate	24	296	193	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.035	0.359	0.239	0.113
Departure Headway (Hd)	5.228	4.365	4.439	4.863
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	683	823	809	735
Service Time	3.275	2.391	2.466	2.905
HCM Lane V/C Ratio	0.035	0.36	0.239	0.114
HCM Control Delay	8.5	9.8	8.9	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.6	0.9	0.4

SimTraffic Simulation Summary

AM Peak - 4-Way Stop

09/27/2023

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:45	6:45	6:45	6:45	6:45	6:45
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	418	438	421	435	477	438
Vehs Exited	425	437	420	434	478	438
Starting Vehs	8	1	2	4	5	1
Ending Vehs	1	2	3	5	4	2
Travel Distance (mi)	77	78	75	77	86	79
Travel Time (hr)	4.0	4.2	3.9	4.1	4.6	4.2
Total Delay (hr)	0.8	0.8	0.7	0.8	0.9	0.8
Total Stops	423	437	420	435	476	437
Fuel Used (gal)	3.3	3.4	3.1	3.4	3.6	3.4

Interval #0 Information Seeding

Start Time	6:45
End Time	7:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	418	438	421	435	477	438
Vehs Exited	425	437	420	434	478	438
Starting Vehs	8	1	2	4	5	1
Ending Vehs	1	2	3	5	4	2
Travel Distance (mi)	77	78	75	77	86	79
Travel Time (hr)	4.0	4.2	3.9	4.1	4.6	4.2
Total Delay (hr)	0.8	0.8	0.7	0.8	0.9	0.8
Total Stops	423	437	420	435	476	437
Fuel Used (gal)	3.3	3.4	3.1	3.4	3.6	3.4

Queuing and Blocking Report
AM Peak - 4-Way Stop

09/27/2023

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	96	75	58	81
Average Queue (ft)	49	41	19	33
95th Queue (ft)	76	66	50	60
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

HCM 6th AWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	88	132	12	3	90	16	15	6	9	22	4	118
Future Vol, veh/h	88	132	12	3	90	16	15	6	9	22	4	118
Peak Hour Factor	0.94	0.94	0.94	0.74	0.74	0.74	0.75	0.75	0.75	0.99	0.99	0.99
Heavy Vehicles, %	3	2	0	0	1	7	0	0	0	0	0	0
Mvmt Flow	94	140	13	4	122	22	20	8	12	22	4	119
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	8.6	8.2	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	38%	3%	15%
Vol Thru, %	20%	57%	83%	3%
Vol Right, %	30%	5%	15%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	232	109	144
LT Vol	15	88	3	22
Through Vol	6	132	90	4
RT Vol	9	12	16	118
Lane Flow Rate	40	247	147	145
Geometry Grp	1	1	1	1
Degree of Util (X)	0.055	0.314	0.185	0.178
Departure Headway (Hd)	4.908	4.583	4.523	4.396
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	782	791	815
Service Time	2.954	2.621	2.563	2.433
HCM Lane V/C Ratio	0.055	0.316	0.186	0.178
HCM Control Delay	8.2	9.7	8.6	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.3	0.7	0.6

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	478	510	521	520	477	499
Vehs Exited	476	511	523	522	481	503
Starting Vehs	4	8	7	9	7	6
Ending Vehs	6	7	5	7	3	5
Travel Distance (mi)	87	92	94	95	87	91
Travel Time (hr)	5.0	5.3	5.6	5.4	4.9	5.2
Total Delay (hr)	1.2	1.3	1.5	1.3	1.2	1.3
Total Stops	479	513	523	522	478	501
Fuel Used (gal)	3.8	4.0	4.2	4.1	3.8	4.0

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00					
End Time	6:00					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	478	510	521	520	477	499
Vehs Exited	476	511	523	522	481	503
Starting Vehs	4	8	7	9	7	6
Ending Vehs	6	7	5	7	3	5
Travel Distance (mi)	87	92	94	95	87	91
Travel Time (hr)	5.0	5.3	5.6	5.4	4.9	5.2
Total Delay (hr)	1.2	1.3	1.5	1.3	1.2	1.3
Total Stops	479	513	523	522	478	501
Fuel Used (gal)	3.8	4.0	4.2	4.1	3.8	4.0

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	116	87	58	80
Average Queue (ft)	57	42	23	45
95th Queue (ft)	95	70	49	70
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

HCM 6th AWSC
3: Parking/S Willow St & E Snow King Ave

09/27/2023

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	103	8	2	74	15	11	5	8	15	4	47
Future Vol, veh/h	45	103	8	2	74	15	11	5	8	15	4	47
Peak Hour Factor	0.95	0.95	0.95	0.69	0.69	0.69	0.86	0.86	0.86	0.92	0.92	0.92
Heavy Vehicles, %	0	3	0	0	1	7	0	0	0	0	0	0
Mvmt Flow	47	108	8	3	107	22	13	6	9	16	4	51
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8	7.7	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	29%	2%	23%
Vol Thru, %	21%	66%	81%	6%
Vol Right, %	33%	5%	16%	71%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	156	91	66
LT Vol	11	45	2	15
Through Vol	5	103	74	4
RT Vol	8	8	15	47
Lane Flow Rate	28	164	132	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.035	0.192	0.154	0.084
Departure Headway (Hd)	4.523	4.202	4.207	4.201
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	795	841	857	857
Service Time	2.534	2.295	2.207	2.209
HCM Lane V/C Ratio	0.035	0.195	0.154	0.084
HCM Control Delay	7.7	8.3	8	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.7	0.5	0.3

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	1:45	1:45	1:45	1:45	1:45	1:45
End Time	3:00	3:00	3:00	3:00	3:00	3:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	332	346	319	328	338	333
Vehs Exited	332	345	316	330	340	333
Starting Vehs	2	3	1	5	3	2
Ending Vehs	2	4	4	3	1	1
Travel Distance (mi)	61	64	59	61	63	62
Travel Time (hr)	3.2	3.4	3.1	3.3	3.3	3.3
Total Delay (hr)	0.6	0.6	0.6	0.7	0.6	0.6
Total Stops	331	348	317	331	339	333
Fuel Used (gal)	2.6	2.7	2.5	2.6	2.6	2.6

Interval #0 Information Seeding

Start Time	1:45
End Time	2:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	2:00
End Time	3:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	332	346	319	328	338	333
Vehs Exited	332	345	316	330	340	333
Starting Vehs	2	3	1	5	3	2
Ending Vehs	2	4	4	3	1	1
Travel Distance (mi)	61	64	59	61	63	62
Travel Time (hr)	3.2	3.4	3.1	3.3	3.3	3.3
Total Delay (hr)	0.6	0.6	0.6	0.7	0.6	0.6
Total Stops	331	348	317	331	339	333
Fuel Used (gal)	2.6	2.7	2.5	2.6	2.6	2.6

Intersection: 3: Parking/S Willow St & E Snow King Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	82	36	59
Average Queue (ft)	41	36	16	29
95th Queue (ft)	63	63	41	51
Link Distance (ft)	388	479	207	295
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

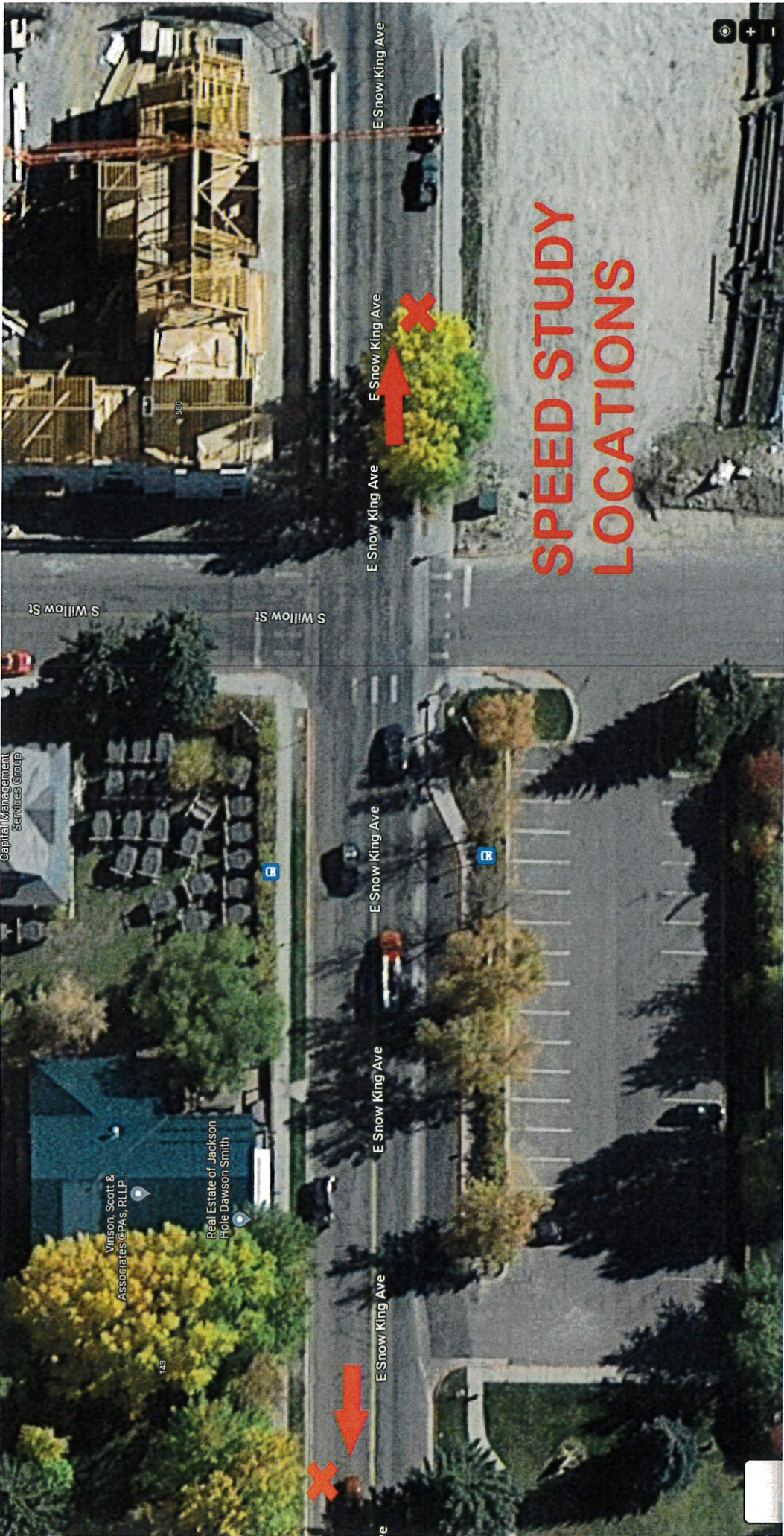
INTERSECTION CRASH HISTORY REPORT FOR
E SNOW KING AVE & S WILLOW ST (ID 1968)
FOR THE YEARS 2018 - 2022

