



## MEMORANDUM

DATE: December 11, 2020

TO: Nathan Polanski | MIG  
Will Norris | City of Hood River

FROM: Rochelle Starrett, John Bosket | DKS

SUBJECT: Hood River Heights District Urban Design & Engineering      Project #20203-000  
Existing Traffic Analysis Addendum

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The Hood River Heights Urban Renewal Agency is currently exploring opportunities to improve the 12<sup>th</sup> and 13<sup>th</sup> Street couplet (OR 281) in the Hood River Heights District. This memorandum supplements the previous traffic analysis memorandum, completed by Toole Design Group<sup>1</sup> with a discussion of historical safety trends, freight traffic patterns, and relevant traffic impact studies from recently proposed development.

### SAFETY TRENDS

The five most recent years of available crash data (2014 to 2018) was obtained from ODOT to identify crash trends in the 12<sup>th</sup> and 13<sup>th</sup> Street couplet project area. Between 2014 and 2018, 108 crashes occurred in the study area, an average of approximately 22 crashes each year.

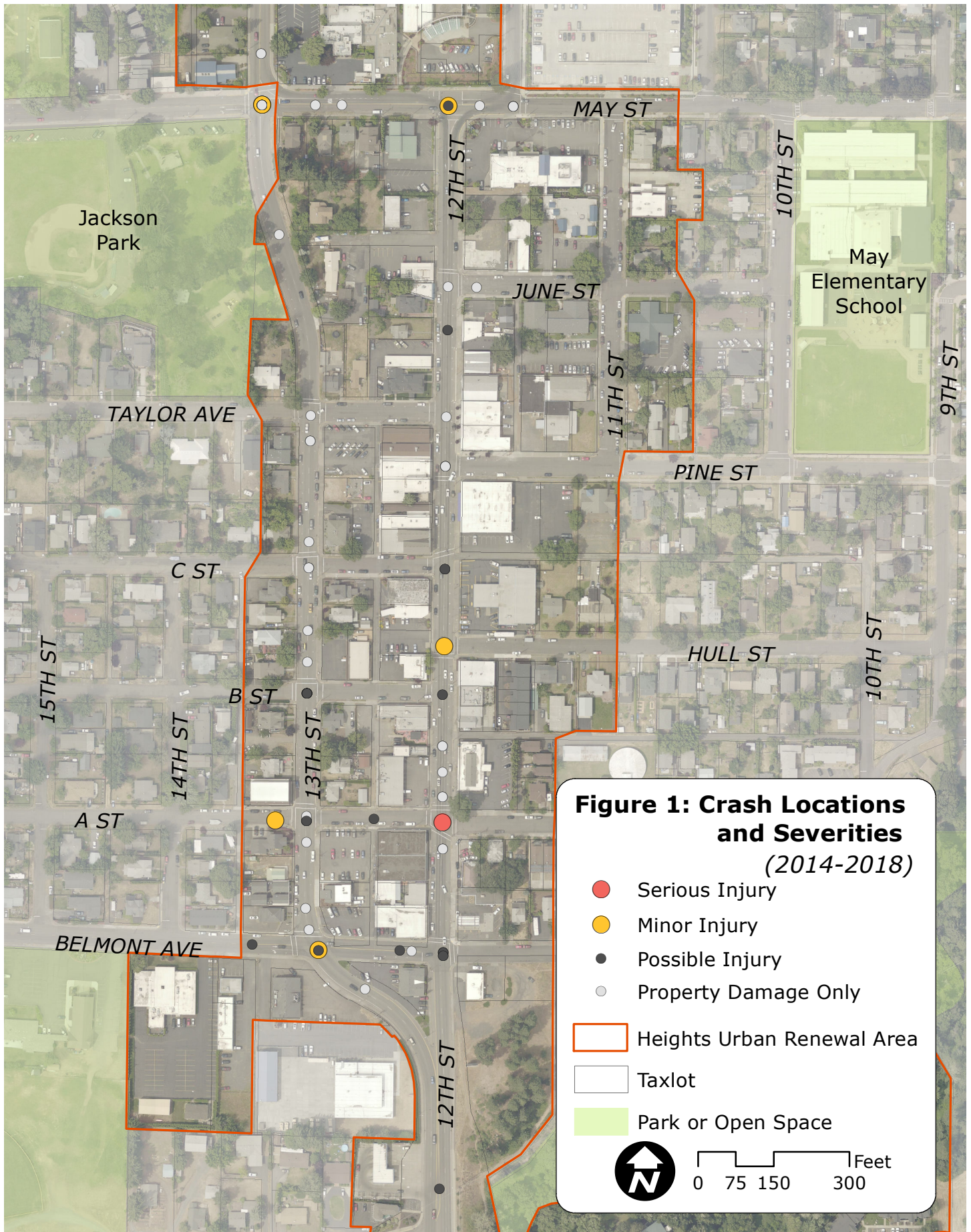
### CRASH LOCATIONS AND FREQUENCIES

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The locations of crashes that occurred within the study area are shown in Figure 1. Nearly 80% of crashes occurred at intersections in the study area (83 of 108 crashes). Crashes were most common at the intersection of May Street/13<sup>th</sup> Street, which recorded 27 crashes between 2014 and 2018. The intersections of Belmont Avenue/13<sup>th</sup> Street, A Street/13<sup>th</sup> Street, and B Street/13<sup>th</sup> Street recorded 6 crashes each within the same time period. Crashes are more common on the couplet between Taylor Avenue and Belmont Avenue, on May Street approaching the 12<sup>th</sup> and 13<sup>th</sup> Street intersections, and on 13<sup>th</sup> Street approaching the May Street intersection compared to other local roads within the study area.

