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Hi Tiffani: (Tiffani King, Engineering Plans Examiner)

I have completed my review of the proposed Harrison Avenue Mixed-Use Traffic Impact Analysis (TIA) located on Harrison Avenue between Yaeger Way and McPhee Road. With Phase 1 and 2 build out, this development will generate 75 (41 inbound, 34 outbound) new p.m. peak hour trips and is not expected to have a significant impact on the City of Olympia street system. All intersections will operate at an acceptable level of service and no off-site mitigation is required. Although several improvements will be needed to provide adequate and required access to the development and are outlined below.

- **Per Engineering Design and Development Standards (EDDS) 2.040(B)3A** “Street connections will be provided to any existing public street or right-of-way “stub” abutting the proposed development.” Provide a local access street connection to 3rd Avenue SW on the east property line. The west end 3rd Avenue will also remain open so that the apartments included in Lots 4 and 5 will equal access to Harrison Avenue via Craftsman Drive. The attached street connectivity analysis provides justification for the street connection. This will be the first of two street connections that will be need with full build (Phase 3) of this development. The second being at Craftsman Drive on the northern property line.
- Attached is the 2030 Olympia Comprehensive Plan, Connectivity chapter that documents in detail the City’s vision and rational for street connectivity between the Harrison Mixed-Use development and Grass Lake Village. Both the Grass Lake Village development and the proposed residential/commercial uses will benefit together with a well-connected street grid that provides direct, efficient and safe access for residents, service vehicles including, delivery trucks, and emergency vehicles without having to circumvent the street connection and be required to use Harrison Avenue for access.
- TIA does quantify that with Phase 2, 23 new p.m. peak hour trips and 245 daily trips would use the street connection. When combined with the existing traffic on 3rd Avenue, there will be an estimated total of 29 p.m. peak hour trips with 305 total daily trips. Traffic volumes are not expected to exceed what the **EDDS Chapter 4, Table 3: Street Characteristics** designated for a local access street trip threshold of 500 daily trips. It is expected that most trips using the 3rd Avenue street connection will be residential in nature and traveling to the apartment components of the Phase 1 and 2 development. Other trips will come from the Grass Lake Village development to patron the commercial uses of Phase 1 and the existing Bark and Garden Center.
- The Thurston Regional Transportation model was uses to estimate travel patterns for the existing Bark & Garden Center and both Phase 1, 2 and Phase 3 buildout of the proposed project. The results indicated that with both the 3rd Avenue and future Phase 3 Craftsman Drive connections that traffic volume will be less than the local access street daily threshold of 500 trips without impact from “non-neighborhood” traffic. With both street connections to Grass Lake Village development at full buildout of Phase 1,2 and 3 the model showed the benefits of a gridded street network by reduced volumes on Yaeger Way in Grass Lake Village.
- **Per EDDS 4B.210 Traffic Calming Devices** will be required on the east connection to 3rd Avenue and Grass Lake Village and west connection to “Lot 1.” This improves neighborhood livability by reducing the speed and impact of vehicular traffic on residential neighborhoods by incorporating traffic calming devices. Both devices will be one-lane narrow points (**EDDS Std.**

Dwg 4-13C). At the time of Phase 3 development with Craftsman Drive similar traffic calming will be required.

It is also known that access density (the frequency and number of driveways and intersections) have the largest benefit to speed reduction outside of horizontal geometry (curves, chicanes, etc.) Simply by increasing the intersection density of an area will support speed reduction without any other devices.

- The City will monitor traffic volume that use the 3rd Avenue street connection and provided that daily traffic volumes raise about the acceptable threshold of 500 daily trips, the street connection into Grass Lake Village will be closed until the Craftsman Drive connection can be made with Phase 3 development. If the 3rd Avenue street connections is closed for motor vehicle access, priority will be given to making a connection for bicyclists, pedestrians.

Attached is a street connectivity analyses using the current 2030 Olympia Comprehensive Plan.