DATE	TIME	ID #	CRASH STREET	CROSS STREET	JUNCTION RELATION	INTERSECTION TYPE	MANNER OF COLLISION	CRASH SEVERITY	FATAL	INJURY	FIRST HARMFUL EVENT (FHE)	FHE LOCATION	#	DIRECTION	VEHICLE MANEUVER	DRIVER ACTION	PERSON TYPE	SAFETY EQUIPMENT USED	INJURY STATUS	LIGHTING	WEATHER CONDITION	ROAD CONDITION	ALCOHOL INVOLVED	DRUGS INVOLVED	LATITUDE	LONGITUDE	CRASH CASE #		
2018																													
03/17/2018	1057	1968	ASPEN HILL RD	S WILLOW ST	Intersection Related	T Intersection	Angle (Front to Side), Opposing Direction	PROPERTY DAMAGE ONLY	0	0	Motor Vehicle in Transport on Roadway	On Roadway	1	North	Turning Right	1	Drove too Fast for Conditions	1	Driver	Shoulder and Lap Belt	No Apparent Injury	Daylight	Snowing	Ice/Frost	N	N	43.473330	-110.758890	1803-1717
													2	South	Stopped in Traffic	2	No Improper Driving	2	Driver	Shoulder and Lap Belt	No Apparent Injury		Snow						
11/08/2018	825	1968	S WILLOW ST	E SNOW KING AVE	Intersection	Four (4)-Way Intersection	Angle Right (Front to Side, includes Broadside)	PROPERTY DAMAGE ONLY	0	0	Motor Vehicle in Transport on Roadway	On Roadway	1	North	Straight Ahead	1	Drove too Fast for Conditions	1	Driver	Shoulder and Lap Belt	No Apparent Injury	Daylight	Clear	Ice/Frost	N	N	43.473459	-110.758920	1811-0601
													2	East	Straight Ahead	2	No Improper Driving	2	Driver	Shoulder and Lap Belt	No Apparent Injury								
2020																													
01/17/2020	1940	1968	E SNOW KING AVE		Non-Junction	Not an Intersection	Sideswipe Same Direction (Passing)	PROPERTY DAMAGE ONLY	0	0	Parked Motor Vehicle	Shoulder	1	East	Straight Ahead	1	No Improper Driving	1	Driver	Shoulder and Lap Belt	No Apparent Injury	Darkness Unlighted	Clear	Snow	N	N	43.473399	-110.758531	20011634
													2	East	Parked														
2021																													
07/09/2021	1308	1968	ASPEN HILL RD (CEMETERY RD)	S WILLOW ST	Intersection	Four (4)-Way Intersection	Not a Collision w/2 Vehicles in Transport	POSSIBLE INJURY	0	1	Pedacycle	On Roadway	1	East	Straight Ahead	1	No Improper Driving	1	Driver	None Used	No Apparent Injury	Daylight	Clear	Dry	N	N	43.473428	-110.758902	21071594
																	1	Pedacyclist	Possible Injury										
07/22/2021	1150	1968	E SNOW KING AVE	Non-Junction	Not an Intersection	Sideswipe Same Direction (Passing)	PROPERTY DAMAGE ONLY	0	0	Parked Motor Vehicle	In Parking Lane/Zone	1	East	Straight Ahead	1	Other Improper Action	1	Driver	Shoulder and Lap Belt	No Apparent Injury	Daylight	Clear	Dry	N	N	43.473394	-110.758570	2107-3639	
												2	East	Parked															
2022																													
08/07/2022	956	1968	ASPEN HILL RD (CEMETERY RD)	E SNOW KING AVE	Intersection	Four (4)-Way Intersection	Not a Collision w/2 Vehicles in Transport	SUSPECTED MINOR INJURY	0	1	Pedacycle	On Roadway	1	South	Straight Ahead	1	Failed to Yield ROW	1	Driver	Shoulder and Lap Belt	No Apparent Injury	Daylight	Clear	Dry	N	N	43.473395	-110.758905	22080920
																	1	Pedacyclist	Suspected Minor Injury										

REPORT SUMMARY			
TOTAL CRASHES:	6		
FATAL CRASHES:	0	TOTAL FATALITIES:	0
INJURY CRASHES:	2	TOTAL INJURIES:	2
PDO CRASHES:	4		

- * PDO = Property Damage Only Crashes
- * Critical Crashes = Fatal & Suspected Serious Injury Crashes
- * Serious Crashes = Suspected Minor Injury & Possible Injury Crashes
- * Damage Crashes = No Apparent Injury & Unknown Injury Crashes

YEAR	CRASH COUNTS				SEVERITY COUNTS			INJURY COUNTS				
	FATAL CRASHES	INJURY CRASHES	PDO CRASHES	TOTAL CRASHES	CRITICAL CRASHES*	SERIOUS CRASHES*	DAMAGE CRASHES*	FATAL INJURIES	SERIOUS INJURIES	MINOR INJURIES	POSSIBLE INJURIES	NO INJURIES
2018	0	0	2	2	0	0	2	0	0	0	0	4
2020	0	0	1	1	0	0	1	0	0	0	0	1
2021	0	1	1	2	0	1	1	0	0	0	1	2
2022	0	1	0	1	0	1	0	0	0	1	0	1
	0	2	4	6	0	2	4	0	0	1	1	8



**Place Currently Not Set
Traffic Survey Summary**

Location: E Snow King Ave
Start Date: 10/17/2023
End Date: 10/26/2023

Zone: Commercial
Start Time: 16:23:08
End Time: 11:22:00
Travel Direction: E

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	11926	3681	4312	3953	2807	1504	562	254	110	25	16	15
% of Total	40.89%	12.62%	14.78%	13.55%	9.62%	5.15%	1.92%	0.87%	0.37%	0.08%	0.05%	0.05%
									Total Vehicles: 29165			

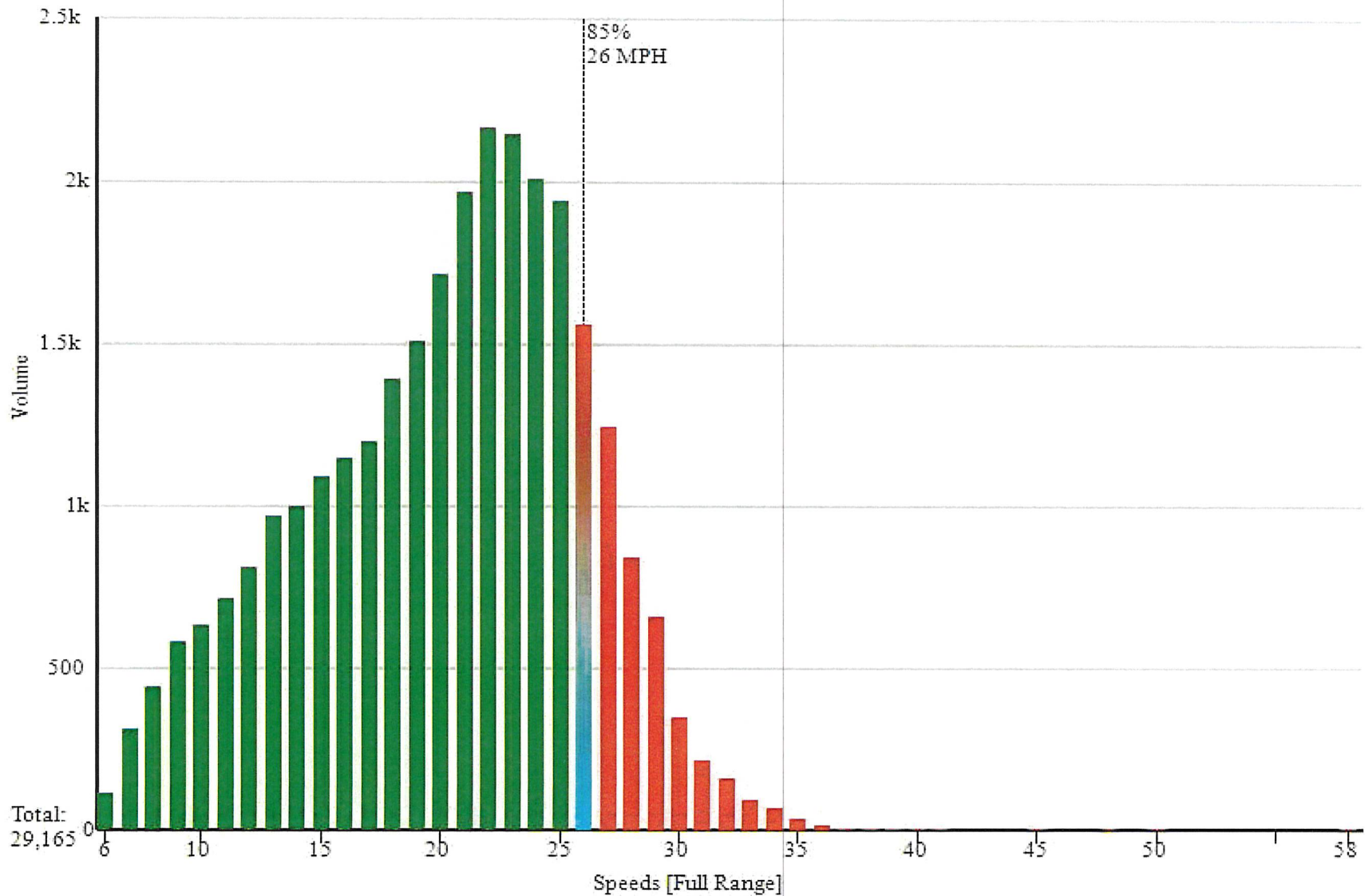
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	25	Pace Speed	18 to 27	Speed	25+	35+	45+	Total
#At/Under Limit	23872	# in Pace	17657	Number	5237	53	3	5293
# Over Limit	5293	% in Pace	60.54%	Percent	17.95%	0.18%	0.01%	18.14%
Average Speed	20.18	85% Percentile	26					

Place Currently Not Set
Speed/Volume Graph

Location: E Snow King Ave
Dates: 10/17/2023 to 10/26/2023
85th Percentile: 26 MPH

Zone: Commercial
Speed Limit: 25 MPH

Travel Direction: E

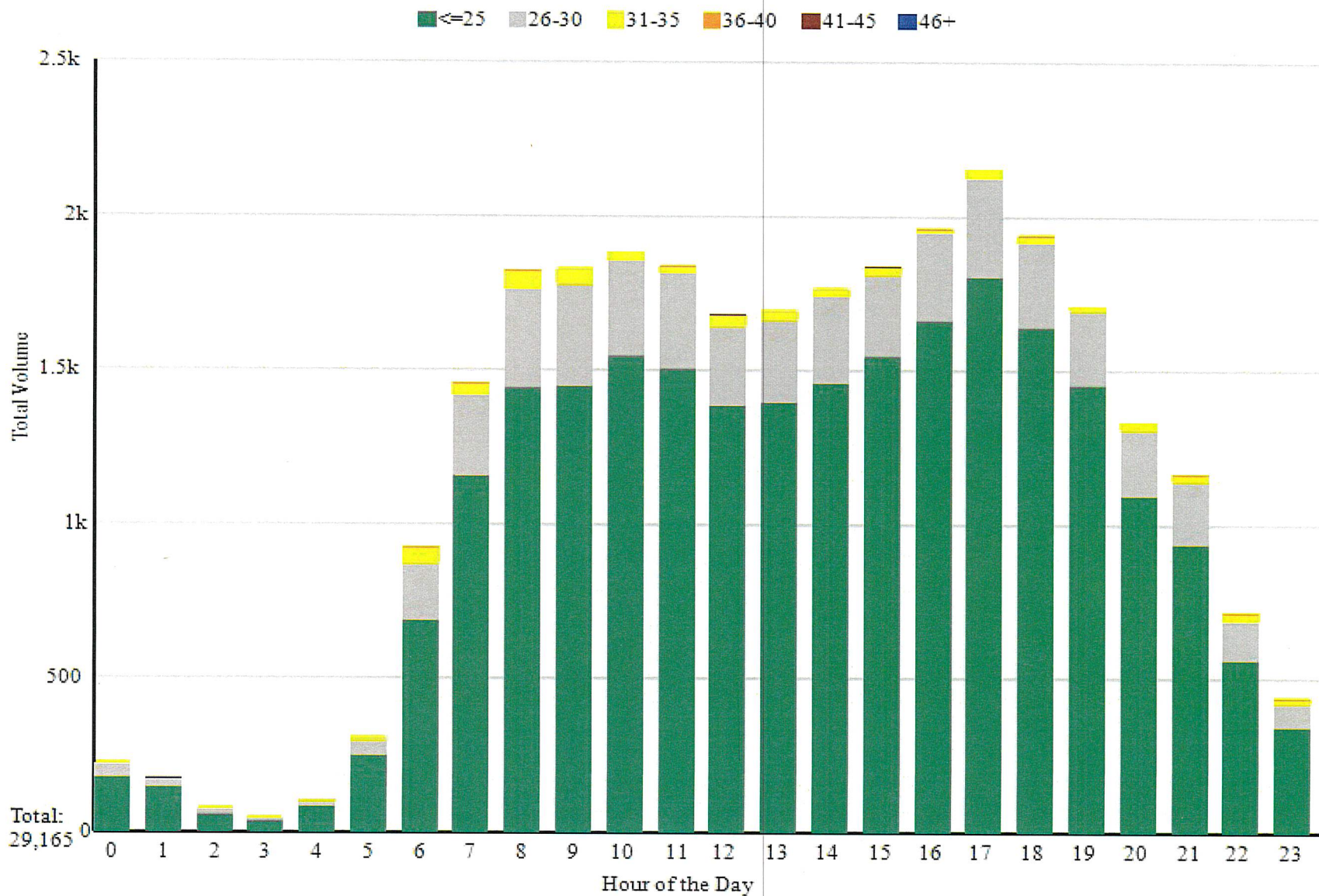


Place Currently Not Set
Speed/Time/Volume Graph

Location: E Snow King Ave
Dates: 10/17/2023 to 10/26/2023

Zone: Commercial
Speed Limit: 25 MPH

Travel Direction: E



10/26/2023, 11:46:33

Place Currently Not Set
Traffic Summary Week

Location: E Snow King Ave
10/17/2023 to 10/23/2023

Zone: Commercial
Travel Direction: E

	Tue 17 Oct	Wed 18 Oct	Thu 19 Oct	Fri 20 Oct	Sat 21 Oct	Sun 22 Oct	Mon 23 Oct	Weekday Average	Weekend Average
Midnight	0	16	27	23	35	47	23	17	41
1:00	0	18	13	22	37	39	10	12	38
2:00	0	6	4	3	19	17	5	3	18
3:00	0	1	3	4	4	5	4	2	4
4:00	0	6	9	21	7	9	10	9	8
5:00	0	36	46	22	17	38	25	25	27
6:00	0	112	125	74	52	46	101	82	49
7:00	0	174	177	201	93	44	204	151	68
8:00	0	218	217	216	159	106	233	176	132
9:00	0	189	187	221	171	120	218	163	145
10:00	0	171	224	234	193	181	222	170	187
11:00	0	199	202	221	192	186	238	172	189
12:00	0	176	210	247	212	178	204	167	195
13:00	0	196	206	207	199	183	201	162	191
14:00	0	198	257	216	194	203	227	179	198
15:00	0	216	240	243	211	209	231	186	210
16:00	151	224	231	216	224	215	228	210	219
17:00	247	251	258	221	205	209	245	244	207
18:00	212	212	230	207	202	188	205	213	195
19:00	191	176	196	170	179	168	203	187	173
20:00	127	155	138	159	139	121	151	146	130
21:00	136	112	138	106	105	133	141	126	119
22:00	51	69	106	90	87	76	77	78	81
23:00	24	35	69	76	64	44	51	51	54
Totals	1139	3166	3513	3420	3000	2765	3457	2939	2882