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<sup>1</sup> Toole Design. *Hood River Heights Urban Renewal Area – Transportation Study*. February 2020.





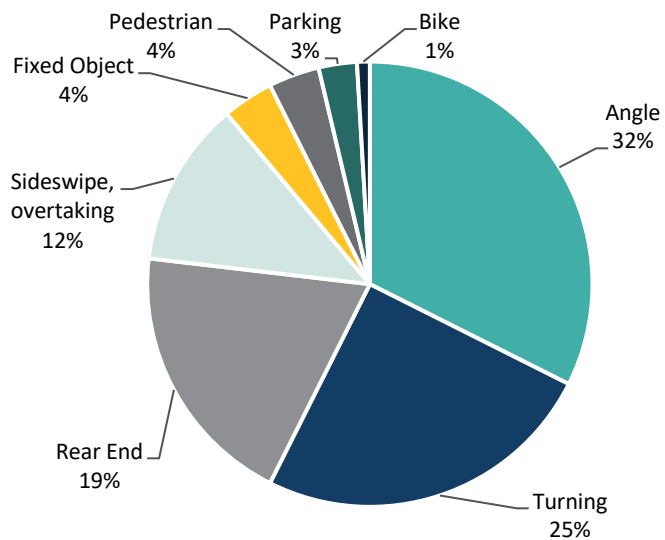
## CRASH TYPES AND CAUSES

Most crashes in the study area were either angle (32%), turning movement (25%), or rear end (19%) type crashes. A total of five crashes involved a pedestrian or bicyclist between 2014 and 2018. The frequency of crash types is summarized below in Figure 2.

All of the angle and turning crashes occurred at unsignalized intersections. Over 65% of the crashes (23 of 35 angle crashes) occurred when a driver did not yield after stopping at the stop sign which indicates poor visibility could be a contributing factor to these crashes. Most turning movement crashes were caused by either an improper turn (12 of 27 turning crashes) or failure to yield (12 of 27 crashes). In total, 6 of the turning movement crashes and 24 of the angle crashes occurred near the intersection of 13<sup>th</sup> Street/May Street which could be due to the unique geometry at this intersection.

The four most common causes for crashes in the study area were:

1. Failure to Yield (40%)
2. Improper Turn (12%)
3. Following too Close (11%)
4. Passing a Stop Sign (8%)



**FIGURE 2: SUMMARY OF CRASH TYPES (2014-2018)**

## CRASH SEVERITY

Crashes that occurred within the study area were generally not severe. Only one crash between 2014 and 2018 resulted in serious injuries while six crashes resulted in minor injuries; no fatalities were recorded in the study area. The majority of crashes resulted in only property damage (69 of 108 crashes) while another 32 crashes resulted in a possible injury. Figure 1 shows the location of all crashes within the study area classified by their severity.