Harrison Avenue Mixed-Use / Binding Site Plan Supplemental Street Connectivity Analysis

The following criteria is listed in the current 2030 Olympia Comprehensive Plan under the Transportation, Connectivity chapter PT5.2 and is addressed here for supporting documentation. The criterions are focused on identifying direct impacts of the street connection on existing neighborhoods. Consideration was given to the unique neighborhood character and context. As appropriate, this evaluation includes (criterion shown in bold):

Effects on the overall city transportation system and reduced vehicle miles travelled with associated greenhouse gases.

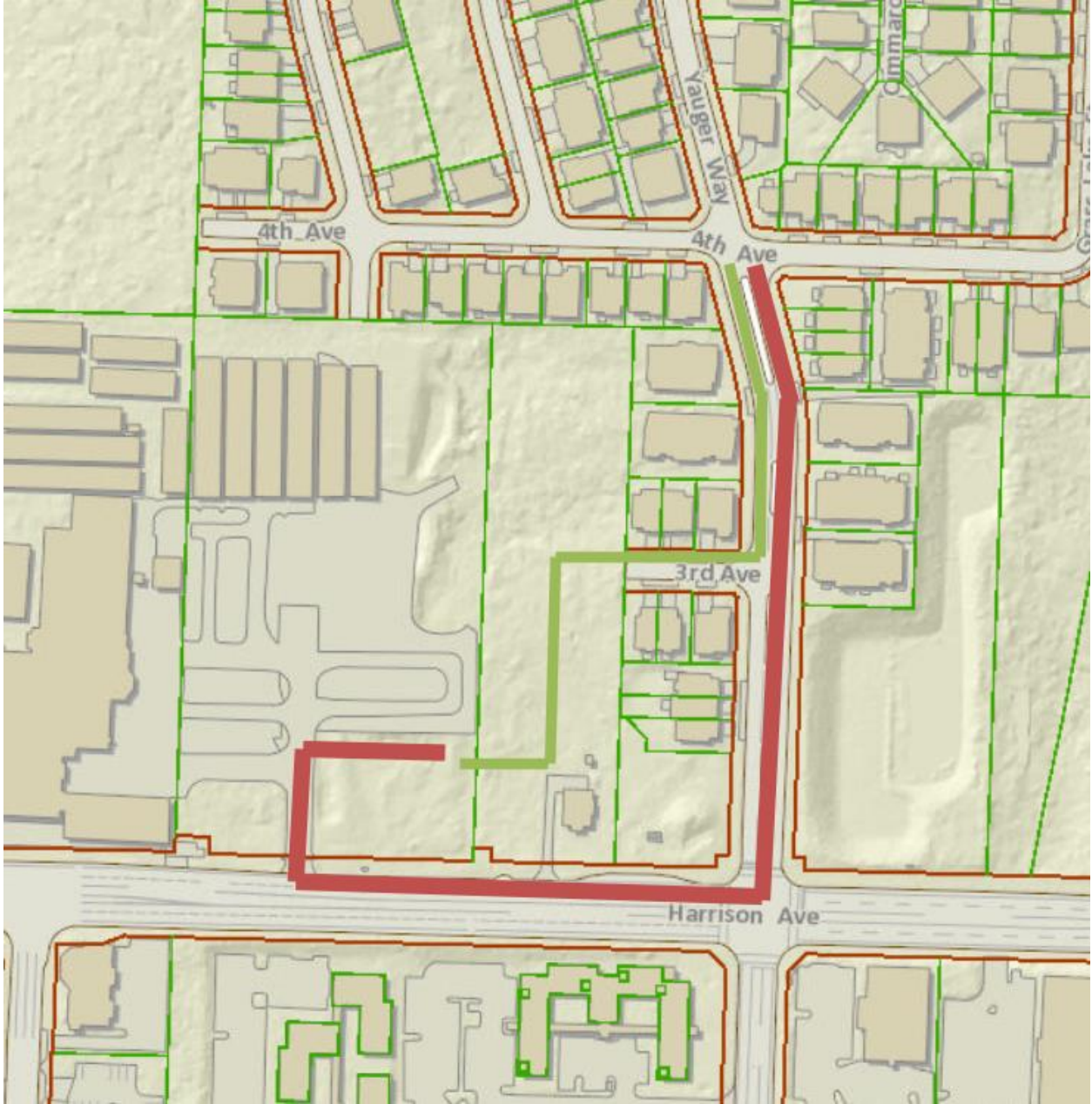
At the time of the Grass Lake Village development permitting and construction, future street connections to adjoining future developments have always been planned in order to form a complete neighborhood. The proposed Harrison Mixes-Use development and its residential uses are part of that planned neighborhood. When development of the street network is complete and land is fully developed, then the neighborhood will be considered established. In the existing Grass Lake Village development, street stubs abut Harrison Mixed-Use along the east property line at 3rd Avenue for phase 2 development and the north property line at Craftsman Drive for phase 3. As the Grass Lake Village development was planned with the intent of future street connections, planned connections have been signed since the development was originally constructed, shown and described in the City's Comprehensive Plan and by way of the existing street stub outs; the intended character and future traffic patterns circulation for this residential development have been well established and advertised to residents and community. Therefore, the completion of these connections do not constitute a change to the intended characteristics or potential impacts to residents.