Place Currently Not Set
Traffic Summary Week

Location: E Snow King Ave
10/20/2023 to 10/26/2023

Zone: Commercial
Travel Direction: E

	Fri 20 Oct	Sat 21 Oct	Sun 22 Oct	Mon 23 Oct	Tue 24 Oct	Wed 25 Oct	Thu 26 Oct	Weekday Average	Weekend Average
Midnight	23	35	47	23	27	18	13	20	41
1:00	22	37	39	10	10	11	18	14	38
2:00	3	19	17	5	3	4	19	6	18
3:00	4	4	5	4	6	17	3	6	4
4:00	21	7	9	10	33	8	3	15	8
5:00	22	17	38	25	36	36	54	34	27
6:00	74	52	46	101	129	158	132	118	49
7:00	201	93	44	204	184	187	197	194	68
8:00	216	159	106	233	212	216	247	224	132
9:00	221	171	120	218	264	223	237	232	145
10:00	234	193	181	222	238	207	219	224	187
11:00	221	192	186	238	259	242	101	212	189
12:00	247	212	178	204	216	240	0	181	195
13:00	207	199	183	201	252	249	0	181	191
14:00	216	194	203	227	262	213	0	183	198
15:00	243	211	209	231	247	243	0	192	210
16:00	216	224	215	228	246	233	0	184	219
17:00	221	205	209	245	259	263	0	197	207
18:00	207	202	188	205	259	230	0	180	195
19:00	170	179	168	203	223	207	0	160	173
20:00	159	139	121	151	168	180	0	131	130
21:00	106	105	133	141	166	131	0	108	119
22:00	90	87	76	77	84	82	0	66	81
23:00	76	64	44	51	47	34	0	41	54
Totals	3420	3000	2765	3457	3830	3632	1243	3116	2882

Place Currently Not Set
Traffic Survey Summary

Location: E Snow King Ave
Start Date: 10/17/2023
End Date: 10/26/2023

Zone: Commercial
Start Time: 15:28:32
End Time: 11:19:17
Travel Direction: W

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	6067	2510	2823	2488	1739	800	296	109	35	8	9	8
% of Total	35.91%	14.85%	16.71%	14.72%	10.29%	4.73%	1.75%	0.64%	0.2%	0.04%	0.05%	0.04%
									Total Vehicles: 16892			

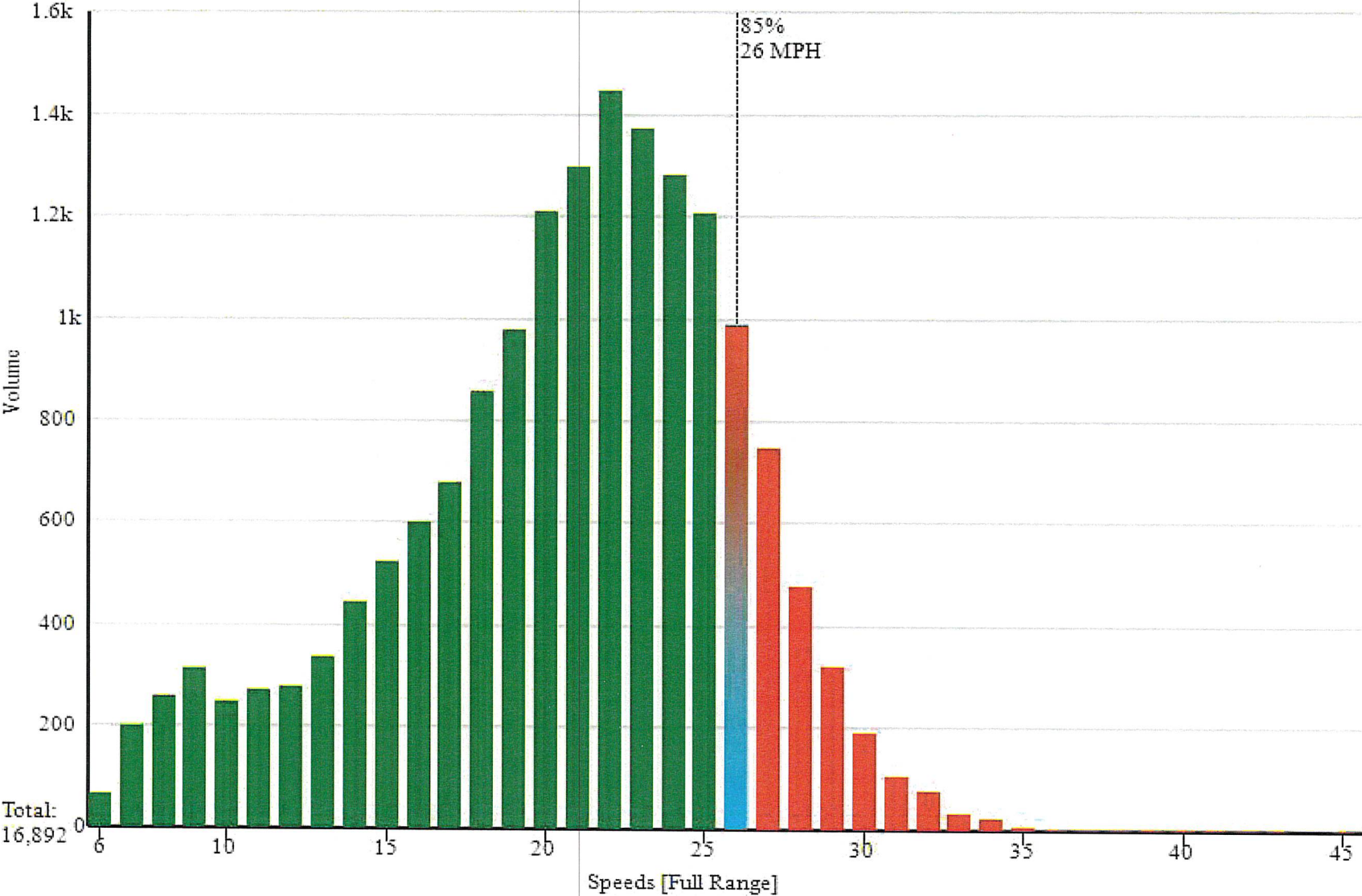
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	25	Pace Speed	18 to 27	Speed	25+	35+	45+	Total
#At/Under Limit	13888	# in Pace	11398	Number	2979	25	0	3004
# Over Limit	3004	% in Pace	67.47%	Percent	17.63%	0.14%	0%	17.78%
Average Speed	20.63	85% Percentile	26					

Place Currently Not Set
Speed/Volume Graph

Location: E Snow King Ave
Dates: 10/17/2023 to 10/26/2023
85th Percentile: 26 MPH

Zone: Commercial
Speed Limit: 25 MPH

Travel Direction: W

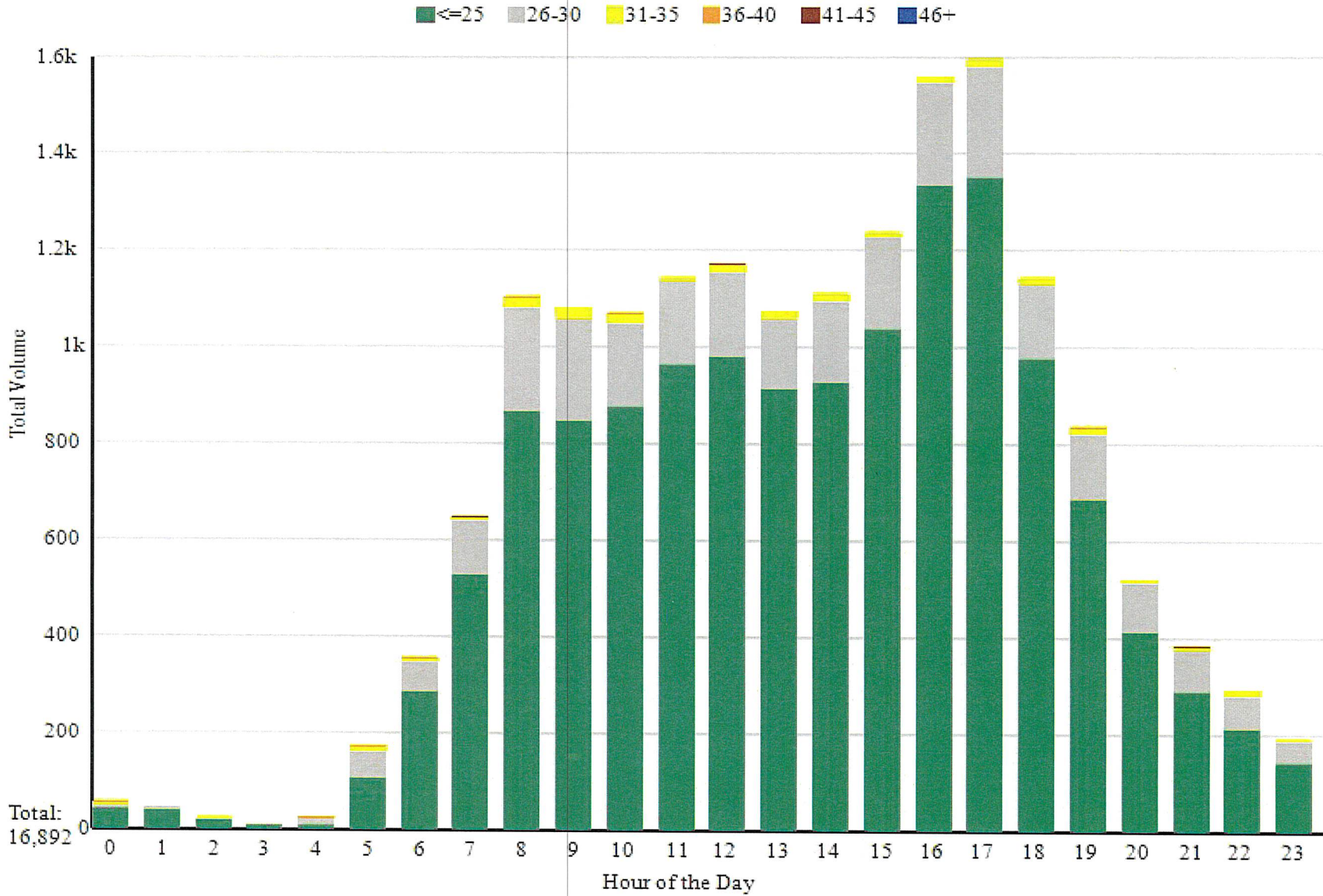


Place Currently Not Set
Speed/Time/Volume Graph

Location: E Snow King Ave
Dates: 10/17/2023 to 10/26/2023

Zone: Commercial
Speed Limit: 25 MPH

Travel Direction: W



10/26/2023, 11:56:11

Place Currently Not Set
Traffic Summary Week

Location: E Snow King Ave
10/17/2023 to 10/23/2023

Zone: Commercial
Travel Direction: W

	Tue 17 Oct	Wed 18 Oct	Thu 19 Oct	Fri 20 Oct	Sat 21 Oct	Sun 22 Oct	Mon 23 Oct	Weekday Average	Weekend Average
Midnight	0	9	7	7	4	10	5	5	7
1:00	0	4	4	4	4	7	1	2	5
2:00	0	2	2	1	2	9	0	1	5
3:00	0	2	3	1	1	2	0	1	1
4:00	0	4	1	11	0	4	0	3	2
5:00	0	22	20	21	15	19	9	14	17
6:00	0	43	51	32	21	25	45	34	23
7:00	0	85	90	94	44	35	71	68	39
8:00	0	144	146	103	64	65	139	106	64
9:00	0	137	133	149	96	88	116	107	92
10:00	0	128	128	144	113	94	103	100	103
11:00	0	128	149	155	114	89	156	117	101
12:00	0	182	150	161	128	100	161	130	114
13:00	0	146	146	156	100	91	148	119	95
14:00	0	158	137	167	124	99	165	125	111
15:00	97	136	180	155	110	99	147	143	104
16:00	182	191	188	187	121	125	178	185	123
17:00	204	200	210	144	122	113	199	191	117
18:00	148	130	165	130	98	94	117	138	96
19:00	108	113	91	84	61	83	109	101	72
20:00	66	68	60	54	47	54	58	61	50
21:00	41	50	40	34	45	48	44	41	46
22:00	27	38	30	39	24	36	31	33	30
23:00	29	25	11	27	19	28	16	21	23
Totals	902	2145	2142	2060	1477	1417	2018	1853	1447