## OTHER CRASH FACTORS

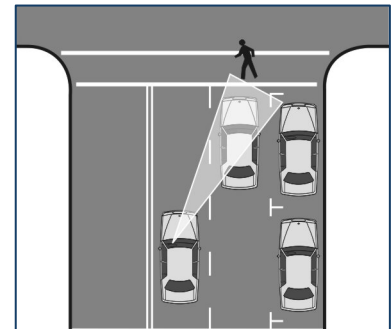
Weather was not a significant contributing cause to crashes within the study area. Over 80% of crashes took place during the day (90 of 108 crashes) while over 70% of crashes occurred when it was clear (79 of 108 crashes) or the roadway was dry (78 of 108 crashes). Only 11 crashes were reported during rainy conditions although 14 crashes occurred with wet roadway conditions.

Driver impairment did not play a significant role in study area crashes. Only 3 of 108 crashes involved alcohol use; no crashes involved drug use.

## CRASH RISK FACTORS

The existing street system in the study area was also reviewed to identify other risk factors which could lead to crashes. Non-standard intersection geometries at the intersections of 12<sup>th</sup> Street/May Street and 13<sup>th</sup> Street/May Street could confuse drivers unfamiliar with the area or lead to risky behaviors. The 12<sup>th</sup> Street/May Street intersection is actually a pair of two closely spaced offset intersections. The west intersection is controlled by a traffic signal while the east intersection is unsignalized with stop-control for the southbound and westbound approaches. The 13<sup>th</sup> Street/May Street intersection is a two-way stop control intersection with turn restrictions enforced through a painted median delineated with tubular markers. The westbound right turn is uncontrolled (unless a pedestrian is crossing) while the westbound left turn has a dedicated receiving lane which could confuse drivers on appropriate yielding.

Outside of these spot locations, on-street parking is allowed on the couplet which can decrease visibility for the stop-controlled side streets and could contribute to riskier driver behaviors. Having two through travel lanes on both 12<sup>th</sup> and 13<sup>th</sup> Street also creates an opportunity for “double threat” crashes where a stopped vehicle occludes a pedestrian crossing from vehicles in the adjacent travel lane, as illustrated in Figure 3.