The future Grass Lake Mixed-Use street connection will provide connectivity between each neighborhood that will capture internal trips to those neighborhoods. Therefore, these vehicle trips can utilize the connection without leaving low-volume local access streets and re-circulate unnecessarily on Harrison Avenue. People walking and biking on this local street will have the opportunity for greater social and economic exchange.

Without this connection, pedestrian, bike and vehicle trips would need to travel on Harrison Avenue, a higher-volume, higher-speed arterial street to reach destinations in either neighborhood. This will increase congestion and crash risks by traveling longer distances.

As shown in the table below, with the neighborhood street connection, travel distances and times to the surrounding area can be reduced up to approximately 40 percent.

	Travel Distance			Approximate Travel Time	
	Without Connection	With Connection	Reduction	Without Connection	With Connection
Grass Lake Village to Harrison Mixed Use	1,550 ft.	880 ft.	40 %	1.0 min.	0.5 min.



Green line shows the shorter street connection route.

Red line shows the longer route without the street connection.

It is not expected that non-neighborhood commercial patrons of Harrison Mixed-Use will typically use the Grass Lake Village to enter or exit the Harrison Mixed-Use neighborhood; likewise residents of Grass Lake Village will not use Harrison Mixed-Use to enter or exit Grass Lake Village. The Harrison Avenue Mixed-Use Traffic Impact Analysis, December 2020 documents that commercial uses of both the existing Bark and Garden Center and the proposed project will use Harrison Avenue for access. The new connection would be used minimally for internal residential trips within the local area.

The reductions shown in the table above can improve drivers' safety, decrease fuel consumption and reduce vehicle emissions. By providing additional the planned and intended access between the Harrison Mixed-Use development and Grass Lake Village development, private deliveries, delivery of public services and redundancy for emergency vehicles routing and can function more efficiently without the need to use Harrison Avenue for the neighborhood as a whole. By providing more and shorter route options, the amount of traffic in both neighborhoods will be less. These connections complete the neighborhood circulation originally intended when Grass Lakes Village development was planned and stub outs created.

Opportunities for making additional connections that would reduce neighborhood impacts of the connection being evaluated.

The Grass Lake Village development is only a component of a neighborhood. While its land uses are considered fully developed with two public "street stub" for local access streets to the Harrison Mixed-Use development. As local access streets are defined as those streets that "carry local traffic within a neighborhood and may provide connections to collectors or arterials"¹. The completion of these local access streets will result in an 'established neighborhood.'