Place Currently Not Set
Traffic Summary Week

Location: E Snow King Ave
10/20/2023 to 10/26/2023

Zone: Commercial
Travel Direction: W

	Fri 20 Oct	Sat 21 Oct	Sun 22 Oct	Mon 23 Oct	Tue 24 Oct	Wed 25 Oct	Thu 26 Oct	Weekday Average	Weekend Average
Midnight	7	4	10	5	6	5	4	5	7
1:00	4	4	7	1	6	6	11	5	5
2:00	1	2	9	0	1	0	7	1	5
3:00	1	1	2	0	2	1	1	1	1
4:00	11	0	4	0	4	3	1	3	2
5:00	21	15	19	9	18	26	24	19	17
6:00	32	21	25	45	43	56	42	43	23
7:00	94	44	35	71	74	96	61	79	39
8:00	103	64	65	139	153	158	134	137	64
9:00	149	96	88	116	136	119	108	125	92
10:00	144	113	94	103	126	118	116	121	103
11:00	155	114	89	156	165	139	50	133	101
12:00	161	128	100	161	139	153	0	122	114
13:00	156	100	91	148	152	135	0	118	95
14:00	167	124	99	165	128	134	0	118	111
15:00	155	110	99	147	163	151	0	123	104
16:00	187	121	125	178	227	162	0	150	123
17:00	144	122	113	199	222	185	0	150	117
18:00	130	98	94	117	153	109	0	101	96
19:00	84	61	83	109	116	73	0	76	72
20:00	54	47	54	58	71	45	0	45	50
21:00	34	45	48	44	52	33	0	32	46
22:00	39	24	36	31	33	37	0	28	30
23:00	27	19	28	16	19	19	0	16	23
Totals	2060	1477	1417	2018	2209	1963	559	1761	1447

Intersection Safety: Myth Versus Reality

Traffic engineering decisions about intersection safety are often the product of factors and relationships that are more complex than the casual observer may realize. In many cases, evaluating potential solutions to crash or violation problems may reveal aspects of intersection safety and efficiency that are in conflict with one another. In reality, traffic engineers must always consider a balance between managing safety and improving intersection operations before making their final choice for intersection control.

Over the years, a number of misconceptions about traffic-control solutions have become apparent. This briefing sheet attempts to shed some light on the rationale for why certain traffic-control decisions are appropriate and required.

The driving public has developed a number of misconceptions about traffic control solutions over the years. This brief attempts to expose some of those myths and shed light on the rationale behind certain traffic control decisions.

Additional traffic safety measures are sometimes necessary to offset increased traffic and speeding through neighborhood streets. One way of improving waiting times at an intersection with a new signal is to make sure the minor street waiting times are less than they were before installation of the signal. This improvement will encourage motorists to use signals on main roads instead of neighborhood streets.

On occasion, other traffic control options, such as stop control or the introduction of roundabouts can perform as well as, or even better than, signals in managing both vehicle and pedestrian traffic safety at intersections. This is particularly true when signals are inappropriately placed at locations where traffic volume is relatively low. Intersections with signals that have very low traffic volumes tend to tempt drivers and pedestrians to violate that red light.

Myth 1: Installing signals always makes intersections safer.

Reality:

The installation of unwarranted signals, or signals that operate improperly, can create situations where overall intersection congestion is increased, which in turn can create aggressive driving behavior.

When more complex signal phasing causes longer waiting times at intersections, both drivers and pedestrians tend to become impatient and violate red lights, or drivers are tempted to cut through neighborhood streets. This subjects local residents to a greater risk of collisions, worse congestion and more air and noise pollution.

Clearly traffic diversion to side streets is an undesirable side effect of long cycle lengths and congestion. This diverted traffic may increase risk on the side streets, but the cause of this increased safety risk should not be attributed to the new signal.

Myth 2: Having a stop sign is always better than no stop sign, OR, more stop signs are always safer than fewer stop signs.

Reality:

Unwarranted stop signs create problems at both the intersection and along the roadway by:

- **Encouraging motorists to drive faster between intersections in order to save time. Placing stop signs on every low-volume local street promotes speeding between the stop signs as drivers try to offset the delays caused by stopping at every intersection;**
- **Encouraging violation of traffic laws.** As the number of stop signs increase so that nearly every intersection has one, the rate of stop sign violations tends to increase;
- Encouraging the use of alternate routes. Placing too many stop signs in some areas



often causes traffic to use other neighborhood routes to avoid a sequence of intersections that may be controlled by stop signs; and

- Increasing the chance that drivers will disregard conflicting vehicle and pedestrian traffic, which raises the risk of collisions.



There is no evidence to indicate that stop signs decrease the overall speed of traffic. Impatient drivers view the additional delay caused by unwarranted stop signs as “lost time” to be made up by driving at higher speeds between stop signs.

Unwarranted stop signs breed contempt in motorists who tend to ignore them or only slow down without stopping. This can sometimes lead to tragic consequences.

Stop signs should never be installed as a routine, cure-all approach to curtail speeding, prevent collisions at intersections, or discourage traffic from entering a neighborhood. Stop signs should be installed only after an engineering study determines that there is a need. Stop signs are not a solution to intersection safety problems caused by poor sight distances and deficient road design.

Myth 3: Installing stop signs on all approaches (four-way stop) to an intersection will always result in fewer accidents.

Reality:

Four-way stop signs do not necessarily improve pedestrian or vehicle safety. In fact, pedestrians in stop sign-congested neighborhoods often have a false sense of security about crossing local streets

with four-way stop signs. The application of traffic control devices, to the casual observer, often creates this sense of security, but in reality may actually increase safety risk. If control devices are improperly applied, they can create confusion between the pedestrians and the driver as to who has the right-of-way, thereby increasing the risk that one of the two will make an improper decision resulting in serious consequences.

Placing four-way stop signs on roads of very unequal design, speed and traffic volume will tend to promote stop-sign violations by drivers, especially on main roads. Driver expectancies are violated in situations like this and when this occurs, improper actions result which can increase safety risk at intersections.

Placing four-way stop signs at every intersection where there were formerly only two-way stop signs also usually increases congestion. Four-way stop signs should only be considered after an engineering study and a capacity analysis are performed.

Generally, every State requires the installation of traffic control devices, including stop signs, to meet State standards of the department of transportation.

The State standards are based on the *Manual on Uniform Traffic Control Devices* (MUTCD). The MUTCD is the national standard for traffic control devices. It prescribes standards for the design, location, use and operation of traffic control devices. The MUTCD is located at the following Web site: <http://mutcd.fhwa.dot.gov>.

Myth 4: Signals are always better than stop signs.

Reality:

Installing stop signs instead of signals when there is no intersection traffic control, increasing the size or visibility of existing stop signs, or placing them in a better location often increases both vehicle and pedestrian safety without the initial expense and later maintenance costs of signals. While waiting for signals to qualify for installation, the substantial amount of money saved can be used to make roads safer.

STAFF REPORT



Meeting Date:	January 22, 2024	Meeting Title:	Workshop
Submitting Department:	Community Development & Public Works	Presenter:	Tanya Anderson & Johnny Ziem
Agenda Item:	Community Solar Siting Study	Public Comment:	Yes

Purpose & Policy Considerations.

The purpose of this item is to update Town Council on Energy Conservation Works' Community Solar Project and Siting Study and to seek input on next steps, including a more detailed site analysis at the Wastewater Treatment Plant. Approval of the site analysis does not bind Council to approval of a Community Solar Project on Town property.

Requested Action.

Staff requests Council approve moving forward with a more detailed site analysis for a Community Solar Project at the Wastewater Treatment Plant.

Recommendations.

Staff recommends Council approve conducting a more detailed site analysis for a Community Solar Project at the Wastewater Treatment Plant.

Background.

Community solar refers to a solar project through which the benefits of solar power flow to multiple customers, providing homeowners, renters, and businesses equal access to the economic and environmental benefits of solar energy regardless of the physical attributes of their home or business. Due to project scale, community solar has lower costs than rooftop solar and is available to households, including homes in multi-unit buildings that do not have a roof of their own, homes that may have restrictive rules governing the use of solar, and homes that are located in areas with a lot of shade. Community solar will mitigate greenhouse gas emissions while adding resilience to our local grid.

The Town of Jackson and Teton County currently use Wyoming's first shared solar array, located at the Wastewater Treatment Plant. Energy Conservation Works (ECW) is working in partnership with Lower Valley Energy (LVE) to develop Wyoming's first community solar array to increase the amount of locally generated renewable energy on our grid, provide affordable access to solar power in our community, and increase energy resilience.

The project is expected to have a maximum size of 1 megawatt (MW). A project of that size would occupy approximately 5 acres of land and produce approximately 1.66 million kilowatt hours (kWh) of electricity annually, equating to the electricity to power around 75 homes. There will likely be a usage cap to spread benefits, enabling 300-600 households to participate in the program. A portion of the shares will be reserved for income-qualified households. These shares will have little to no upfront cost and will reduce household energy burden.

On March 20, 2023, Council approved allocating \$10,000 to Energy Conservation Works to support community solar planning, including site analysis and technical system design for potential sites in LVE's territory. ECW contracted BlueStem Energy Solutions to act as a development consultant to assist, including site selection,

developing a Request for Proposals (RFP) for an Engineering, Procurement, and Construction contractor, and evaluating opportunities for battery storage.

ECW received additional planning funding from the Community Foundation of Jackson Hole, the Teton Conservation District, and the Energizing Rural Communities Prize (\$100,000). To fund construction, ECW plans to use a portion of the \$5 million Community Energy Leverage Fund SPET item along with a non-competitive Federal Investment Tax Credit that will provide a 40% refund on project costs. ECW was recently awarded the Round 2 Phase 1 Community Power Accelerator Prize for \$50,000. They will also apply for additional grant funding, including Round 2 of the Energizing Rural Communities Prize (July 2024), Round 2, Phase 2 of the Community Power Accelerator Prize, and the USDA Powering Affordable Clean Energy (PACE) program, which provides an additional 20-40% in loan forgiveness. Subscriber buy-in will make up the remainder of the revenue. Survey results show that demand may outpace supply.

Figure 1: Primary Funding Sources

Funding Resource	Description	Availability
2022 SPET Funding	Potentially \$1.5M of the available \$5.	Available within the next 5 years and to be used to service LVE gap loan.
ITC Direct Pay	40%+ of project costs <u>directly paid</u> to LVE as the project owner. +10% Energy Transition Community Bonus Credit	Available upon project completion
<u>Subscriber</u> buy-in	Total cost of project less additional funding like SPET, ITC, Loan forgiveness, or additional grants.	The project will be subscribed to prior to construction. Community survey indicates the demand is higher than the supply.
LVE Financing	Low-interest rate funding to pay for construction and land acquisition. Will cover costs in the event of no PACE loan	Gap funding based on guaranteed income from ITC, SPET, and subscriptions.
USDA Rural Utility Service <u>PACE Program</u>	Competitive program that provides loans for 75% of project costs and 20% loan forgiveness.	Letter of Interest submitted in September by LVE.

The ideal community solar site has at least 5 acres of land, is in the LVE service territory, has proximity to LVE transmission lines, is affordable, and has minimal environmental impacts. ECW evaluated 12 sites in Lincoln and Teton Counties. Based on the selection criteria listed above, the Town Wastewater Treatment Plant is the top recommendation. Other sites were too small to build a solar array of a meaningful size, have poor slope,

are unsuitable due to residential proximity, have low voltage or would require the construction of new access roads, are in opposition to US Forest Service regulations, or are not stable. While the Lincoln County Landfill Capped Site was considered, it requires at least four years to settle before it can be built upon.