**FIGURE 3: ILLUSTRATION OF PEDESTRIAN VISIBILITY OBSTRUCTED BY YIELDING CAR**

## SAFETY PRIORITY INDEX SYSTEM

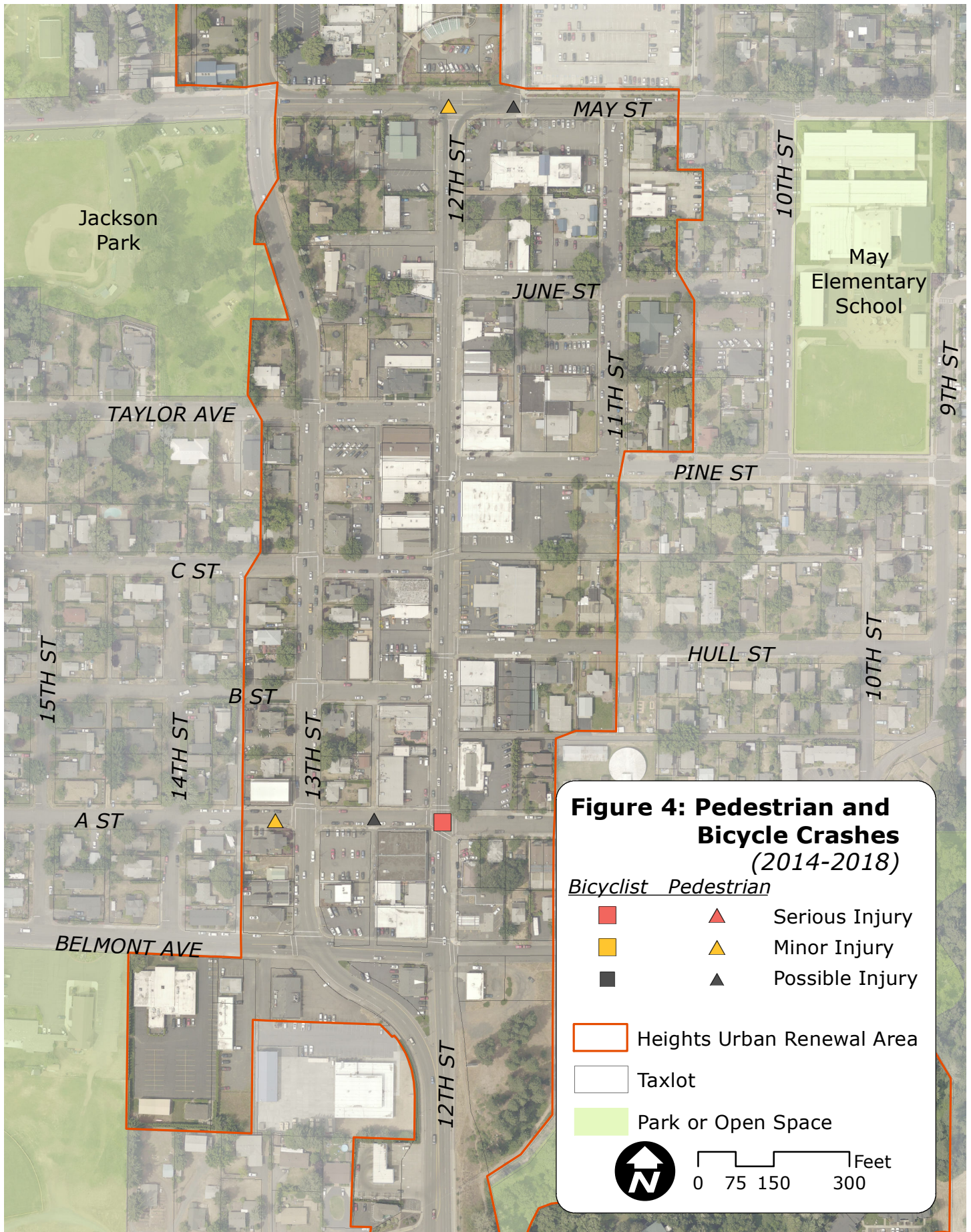
The Safety Priority Index System (SPIS) is a method developed by ODOT for identifying hazardous locations on and off state highways. The score for each 0.10-mile segment of highway is based on three years of crash data, considering crash frequency, rate, and severity. SPIS then ranks all segments throughout the state by score and identifies the top 5 percent and top 10 percent segments, which are generally prioritized for funding and mitigation. No roadway segments within the project area have been identified as top SPIS locations since 2015.

## PEDESTRIAN & BICYCLE SAFETY

Crashes involving pedestrians and bicyclists were also flagged for further review. Between 2014 and 2018, four crashes involved a pedestrian and one crash involved a cyclist, identified below in Figure 4. Two pedestrian crashes occurred at the intersection of 12<sup>th</sup> Street/May Street and two pedestrian crashes occurred on A Street. The bicyclist crash took place at the intersection of 12<sup>th</sup> Street/Wilson Street. Contributing factors for each crash are identified below.

Two crashes involving pedestrians were recorded between 2014 and 2018 at the intersection of 12<sup>th</sup> Street/May Street; both crashes took place during the day. One crash occurred when a vehicle travelling on May Street disregarded the traffic signal and struck a pedestrian in the crosswalk, leading to minor injuries. An icy roadway surface might have contributed to this crash. The other crash occurred at the unsignalized crosswalk on the east leg of the offset intersection at May Street





when a driver failed to yield right of way to a pedestrian in the crosswalk. This crash led to a possible injury.

The crashes involving pedestrians on A Street both occurred midblock. The crash to the west of 13<sup>th</sup> Street occurred during the day when a vehicle backing out of a driveway struck a pedestrian who was in the roadway. This crash led to a minor injury. A nighttime crash also occurred on A Street between 12<sup>th</sup> and 13<sup>th</sup> Street when a pedestrian crossed midblock and was struck by a vehicle travelling on A Street, leading to possible injury.