Analysis & Key Policy Questions.

The Town owns 143.53 acres at the Wastewater Treatment Plant site, of which approximately 2/3 is currently in use for treatment facilities and solar production. The four solar projects on site, including rooftop arrays and the shared solar project, occupy approximately 10 acres. The Town needs some of the remaining acreage for future expansion of wastewater treatment facilities at the site. The site is also ideal for future expansion of the Town's solar production to help meet our Net Zero by 2030 goals and provide for increased energy use at the Wastewater Treatment Plant. A community solar project will also need to keep adequate distance from the Snake River and be sited so as not to impede wildlife movements.

While there are competing interests for the space at the Wastewater Treatment Plant (WWTP), a preliminary look at the site shows potential to site a 5-acre solar array outside of the Natural Resource Overlay on the western half of the property (Figure 2) in an area that is not as desirable for future plant expansion. This option would still leave the potential for Town of Jackson solar arrays to roughly double in capacity to further Town goals.

Figure 2: Wastewater Treatment Plant Property



While there appears to be space available at the Wastewater Treatment Plant, a more detailed analysis is needed to determine the suitability of the site and the capacity of LVE transmission lines, and to ensure that

any environmental impacts will be minimal. The detailed site analysis will also help determine where the Town can expand our own solar arrays in the future to help offset electrical usage from the WWTP. If a Community Solar Project moves forward at this site, it may be possible for the Town to add additional solar of our own at the same time to reduce costs and maximize efficiency. While the primary focus of the project is to provide community solar to residential households, the Town may also be able to negotiate a lease agreement that allocates a portion of the power to the Town. Allowing ECW to conduct a detailed site analysis will not bind Council to approve a community solar array on Town property.

Possible Alternatives.

Council could reject the request to do a more detailed site study for a Community Solar Project at the Wastewater Treatment Plant.

Comprehensive Plan & Priority Alignment.

Principle 2.1 – Reduce energy consumption of non-renewable energy

To reduce the emission of greenhouse gases that contribute to climate change, the community should reduce its consumption of energy from non-renewable sources. The Town and County will lead by example and encourage reductions in energy demand and the use of renewable energy sources. However, it is the daily responsibility of the entire community to reduce greenhouse gas emissions whether for climate, financial or other reasons.

Principle 9.3 – Anticipate future issues and pioneer innovative solutions

Existing implementation tools will not be enough to fully achieve the community's aspirational goals. We have identified many tools that will move the community toward its Vision. We have also purposefully set the Vision out of reach of conventional approaches to challenge ourselves to explore the adjacent possible and reset the leading edge. To find new solutions, we will have to be willing to analyze and perhaps pilot atypical approaches that do not have historical precedent and may not yield tangible process.

Fiscal Impact.

The cost of the project and any infrastructure or maintenance associated with it will be the responsibility of ECW or LVE.

Staff Impact.

Staff will only be involved peripherally in the detailed site analysis, providing an estimated 8-10 hours of support, primarily by Public Works staff. It took staff 1 hour to complete this report.

Attachments or Links.

N/A

Suggested Motion.

I move to approve including the Wastewater Treatment Plan in Energy Conservation Works' detailed site analysis for a Community Solar Project and direct staff to return to Council to report on the findings.

STAFF REPORT



Meeting Date:	January 22, 2024	Meeting Title:	Town Council Workshop
Submitting Department:	Community Development	Presenter:	Susan Scarlata & Equity Task Force Members
Agenda Item	Equity Task Force Recommendations	Public Comment:	Yes

Purpose & Policy Considerations.

One of Town Council's priorities set in January of 2021 was the creation of an Equity Task Force (ETF) to help develop a more equitable, inclusive, and diverse local government and a more livable community overall. Council approved seven recommendations from this Task Force in December of 2022, and is now being asked to consider further recommendations from the ETF including extension of the Task Force as an entity.

Requested Action.

Staff requests that Council listen to staff and Equity Task Force members present about the group's work thus far and consider and discuss their recommendations.

Recommendations.

Staff recommends that Council learn about the Equity Task Force's continued work. Consider, discuss, ask clarifying questions about the recommendations the group is making, and approve them.

Background.

To reiterate some key definitions, equity is often conflated with equality but the two are not the same.

Equity: The state, quality or ideal of being just or impartial, which is achieved by giving people what they need to enjoy full, healthy lives and providing them with resources that are proportional to their needs.

Equality: Providing the same resources and opportunities to everyone.

EQUALITY:

Everyone gets the same – regardless if it's needed or right for them.



EQUITY:

Everyone gets what they need – understanding the barriers, circumstances, and conditions.



Inclusion: The degree to which people with different identities are welcomed and invited to fully participate in a given setting. More than simple numerical representation, inclusion means everyone has the ability to authentically participate and feel respected.

Council moved to establish an Equity Task Force in August of 2021. After various administrative items were in-place, staff put out a community-wide call for applications in December of 2021 and received 37 applications. Application materials contained the following overview. “The Town of Jackson is launching an Equity Task Force to advise the Town on equity and inclusion strategies, strengthen connections among the many segments of the community, and make recommendations to the Town and Town Council on priorities, policies, and solutions to help bring a wider variety of voices and perspectives into conversations to, ultimately, inform decision-making.” Council interviewed and appointed nine Task Force members in February of 2022 and staff began facilitating monthly Equity Task Force meetings in April of 2022. The initial Task Force was appointed through April of 2024, so if not renew will expire this coming April.

At monthly meetings since April of 2022 Equity Task Force members established working agreements, spent time in racial and gender-based affinity or ‘caucus’ groups, considered various local reports and research to gather foundational knowledge about issues related to equity in our community, worked in committees, drafted, and refined proposals, and read and had discussions about local and national issues and topics related to equity and inclusion. Three Task Force members with prior experience working on equity issues also presented to the rest of the ETF about their work in sustainability and equity, equity in education, and one member’s master’s thesis focused on utilizing an equity framework when planning capital construction in municipal government. These presentations and this valuable prior experience helped inform and refine thinking about possible recommendations to support our Town to move equity forward. In addition to everything mentioned above, in the twenty-two months the Equity Task Force has been meeting, the group has accomplished the following.

- Presented a Land Acknowledgement to Council, which is now read at Regular Council meetings.
- Met with and interviewed Town Directors about equity and inclusion at the organization, developed key takeaways, and essential questions.
- Listened to and worked on a ‘Readiness Tool’ and ‘Equity as Praxis’ with national expert on Equity and Inclusion, Shadiin Garcia from Shoreline Consulting.
- Met with staff in the Planning and Public Works departments to gain better understanding of potential recommendations and implementation steps.
- Attended ‘Mending Relationships’ workshop led by Cherokee Brown and had dialogue with Brown and Patti Baldes regarding land acknowledgements and connecting with local members of tribes.
- Brainstormed, adapted, refined, and iterated on potential proposals and recommendations.
- Supported work on and education about the Town’s Equity and Inclusion community survey.
- Listened to and gathered information from presentations given by Cherokee Brown, the joint Housing Department Director about ‘Equity in Housing’; a Habitat for Humanity staff member on housing selection, loans, and homeowner support; the Town’s Public Works Director about ‘Capital Improvements and Public Works’; the joint Regional Transportation Planning Administrator about ‘Transportation Planning & Equity’; a community member working on planning for Senior Housing and Assisted Living; and the Community Development Director about ‘Equity in Zoning’ and the history of the impact of Planning on equity.
- Presented seven recommendations with implementation steps to Town Council (highlighted below).
- The Task Force also engaged with, discussed, and utilized the following list of reports, articles, videos, and podcasts to inform its thinking.
 - [Advancing Racial Equity and Transforming Government: A Resource Guide to Put Ideas Into Action from the Government Alliance on Racial Equity](#)
 - [Teton Region Housing Needs Assessment](#)

- [Equity in Comprehensive Plans Examples](#)
- [Economic Contributions of Immigrants to Teton County, Wyoming](#)
- [Equity related Terms and Vocabulary from Government Alliance on Racial Equity](#)
- [Roadmap to Repair from National League of Cities](#)
- [Jay Smooth Video for TedX “How I Learned to Stop Worrying and Love Discussing Race”](#)
- [Podcast episodes from Dive-In Justice](#)
- [To Make Lasting Progress on DEI, Measure Outcomes](#)
- [Do Activist Androids Dream of Electric Voters: Examining the frenemy of AI application in civics, the misconceptions of bias in AI use...](#)
- [A Disability Rights Pioneer](#)
- [Black Disability Politics](#)
- [Tribal Waters Video](#)

The Equity Task Force has learned and accomplished a lot and understands more than ever that working on equity and inclusion is complex and multifaceted. To generate and work through possible recommendations the Task Force uses the following process. Group members, duos, or trios think through ideas for proposals, write them up, bring them to the full group for discussion, and eventually vote on each proposal for continued work, to be tabled, or to move forward as a recommendation to Council. Last December the Task Force brought seven recommendations to Town Council, all of which Council approved. They include the following and staff has provided updates below about progress on each item.

- **Updates on recommendation to translate documents and Town signs into Spanish.**
 - Town staff is working on this item and has translated both the Public Works and Snow King Events Center signs. Monthly, Community Development staff translates various messaging sent out through the Voices JH network. Beyond that, so far translation of documents into Spanish has occurred in a one-off way. Community Development Staff has plans to work to translate two document per department that are requested in Spanish most often to make further headway on this item. Staff time has been one barrier to moving this item further with greater speed as has been knowledge that not every department has bilingual staff members. So, if applications are in Spanish and community members fill them out in Spanish, additional challenges may be created if staff members whose job it is to process these documents are not able to read or gather the necessary information from them. Staff continue to work on this item.
- **Updates on recommendation to direct Housing Department to work on housing for seniors and an Assisted Living Center.**
 - This item came up in the spring of 2023 when the Housing Department presented its work plan. It was voted forward to remain on the Housing Department’s work plan and related funding was cut from that department’s budget. It is currently on a Housing Department list of unscheduled items. There is SPET funding allocated for planning for Senior Housing and Assisted Living.
- **Updates on recommendation to begin Council meetings w/ Land Acknowledgement and connect w/ Native Tribal members.**
 - The Task Force recommended, and the Town adopted a Land Acknowledgement that is read before regular Council meetings. The Town has hosted two ‘Mending Relationships’ workshops led by Cherokee Brown and Native Artist Patti Baldes’ ‘Rematriation’ sculpture created on the lawn at Town Hall last fall. The Town supported the ‘Intertribal Gathering,’ which Town staff and Councilmembers attended. Going forward, the Town will host another workshop led by Brown and is also planning to organize a visit to the Wind River Tribal Buffalo Initiative in the spring of 2024.
- **Updates on recommendation to direct staff to add a chapter focused on equity to the Comprehensive Plan.**
 - Discussion about this item came up with the County Commission around the Long-Range Planning work plan. It was added to the Long-Range Planners list of unscheduled items.

- **Updates on recommendation to revisit and consider removing policy that limits on-street parking in the winter months.**
 - This item was assigned to the Town and County's Regional Transportation Planning Administrator to be considered in the context of broader discussions about parking. Task Force members continued to research this item and met with Public Works staff about a potential pilot to determine viability of this item, which is discussed in more detail as a reaffirmation below.
- **Updates on recommendation to develop and administer an internal Equity Audit at the Town of Jackson.**
 - Task Force members began this work last winter and pivoted due to various unanticipated circumstances. Key takeaways and questions are detailed in a summary attached to this report. Related learnings also appear in the recommendation to continue the Task Force as the ETF has a better and deeper understanding about the organization and its readiness for equity work having engaged in the initial steps for this process.
- **Updates on recommendation to establish Employee Resource Groups and eventually hire a Director of Equity.**
 - The seed of this item is being reaffirmed with further knowledge and a refined understanding of the organization's needs in the recommendation to continue the Equity Task Force and work with a consultant to integrate the Task Force's efforts with internal work at the Town. With greater understanding gained from interviewing some Town constituents, the ETF see a more immediate need for a cross-departmental staff committee focused on equity and inclusion as a key step for building internal readiness and understanding of the relevance and necessity of the benefits of equity and inclusion work. If such a group is established and successful it could eventually lead to establishing Employee Resource Groups, but the ETF believes an internal working group focused on these topics internally, as the ETF is focused on them externally, is the most immediate need.

Analysis & Key Policy Questions.

Further Recommendations

Since the above recommendations were made, the Task Force has continued learning, discussing, and working through a number of additional proposals. Some possible recommendations that ETF members have researched, discussed, and assessed are not being recommended as they either need more refining or did not end up being a fit for our community. Below is a list of five additional recommendations from the Equity Task Force.

- Recommendation to continue the Equity Task Force with refinements to the related resolution, further requirements for members, and integration with the Town organization.
- Recommendation to take necessary steps to make the Town more accessible.
- Reaffirmation of recommendation for alternate-side winter parking for social equity.
- Recommendation to recognize Indigenous Peoples' Day with a proclamation annually before the 2nd Monday of October to commemorate this day and continue connection with native tribal members.
- Recommendation to review Capital Improvement Planning utilizing an equity framework.

Continuing the Equity Task Force is a foundational policy question for Town Council, so staff is providing a longer explanation for this item, essentially a mini staff report within this larger one, with details about background, policy considerations, and next steps. The other four recommendations are summarized below and discussed in greater detail in attached one or two-page recommendation documents, drafted by members of the Task Force.

1. Recommendation to continue the Equity Task Force with refinements to the related resolution, further requirements for members, and integration with the Town organization.

The Equity Task Force recommends that the Council renew the Task Force with a refined resolution, more accountability for members, and deeper integration of its work with the organization. To support this next iteration, the

ETF recommends engaging a consultant with expertise in inclusion and equity to help with this integration and articulation of the Town's specific "why" for this work and how it relates to the organization's values and vision.

Purpose & Policy Considerations: The ETF was created as a recommending body to advise the Town on equity and inclusion strategies, strengthen connections among the many segments of the community, and make recommendations to the Town on priorities, policies, and solutions. The current ETF believes that to be effective, equity and inclusion work must be strategic, long-term, and continuous.

The Task Force is grateful for Town Council's initial investment in the ETF and for its allowance for the first group to "build it as they have flown." Now, the ETF recognizes it is time to harness the strengths and assets that already exist in the Town organization and continue to build from there. Through its recommendation to continue, the Task Force suggests co-constructing solutions and strategies that align with goals and leveraging the voices, perspective, and wisdom of everyone at the Town of Jackson.

Requested Action: The ETF requests that Town Council direct staff to continue to dedicate time and financial resources to renew the Equity Task Force. If renewed, the ETF recommends an update to the resolution establishing this group to include more clarity about specific duties for members including attendance at Council and other meetings, engagement in the community related to equity and inclusion, and greater integration with the organization overall. The ETF recommends that members continue to have two-year terms, receive monthly payments, and are provided with clearer requirements. Task Force members are keenly aware that equity and inclusion are not accomplished quickly, or ever completely "done." Instead, work on inclusion and equity is strategic and continuous. If renewed, the Task Force can continue to support and help see through recommendations already made, make additional recommendations, do further work to better understand the organization and community and related equity and inclusion issues, and provide steadiness and continuity for this work in our community.

In tandem, the ETF requests that Town engage a consultant with expertise in equity and inclusion to support this work. This consultant would help support integration of the Task Force, help work on equity and inclusion at the Town and help establish and articulate the "why" for this work at this organization. The ETF believes a consultant experienced in equity and inclusion can provide the necessary expertise to build capacity and help the Town articulate why this work is relevant, necessary, and integral to all the services and programs the Town provides, which it sees as a necessity for the next phase of this Task Force.

Why Focus on the "Why"?: As Council considers this recommendation, staff believes it necessary to share background and provide perspective on various reasoning for engaging in equity and inclusion work. The original goals set forth for the creation of the Equity Task Force are a starting point, but the Town also needs to understand why it is working on inclusion and equity. As Task Force members interviewed various Town staff and Councilmembers earlier this year (see attached summary), it became clear to ETF members that though the Town has taken solid steps toward working on and understanding equity, one key step has been missing, which is articulating a solid "why" for this work that Town Council, staff, and community members understand. If the Town continues with this work, it is essential to take time to establish this "why" so everyone involved can understand and see how inclusion and equity are relevant, necessary, and integral to the Town's work.

Council may remember a presentation last winter about the Equity and Inclusion survey the Town administered in the summer of 2022. This survey demonstrates that this work is a priority in our community. Seventy-one percent (71%) of respondents see action on equity and inclusion as either "very important" or "important" for our community and government to prioritize. The reason over 50% of respondents identify as the "why" for this work is to "Prepare local leaders to manage a diverse workforce." Our community is experiencing demographic shifts and respondents identified

the potential positive results of having more people in leadership understand and prepare to support these changes.

Beyond the local level, another powerful set of reasons for working on equity and inclusion comes from the business world and research demonstrating that positive organizational cultures promote employee well-being, satisfaction, and drive, which translates into higher retention, increased productivity, and efficiency. Societal shifts and community demographics continue to increase the number of different groups of people in the workforce. Varied generations, ages, nationalities, racial backgrounds, religions, sexual orientations, health status, and other characteristics contribute to people's unique identities. There is no such thing as a workplace that lacks diversity in its employees or one that does not already have people working across differences. Inclusion has been proven to make organizations stronger because it challenges everyone to prepare better, work towards consensus, and anticipate alternative points of view. These articles from the Harvard Business Review and Scientific American highlight the benefits of inclusive workplaces [How Diversity Makes Us Smarter in Scientific American](#), [Why Diverse Teams Are Smarter in the Harvard Business Review](#).

Organizations that strive to be inclusive, equitable, and welcoming to a wide range of people and perspectives achieve the best results and offer the following advantages.

- **Expanded creativity and problem-solving:** A varied workforce brings a wide array of skills, experiences, perspectives, and insights to problem solving. Diversity increases innovation, creativity, and strategic thinking.
- **Better decision-making:** Varied groups of employees pull from a wider range of experiences and places. With that, they make sound decisions, and improve organizational results.
- **Increased productivity and performance:** Teams without people with varied identities under-perform those that are diverse. Ambitious people are attracted to inclusive organizations.
- **Enhanced employee engagement & retention:** Employees are more engaged, loyal to, & likely to stay longer in welcoming work cultures where their contributions are recognized & respected.
- **Good standing in the community:** The more diverse an organization is, the wider its appeal to a whole range of people. When organizations promote inclusion, they are perceived as more relatable, engaging, and human by a greater number of people.

As evidenced, there is thorough research and reasoning for continuing to work on equity and inclusion. Still, the Town needs to fully understand, establish, and articulate its own "why" for engaging in this work. Ideally, this can overlap and be integrated with eventual efforts to update the Town's mission, vision, and values to better reflect the current state of the organization.

Fiscal Impact: Continuing the Equity Task Force would include funding for stipends of \$450 monthly for 9 members for two-year terms, so \$48,600 in two fiscal years. There would also be costs associated with working with an equity and inclusion consultant. There is funding available for the latter in the line-item for professional services in the Community Development budget.

Staff/Task Force Impact: Staff also supports continuing the Equity Task Force and has a variety of ideas to hone the resolution and related processes and systems. Staff also sees this moment as the right time to engage a consultant to help refine and work to articulate the "why" behind this work for the Equity Task Force and the Town overall. Staff supports building in more integration between the Task Force and the Town organization, so recommends keeping a 9-member Task Force and having groups of three assigned to:

1. Attend Council meetings;
2. Participate in community engagement sessions and attend other commission and/or Task Force meetings; and
3. Work on the next Inclusion Survey and other related projects.

Proposed Implementation Steps: If Town Council approves renewal of the Equity Task Force, staff intends to update the related resolution to improve upon methods for integrating the Task Force's work with the Town, to increase methods for accountability of Task Force members, and to begin to engage with a consultant to support the Task Force, community development staff, and the organization. If approved, staff intends to bring a new resolution before Council in February. At that time, staff would also facilitate a discussion about the process for appointing members, the Task Force has had initial discussions about members being involved in that process alongside some Councilmembers. Following that, staff would facilitate an application and appointment process in the spring of 2024 to have another Equity Task Force seated and begin its next series of meetings in May or June of 2024.

Key Question #1: Does Council want to direct staff to take steps to continue the Equity Task Force?

2. Recommendation to take necessary steps to make the Town more accessible (see attached rec).

The purpose of this recommendation is to bridge the equity gap for people with disabilities. Currently, the burden is placed on individuals with disabilities to figure out if an organization or business has an accessible entrance, and then spend extra time finding that entrance and/or other related amenities. The same goes for any other ADA infringement. Currently, if there is a business in violation of ADA laws, it's up to the individual to pursue the violation. There are current laws that can be enforced to provide people with disabilities with their basic rights. The Equity Task Force recommends that the Town of Jackson help bridge that and help uplift these issues so disabled community members are at the forefront of our minds and policies instead of afterthoughts. The Task Force recommends improving accessibility by starting with basic signage that clearly demonstrates accessible entrances and pathways for people with mobility problems and hopes the Town can eventually make all of its facilities and sites as well as local businesses fully accessible and compliant with the ADA.

Proposed Implementation Steps: If approved, the first step would be for staff to bring back a related scoping report. The Town's Public Works team and facilities division would need to determine what is possible to begin making accessibility improvements to Town facilities. Interested ETF members could work with facilities staff to consider where signs and/or other accommodations are needed in, on, and around Town facilities and sites. Community Development staff can support the facilities team with ordering signs and aligning them with current brand standards. This process may take a year or longer after which additional steps listed in this phased recommendation could be considered.

Key Question #2: Does Council want to direct staff to bring back a scoping report about taking steps to make the Town more accessible?

3. Reaffirmation of recommendation for alternate-side winter parking for social equity (see attached rec).

The Equity Task Force reaffirms one of its initial proposals to revisit the winter parking ban and recommends that Town Council direct staff to implement an alternate-side parking pilot next winter on Hall Street from November 2024 to April 2025. This pilot program will allow snow plowing on even-numbered sides of the street during weeks that start with even-numbered days and vice versa, optimizing snow removal efforts and minimizing inconvenience for residents. This innovative approach aims to enhance snow plowing efficiency, reduce operational costs, and address the needs of the working-class population, aligning with the Town's commitment to social equity in our community. Building on successful models in other towns and cities, the Town of Jackson can significantly improve snow plowing operations while ensuring convenience and fairness for all residents.

Staff Perspective/Proposed Implementation Steps: Staff still believe this item should be considered in a comprehensive look at parking management. When it was first recommended, it was directed to be considered by the joint Regional Transportation Planning Administrator, which it was, and now lives in a tracked and unscheduled list for that division. Town staff believes this item should remain there and be considered among the myriad other

considerations related to parking. However, if approved, the first step would be for staff to bring back a related scoping report. Public Works staff and Police will need to consider the best method for implementing an alternate-side parking pilot and how best to staff, train for, and enforce this new initiative.

Key Question #3: Does Council want to direct staff to bring back a scoping report about implementing an alternate-side parking pilot next winter?

4. Recommendation to recognize Indigenous Peoples' Day with a proclamation annually before the 2nd Monday of Oct. to commemorate this day and continue connection with native tribal members (see attached rec).

The ETF recommends that Town Council direct staff to draft a proclamation about Indigenous Peoples' Day for the Mayor to read at the top of Council's first meeting in October. Indigenous Peoples' Day is a holiday in the United States that celebrates and honors Indigenous peoples and commemorates their histories and cultures. It is celebrated across the United States on the second Monday in October and is an official city and state holiday in various localities. The Task Force recommends this proclamation as a first step and encourages the Town to eventually recognize and celebrate the second Monday in October as Indigenous Peoples' Day.

Proposed Implementation Steps: If approved, staff will draft a proclamation to be read at the first meeting in October to ensure it is heard before Indigenous Peoples' Day on the 2nd Monday in October.

Key Question #4: Does Council want to direct staff to draft a proclamation about Indigenous Peoples' Day starting next October and continuing annually?

5. Recommendation to review Capital Improvement Planning utilizing an equity framework (see attached).

The ETF requests that Town Council direct staff to pursue a review of capital improvements using an equity framework. This would entail working with a consultant to conduct a historical analysis of prior capital improvement projects to understand where investments have been made, help create an equitable capital improvement planning process moving forward, and a process for utilizing an equity framework for projects moving forward. Greater investigation into when, where, and how money is allocated to capital projects can be used as an overall community health indicator. The ETF suggests a review of capital improvement planning for approximately the last twenty years to understand historic spending patterns in geographies and categories of infrastructure investments.

Proposed Implementation Steps: If approved, the first step would be for staff to bring a related scoping report back to Council. ETF believes this review should be completed with the help of an external consultant. This would need to be a part of a staff work plan to manage and implement and staff would need to project and allocate related staff time.

Key Question #5: Does Council want to direct staff to bring back a scoping report about reviewing Capital Improvement Planning utilizing an equity framework?

Possible Alternatives.

Council has the option to not approve any or all of the Equity Task Force's recommendations, or to suggest other options for implementation steps that staff has provided.