One crash involving a bicyclist took place at the intersection of 12<sup>th</sup> Street/Wilson Street. This crash occurred when a vehicle travelling northbound on 12<sup>th</sup> Street did not yield right of way to a cyclist crossing. Serious injuries were sustained in this crash.

## FREIGHT TRAFFIC PATTERNS

Today, OR 281 is not a designated freight route in the Oregon Highway Plan or a Reduction Review Route. Heavy vehicles account for 2.4 percent of traffic on the OR 281 couplet on an average day, or less than 300 trucks per day per direction<sup>2</sup>. Traffic counts collected on September 12, 2019, provide a limited snapshot of freight patterns. These counts indicate that the proportion of freight traffic was higher during the AM peak on OR 281 where heavy vehicles accounted for between 5 and 6 percent of the traffic on the couplet. The existing counts are available as part of the previous traffic analysis completed by Toole Design Group that was previously referenced. Most City streets in the study area do not carry significant volumes of heavy vehicle traffic.

While the amount of freight traffic on OR 281 through the study area is not significantly high, freight vehicles do need to pass through the area and large trucks need to be able to make deliveries to businesses within the Heights. Therefore, freight traffic movement on OR 281 should be considered during the concept development process. Each identified concept should ensure that the proposed intersection geometry can accommodate freight through movements on OR 281, including any turns required to travel along the couplet (e.g., northbound left turn at 12<sup>th</sup> Street/May Street, westbound right turn at 13<sup>th</sup> Street/May Street).

Furthermore, any proposed improvements at the intersection of 13<sup>th</sup> Street/May Street should also consider the existing uphill climb for southbound traffic approaching this intersection. While the construction of a traffic signal at this intersection has been identified as the long-term solution in the city's Transportation System Plan (TSP), it may be challenging for heavy vehicles to stop and start on the steep grade during inclement weather. Therefore, when developing solutions for this location consideration should be given to minimizing southbound vehicle queuing or the need for drivers to stop.

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<sup>2</sup> ODOT. *TransGIS*. <https://gis.odot.state.or.us/transgis/>



## RECENT TRAFFIC IMPACT STUDIES

Four recent traffic studies were completed for proposed developments in the vicinity of the study area. Details of the proposed developments and their potential impact on traffic patterns within the study area were reviewed. These developments include:

- **Indian Creek Townhomes** located at 9<sup>th</sup> Street/9<sup>th</sup> Court constructed 30 townhouses and 9 single family homes in 2019, which added an estimated 26 PM peak hour trips to Hood River's transportation network. Many of the trips estimated to be generated from this development may have been captured in the 2019 traffic counts collected for the Hood River Heights traffic study.
- **Parkside Mixed Use Development** located at 13<sup>th</sup> Street/Taylor Avenue will include 1,000 square feet of retail and 32 apartment units with an estimated year of opening in 2021. The proposed development is expected to generate 28 PM peak hour trips.
- **One Community Health** located at 849 Pacific Avenue is planning to construct a new building. This project will replace the existing 16,494 square foot health facility with a 36,500 square foot building, anticipated to open in 2020. The expansion is expected to generate 72 net new vehicle trips during the PM peak.
- **May Street Elementary School** located at 911 May Street was recently replaced to increase the enrollment capacity from 505 students to 650 students. The increase in students was expected to generate 22 PM peak hour trips. The new school opened in Fall 2019, so trips generated from this development are captured in the Hood River Heights Urban Renewal Area traffic study.

In total, these developments are expected to add at least 100 trips to Hood River's transportation system during the PM peak hour which were not previously captured in the 2019 traffic counts used for the Hood River Heights Urban Renewal Area traffic study. Each of these studies did not identify significant transportation impacts due to the development, and in total these trips will not significantly increase traffic on the OR 281 couplet. These studies did reaffirm the need for identified TSP projects at the intersections of 13<sup>th</sup> Street/May Street, 13<sup>th</sup> Street/Belmont Avenue, and 12<sup>th</sup> Street/Belmont Avenue.