Comprehensive Plan & Priority Alignment.

The Comp Plan's third Common Value is 'Quality of Life,' which highlights that our community takes pride in our local identity and community character. The Comp Plan states, "Residents and visitors have become accustomed to high-quality life safety, transportation, educational, social, cultural, and recreational services." Considering if this is true for all

residents, the Equity Task Force has recommended an update to the Comp Plan with a more direct focus on equity.

Fiscal Impact.

At its meeting on August 30, 2021, Council authorized Equity Task Force members to be paid \$450 monthly totaling \$48,600 annually for the 9-member Task Force. Various recommendations may have related costs and different phases of different recommendations may also have different fiscal impacts. When possible, some more detail is provided in the attachments about some of the five recommendations, but direct costs will need to be brought back in scoping reports by staff who are subject matter experts and would be implementing these recommendations.

Staff Impact.

The Community Development Department is using staff capacity to steward the Equity Task Force. As this department seeks to shrink the distance between the people impacted by decisions and those making them, the Equity Task Force is a suitable and effective use of staff time and resources, as this endeavor helps bring a wider variety of voices and perspectives into conversations to, ultimately, inform decision-making. For calendar year 2023, the lead staff member stewarding this initiative spent an approximate total of 120 hours to facilitate and steward this Task Force. The Town Manager and Public Information Officer also attend some meetings and provide support and perspective to the Task Force, spending approximately 20 hours annually each. If approved, the impact various recommendations may have on staff time will be provided through scoping reports.

Attachments or Links.

- Detailed recommendations from the Equity Task Force
- Summary of process related to Equity Audit/Questionnaire

Suggested Motions.

1. I move to direct staff to revise the Equity Task Force resolution to renew this Task Force for another two-year term with refinements detailed in this staff report and to direct staff to update and bring back the related resolution for Council consideration.
2. I move to direct staff to write a proclamation recognizing Indigenous Peoples' Day for Council to read before the 2nd Monday in October each year.
3. I move to direct staff to bring back scoping reports about taking steps to further accessibility at all Town buildings and sites.
4. I move to direct staff to bring back a scoping report about alternate-side winter parking.
5. I move to direct staff to bring back a scoping report about using an equity framework in capital planning.



Summary of Equity Interviews, Key Takeaways, and Questions

Last winter, the entire Equity Task Force dove in to work developing an equity audit creating questions for the organization overall and more specific queries for different departments. As the group continued to refine questions, various members also suggested individual outreach to each department to build relationships and connection and lessen the negative connotations of being “audited.” The Task Force wanted to demonstrate that this audit was less about finding faults or things that might be “wrong,” but instead about opportunities for growth and improvement. Interviews related to equity and inclusion took place with one or two Task Force members meeting with department directors, and any staff members that directors wanted to include in May and June of 2022. After those meetings, Task Force members came back together realizing there were a lot more questions and unknowns about equity and inclusion at the Town than they anticipated. They heard accounts, as shared below, about prior missteps related to equity and inclusion, experienced some sensitivity about these topics in general, and also came to understand the Town was about to administer the Denison Culture Survey. Given these realities, the Task Force decided an equity audit or even questionnaire at this time would not be productive. So, the group decided to pause, reevaluate, and work to determine different steps forward.

Key Takeaways: In May and June of 2023, Equity Task Force members met with and interviewed department directors, other town staff, and Councilmembers. After conducting these interviews and realizing that a survey about the Town’s culture was also taking place, Task Force members decided to instead compile the following takeaways and questions from interviews. Taken together, these interviews helped the Task Force understand that the Town is in early stages in terms of understanding and buy-in about equity and inclusion. The following lists are compilations of statements and questions made during interviews by staff and some Councilmembers, which have been edited and paraphrased.

Takeaways from Interviews

- Staff in some departments are enthusiastic about equity and inclusion work at the Town and in their departments. There is recognition of the need for this work simply to continue placing it in Town employees’ consciousness, to keep it in peoples’ minds.
- Staff in some departments feel like equity and inclusion does not apply or relate to them.
- Belief that there is a need for equity and inclusion training for Directors and Managers.
- Recognition that earlier internal equity training was a misstep. The Task Force should be aware of this and take the necessary time to make their work thoughtful, considered, and productive.
- Expression that the Town has made some progress in terms of accessibility and mobility in capital construction plans, and recognition that, “We don’t know what we don’t know” so there are likely other equity and inclusion items the Town is simply unaware of and thus may unintentionally be missing in its Capital Planning.
- Recognition that the Town is hierarchal and job advancement might be seen as tied to gender, tenure, or other typical measures of value.

- One employee highlighted prior experience at a different organization that had an anonymous way to report microaggressions or other identity-based harm when/if it occurs.
- Hope for a recommendation to increase accessibility for employees and the public at Town Hall and other buildings (i.e., a pull-out shelf at the podium at the correct height for all users when addressing Town Council; push button door openers; gender neutral bathrooms).
- Staff is working on inventorying assets and construction projects. There is a desire to have a better 'mapping' of capital projects. Once assets are mapped, it will help inform and prioritize infrastructure projects.
- Acknowledgement of unsuccessful attempts at equity and inclusion training and mention of limited measures currently being taken.
- Need expressed for actionable toolkits or 'equity filters' that could be utilized and referenced in HR-related procedures including recruitment processes for individuals or external consultants, interview questions, or current systems and procedures.
- Staff see it being extremely helpful to have the Equity Task Force engaged early in the Capital Planning process each year, as well as on individual projects as part of the internal review.
- Support expressed for equity and inclusion being added to the Comp Plan with added realism that this will not happen quickly.
- Expressions of barriers to implementing some of the Task Force's recommendations such as creating an Employee Resource Group when nothing similar exists yet in the Town structure.

Some recommendations the ETF is making in January of 2024, or is still working on, relate to points made in the above interviews. In addition to statements, Task Force members came away with a lot of questions from staff members, including the following.

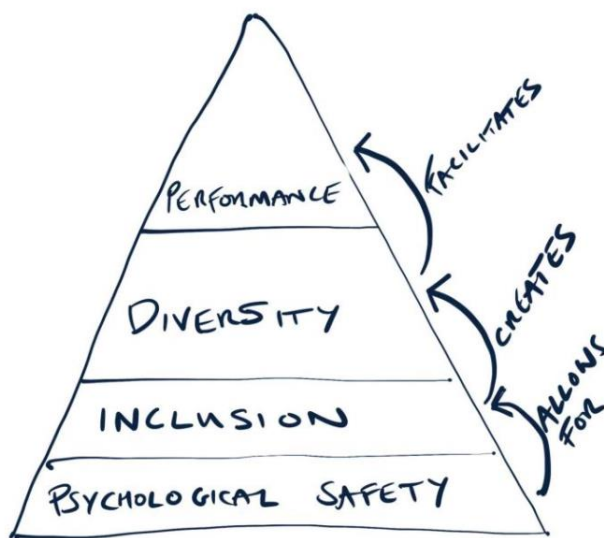
Questions posed to Task Force During Interviews

- What factors/elements would help people feel comfortable engaging around equity and inclusion materials or trainings?
- Do Town employees see equity and inclusion as important, understand its objectives? Is it seen as a priority of the Town. Is it a priority of the Town?
- Does the Town communicate to employees about the importance of equity and inclusion?
- Internally, is the Town inclusive and equitable; are employees treated fairly, with a path for recourse available and known?
- What are barriers to inclusion for Town staff? Are there barriers for people to do their jobs? Are there barriers to success?
- Do employees feel uncomfortable in the workplace about their race, gender, sexual orientation, age, disability, etc.?
- Do Town employees perceive they are treated differently if they are single (without partners or children) versus having partners (with and without children)?
- What might be necessary to foster important, protected comments about equity and inclusion at the Town without fear of retaliation?
- Does the Town hold employees accountable for supporting equity and inclusion principles?

The Town's original goal for the Equity Task Force is to "Advise the Town on equity and inclusion strategies, strengthen connections among the many segments of the community, and make recommendations to the Town and Town Council on priorities, policies, and solutions to help bring a wider variety of voices and perspectives into conversations to, ultimately, inform decision-making." This was a starting place, but through interviewing staff, the Task Force has realized that with its creation,

the Town missed an important step. The “why” behind the Task Force and the need for work on equity and inclusion has not yet been fully articulated either externally or internally for the Town. Many people are still not entirely clear as to “why” equity and inclusion are relevant, necessary, and even integral to their day-to-day lives.

In the ETF’s recommendation to continue the Task Force and the staff report for their presentation to Town Council in January of 2024 next steps for the Task Force and the Town are outlined. The basis of these steps is work on establishing and articulating the “why” behind this work and integrating the policy-level work the Task Force has focused on with a deeper understanding of Council and other decision-making bodies and internal work at the Town. Using the graphic below as a model, the ETF believes there needs to be safety established to discuss and accept that equity and inclusion are relevant, necessary, and integral to the Town. It’s that safety that allows for inclusion, that inclusion that creates diversity and openness about it, and diversity that facilitates performance and can allow for and lead to greater equity.



The Task Force is grateful for Town Council’s initial investment in the ETF and for its allowance for the first group to “build it as they have flown.” Now, the ETF recognizes it is time to harness the strengths and assets that already exist in the Town organization and continue to build from there. Through its recommendation to continue, the Task Force suggests co-constructing solutions and strategies that align with goals and leverage voices, perspective, and wisdom of everyone at the Town of Jackson.



Recommendation to take necessary steps to make the Town more accessible.

Purpose & Policy Considerations: The purpose of this recommendation is to bridge the equity gap for people with disabilities. Currently, the burden is placed on individuals with disabilities to figure out if an organization or business has an accessible entrance, and then spend extra time finding that entrance and/or other related amenities. The same goes for any other ADA infringement. Currently, if there is a business in violation of ADA laws, it's up to the individual to sue for change. There are current laws that can be enforced to provide people with disabilities with their basic rights. Can the Town of Jackson help bridge that gap? Can the Town help uplift this issue so disabled community members are at the forefront of our minds and policies instead of afterthoughts, which is the current reality for many businesses and organizations.

Requested Action: The Equity Task Force requests that Town Council direct staff to work on improving accessibility by starting with basic signage that clearly demonstrates accessible entrances and pathways for people with mobility problems. Following that, the ETF hopes the Town can help make the downtown corridor more fully accessible and compliant with the ADA. The ETF proposes starting with all Town-owned buildings and sites and eventually get to a point that Town helps remove the onus from disabled individuals to help enforce ADA laws for all businesses in Jackson. Specific requested actions include the following.

- Identify and assess accessibility compliances within Town structures and sites.
- Highlight accessible entrances and other amenities with signs.
- Building and planning departments begin using an equity lens and enforcing current ADA standards in new construction and renovations.
- Review current practices with an accessibility equity lens. Street sweeping, sidewalk snow removal, parking lot snow removal, and street clearing.
- Review any ADA exceptions and grandfather clauses.
- Find an enforcement mechanism to take onus off the individual and bridge the equity gap by enforcing ADA laws (this could be a compliance officer, increased allocation for enforcement, or withholding business license issuance or renewal until ADA standards have been met)

Background/Analysis: Too many places in and around our Town are hard to get to for people with disabilities. Some examples include sidewalks that turn to stairs (near Orsetto & Teton Tiger), or sidewalks that end with nothing on the other side (near Knifeworks). Signage is a bare minimum that will help people with mobility problems navigating the Town to know where is safe and accessible to them. People with mobility problems wanting a drink or meal from Roadhouse have to go in through the alley half a block away and search out the correct door that leads to the service elevator. Signage could easily remove some barriers of confusion for people with disabilities.

Another bare minimum band-aid solution would be to require portable ramps for businesses with more than one step at their entrances. One Equity Task Force member who is disabled based a jewelry



purchase on his ability to enter the business. A local jewelry shop missed out on potential business simply because he could not enter. Most businesses in the valley are not tall buildings, so they would not require more than modest adaptations to be more accessible.

The Task Force sees this as a phased process that necessitates the Town getting its own “house in order” with comprehensive accessibility and corresponding signage first before it attempts to further compliance by outside entities. This said, the Task Force would like all of the bullet points listed to occur sooner than later to help ensure that Jackson is an accessible place to be and spend time. This comic helps illustrate the ways of thinking the ETF is trying to shift; we tend to see things for able bodies as the priority, but if we shift our thinking and actions, there may be solutions that work for everyone right under our noses.



CLEARING A PATH
FOR PEOPLE WITH SPECIAL NEEDS
CLEARS THE PATH FOR EVERYONE!

Fiscal Impact: Creating and installing signs comes with related expenses. Public Works may have some



of the downtown accessibility issues already slated in their capital budget, but fast-tracking projects to streamline sidewalks in the downtown corridor would also help. There could also be collaboration and shared financial responsibility for businesses to post signs designating where there are accessible entrances. Age Friendly Jackson Hole could also be a helpful collaborator in the legwork of identifying problem areas.

Staff/Task Force Impact: To start, task Force members could work with facilities staff from Public Works and local businesses to map out where signs should be and what they should say. Creating and installing signs will need to be done by staff and/or consultants. Legal staff will need to be involved in reviewing ADA policies. Age Friendly Jackson Hole is working on an 'Age Friendly' verification process for businesses so there could be some helpful overlap with that. Ideally, the Chamber of Commerce would also collaborate on this effort.



Reaffirmation of recommendation for alternate-side winter parking for social equity.

Purpose & Policy Considerations: The Equity Task Force (ETF) is reaffirming one of its initial proposals here to revisit the winter parking ban and proposes initiating an alternate-side parking policy during the winter months, specifically a pilot on Hall Street from November 2024 to April 2025. This pilot program will allow snow plowing on even-numbered sides of the street during weeks that start with even-numbers and vice versa, optimizing snow removal efforts and minimizing inconvenience for residents. This innovative approach aims to enhance snow plowing efficiency, reduce operational costs, and address the needs of the working-class population, aligning with the Town's commitment to social equity in our community.

Requested Action: The ETF requests that Town Council direct Public Works and Police Department staff to plan for administering a pilot alternate-side winter parking project in the 2024/2025 winter on Hall Street in East Jackson. By adopting an alternate street parking policy and effectively communicating about the initiative to our community, aligning with successful models in other towns and cities, the Town of Jackson can significantly improve snow plowing operations while ensuring convenience and fairness for all residents. This pilot program would demonstrate a proactive approach to addressing social and economic disparities within our community.

Background/Analysis: This proposal draws inspiration from successful implementation of alternate-side winter parking in towns like Crested Butte, Colorado and cities like Minneapolis, Minnesota, and Madison, Wisconsin. Minneapolis's winter parking program involves alternating sides of the street for parking during snow emergencies and ensuring efficient snow removal without unduly inconveniencing residents. In Madison, a parking system entails having residents park on one side of the street for a specified period before switching to the opposite side, streamlining snow plowing efforts. In Crested Butte, a similar system exists with parking on different sides depending on if the date is an even or odd number. These signs demonstrate how Crested Butte implements its alternate-side parking program.





Speaking with Public Works staff, the ETF believes that alternating week-by-week could make the most sense in Jackson and cause the least confusion in our community. The ETF believes alternate-side parking could provide significant benefits to the Town including the following.

1. Reduced Operational Costs & Fiscal Impact:

- ☐ Optimizing route planning and resource allocation by concentrating snow plowing efforts on one side of Hall Street at a time, reducing fuel consumption and labor hours.
- ☐ Decreasing wear and tear on snow plowing equipment and vehicles, which could extend their lifespan and lower maintenance costs.

2. Environmental Impact:

- ☐ Concentrated snow plowing efforts lead to reduced fuel consumption and greenhouse gas emissions, contributing to environmental conservation and air quality improvement.
- ☐ As plowing becomes more efficient, minimizing vehicle idling time further reduces carbon emissions, promoting a greener and more sustainable community.

3. Community Convenience and Social Equity:

- ☐ Residents, particularly the working class, can conveniently leave their cars parked on Hall Street from 3 a.m. to 7 a.m., aligning with their work schedules.
- ☐ Addressing the ban on winter street parking primarily affecting the working class highlights the policy's social and economic implications. This policy acknowledges and aims to rectify this inequality, ensuring equitable access to parking spaces during snow emergencies.

Implementing a Pilot Project: To ensure the success of this pilot project, extensive communication with the community will be paramount. Alerts and comprehensive information regarding the alternate street parking policy will need to be prominently featured on the Town of Jackson website, shared through official social media channels, and announced via local news outlets. Community members will receive notifications through these platforms, outlining clear program implementation guidelines, rules, and expected benefits. Furthermore, avenues for feedback will be established, encouraging residents to share their experiences and observations. This valuable input will enable the Town to refine the policy effectively, ensuring it aligns with the community's needs and expectations.

Fiscal Impact: If approved, Public Works staff and Police will need to consider the fiscal ramifications during budgeting.

Staff/Task Force Impact: If approved, Public Works and Police Department staff will need to consider the best methods for an alternate-side parking pilot and how best to staff and train for this new initiative.



Recommendation to recognize Indigenous Peoples' Day with a proclamation before the 2nd Monday of October to commemorate this day and continue building connections with native tribes.

Purpose & Policy Considerations: Indigenous Peoples' Day is a holiday in the United States that celebrates and honors Indigenous peoples and commemorates their histories and cultures. It is celebrated across the United States on the second Monday in October and is an official city and state holiday in various localities. In 2023, the White House issued proclamations for both Indigenous Peoples' Day and Columbus Day on the second Monday in October.

Requested Action: The Equity Task Force (ETF) requests that Town Council direct staff to draft a proclamation about Indigenous Peoples' Day for the Mayor to read at Council's first meeting in October. The Task Force recommends this as a first step and encourages the Town to eventually recognize and celebrate the second Monday in October as Indigenous Peoples' Day.

Background/Analysis: The second Monday in October has often been recognized and celebrated as Columbus Day across the United States, which represents a painful and incomplete narrative of our nation's history. It commemorates an explorer whose arrival led to injustices against indigenous peoples including displacement, violence, and cultural suppression. The Equity Task Force (ETF) recognizes that the Town does not currently celebrate or do anything related to Columbus Day. It is not considered a holiday for the Town of Jackson. Realizing this, the ETF sees this as an opportunity for the Town to recognize and celebrate Indigenous Peoples' Day to further acknowledge the rich and enduring cultures, contributions, and resilience of Native Americans. This will be a step for the Town to confront the past honestly while celebrating the living heritage of its indigenous neighbors. Jackson's location in the heart of Native American ancestral lands, particularly the Shoshone and Bannock territories, underscores the importance of a proclamation for Indigenous Peoples' Day. It is an opportunity to foster community understanding, unity, and healing, and the Town will affirm its commitment to action connected to its Land Acknowledgement by embracing Indigenous Peoples' Day. This will be a chance to continue strengthening the Town's ties with local tribes, promoting cooperation, and cultural exchange that benefits us all. Ideally, this proclamation will be another step in signaling that the Town does not see our indigenous neighbors as visitors but as integral to our community and history. It will send a clear message that the Town stands against historical injustices and supports the aspirations of indigenous communities. We urge Town Council to seize this opportunity for positive change, setting an example for our state and the nation. Together, let's celebrate indigenous peoples' enduring cultures and contributions, honoring their presence in our shared history and shaping our shared future.

Fiscal Impact: The ETF does not anticipate any related fiscal impact.

Staff/Task Force Impact: If approved, staff will draft a proclamation to be read in early October to ensure it is heard before Indigenous Peoples' Day on the 2nd Monday in October.



Recommendation to review Capital Improvement Planning using an equity framework.

Purpose & Policy Considerations: The Town currently keeps a list of Capital Improvements to help strategically and financially plan for physical infrastructure, maintenance, and upgrades. There is not currently a formal 5-year Capital Improvements Plan, which many local governments utilize. Typically, these plans assist with long-term forecasting for capital needs ranging from minor street updates to major wastewater system upgrades and from sidewalks and bike-lane infrastructure to large-scale capital projects required for core services such as new facilities. A historical analysis related to prior investments in infrastructure would augment overall understanding of previous capital projects and equitable investments for the Town moving forward.

Requested Action: The Equity Task Force (ETF) requests that Town Council direct staff to pursue a review of capital improvements using an equity framework. This would entail working with a consultant to conduct a historical analysis of prior capital improvement projects to understand where investments have been made and helping create an equitable capital improvement planning process moving forward. Greater investigation into when, where, and how money is allocated to capital projects can be used as an overall community health indicator. The ETF suggests a review of capital improvement planning for approximately the last twenty years to understand historic spending patterns in terms of geography and categories of infrastructure investments.

Background/Analysis: Through creation of the ETF, the Town of Jackson has committed to working to understand what social equity means, both internally and externally, to this community. The ETF is a recommending body that advises the Town on equity and inclusion strategies and considers priorities, policies, and solutions that will help bring a wider variety of voices and perspectives into conversations to ultimately inform decision-making.

Gaining a deeper understanding of equity as it relates to capital projects could lead to various additional recommendations for both equitable processes and outcomes that could include defining equity within a 5-year formal Capital Improvements Plan (CIP), creating measurable indicators for equity within a CIP, equity training for department heads as it relates to capital projects and budgeting, or categorizing CIP projects to align with equity goals.

One researched example comes from the city of Baltimore's 'Equity Analysis of Baltimore City's Capital Improvement Plan, FY2014-FY 2020.' This report is based on the concept of using an "equity framework" in policy and planning utilizing an equity lens from the Urban Sustainability Directors' Network's (USDN), which requires consideration of three overarching areas of equity. For capital projects, decision makers

are asked to consider the following questions.

- **Distributional Equity:** Does the distribution of civic resources and investment explicitly account for potential disparate outcomes for people with marginalized identities. Who does this project help and who does it harm?
- **Transgenerational Equity:** Does the policy or project result in unfair burdens on future generations?
- **Structural Equity:** What historic advantages or disadvantages have affected residents in the given community?
- **Procedural Equity:** How are residents who have been historically excluded from planning processes being authentically included in the planning, implementation, and evaluation of the proposed policy or project?

To understand who is likely benefiting from capital improvement investments through the CIP, a functional process would analyze the distribution of capital improvement appropriations compared to the distribution of various community-based indicators.

Fiscal Impact: The ETF believes this review should be completed with the help of a consultant. It would be beneficial to have a fresh, nonbiased review. A graduate student of public policy or urban planning could also be an option, utilizing this as a capstone project.

Staff/Task Force Impact: If approved, the ETF believes this review should be completed with the help of an external consultant. This would need to be a part of Public Work's (PW's) work plan to manage and implement and PW staff would need to project and allocate related staff time and funding.

February 5, 2024 Regular Town Council Meeting

INITIAL SR DUE: 1/5 COMPLETED SR DUE: 1/19 FINAL SR DUE: 1/26

Consent Calendar

Snow King CUP and Amendments to the Gondola Lease Agreement

CenturyLink Franchise Agreement

Wyoming Department of Health Grant

2024 Patching Contract Award

Discussion & Action Items

Consideration of an Amendment to the Deed Restrictions at Kelly Place Condos

Ordinances

Ordinances F-N: LDR Clean-up and Annual Update (P23-026)

Ordinance X: An Ordinance Updating Required Bicycle Parking (P23-016)

Ordinance O: An Ordinance Adding Appendix A Regarding Required Bicycle Parking

Ordinance P: An Ordinance Amending NH-1 Zoning (P23-168)

Matters from Mayor and Council

Matters from the Town Manager

Town Manager's Report

Adjourn

JIM Agenda Item Requests			
<i>Submittal / Request Section</i>			
February 5, 2024 JIM (Looking to Change to February 12)			
#	Submitter Name	Agenda Item	Time Needed
1	Tyler/Alyssa	Joint Funding Task Force Discussion (Tentatively)	120 mins
2	Chris Neubecker	Logan Simpson Contract - Housing Mitigation LDRs	30 mins.
Upcoming JIM Items			
1	Charlotte Frei	Mar - Transportation Work Plan	45 mins
2	Ryan Hostetter	April - Long Range Planning Indicator Report and Work Plan	120 mins
3	April Norton	Mar 11 or 20 (1:30pm Special) - Housing Supply Plan + Work Plan	120 mins
4	Tyler/Alyssa	Apr 22 Special JIM 9-11AM - Human Services Budget Window	120 mins
5	Tyler/Alyssa	April 23 Special JIM 9-5pm - Budget Presentations Joint Depts, Airport, TTB, ECW	8 hrs
6	April Norton	May - 90 Virginian Lane Developer Selection	180 mins
7	Tyler/Alyssa	May - Joint Dept, Airport, TTB, ECW Budget Follow Up	60 mins
8	Tyler/Alyssa	May 21 Special JIM 9-11am - Final Decisions on budgets for Joint, Airport, TTB, ECW if not already made	120 mins
9	April Norton	Jul - 90 Virginian Lane Ground Lease	120 mins
10	April Norton	Aug - Housing Dept. Rules & Regs Clean Up Issue I.D.	60 mins
11	April Norton	Sep - Housing Dept. Rules & Regs Clean Up	120 mins
12	April Norton	Nov - Housing Dept. Rules & Regs Adoption	consent