Harrison Mixed-Use Phase 2 development completes the 3rd Avenue east-west local access street connection. Subsequent Phase 3 development will provide a north-south connection at Craftsman Drive. Beyond the connections to the Harrison Mix-Use project, Grass Lake Village will have the opportunity for four other street connections that all will help reduce traffic volumes on Yaeger Way and 6th Avenue. In addition to the multimodal mobility and safety benefits described under other criterion sections herein.

Impacts on directness of travel for pedestrians, bicyclists, transit users, and motorists.

As indicated in the table above, for residents of either Grass Lake Village or Harrison Mixed-Use neighborhoods, there would be approximately 40 percent reduction in travel distance with the street connection in place. While transit service currently does not exist within Grass Lake Village development, transit systems rely on what are called 'first-mile/last-mile' intermodal connectivity as transit serves an area and is not a door-to-door trip. Intermodal connections may come in many forms but are most commonly provided through pedestrian walking routes. By reducing pedestrian trip length for either the existing development or future development to Harrison Avenue transit stops, there is a direct benefit to transit and resident's accessibility to transit service in the area.

Impacts on directness of travel for emergency-, public-, and commercial-service vehicles.

Public service, emergency vehicles and commercial delivery trucks can function more efficiently with the connection. The connection reduces left-turns from and onto Harrison Avenue improving traffic flow and safety. Without this connection, trips would need to travel on Harrison Avenue a higher-volume, higher-speed arterial, to reach destinations in either neighborhood. This would increase congestion and accident risks by the need to travel longer distances.

¹ Comp plan glossary –
<https://www.codepublishing.com/WA/Olympia/compplan/OlympiaCP99.html#99>

Gridded connections also can improve residential services like Waste Collection and Stormwater Maintenance Vehicles, by providing alternative routing options for operations within a neighborhood. Waste collection vehicles that do not require trucks to back-in a stub out street, provide minor operational efficiencies that help keep waste collection cost lower for rate payers across the city. These vehicles also have the largest blind spots for backing maneuvers, by eliminating backing maneuvers through connected streets, safety for all modes and the vehicle operator is improved. This is similar for stormwater vehicles that maintain catch basins. Both waste collection and stormwater vector trucks are among the vehicle types with the largest turning radius needs so connected street networks that prevent the need for vehicles to turn around on stub out streets is also critical, as stub out streets were never intended to remain that way and had that been the case a full cul-de-sac street treatment would have been required at the time of development.

An assessment of travel patterns of the larger neighborhood area and volumes at nearby major intersections.

The connection will not result in a significant change in the volumes on the existing local access street network. The connection will reduce impact Harrison Avenue and Yauger Way, the closest nearby major intersection. The connection will result in minor reductions on Yauger Way because residential, public service and delivery vehicles will be able to circulate within the neighborhoods.

It is also known that access density (the frequency and number of driveways and intersections) have the largest benefit to speed reduction outside of horizontal geometry (curves, chicanes, etc.) Simply by increasing the intersection density of an area will support speed reduction without any other devices.

An assessment of traffic volumes at the connection and whether projected volumes are expected to exceed the typical range for that classification of street.

A standard local access street can carry up to 500 daily trips. At most this connection is estimated to generate approximately less than 50 pm peak hour trips. Making the total of approximately 305 daily trips and 29 pm peak hour trips.

Bicycle and pedestrian safety.

The street connection from Harrison Mixed-Use to Grass Lake Village developments will include traffic-calming devices to ensure that traffic from either development will travel at a safe speed, which will increase bicycle and pedestrian safety. The connection will terminate in the Harrison Mixed-Use development at a stop sign controlled “T” intersection. Traffic calming devices discourage vehicles from reaching speeds above acceptable levels for local access streets (25 mph).

With the connection, it is not expected that a significant amount of traffic will be added to either the Grass Lake Village or Harrison Mixed-Use developments. The conditions for pedestrians and bicyclist will be similar to current conditions with the added mobility provided through street connectivity and routing options.

Increased public safety that affects the perception of vulnerability for active transportation users as well as propensity for neighborhood crime has a benefit through street connections. Crime Prevention Through Environmental Design (CPTED) is a popular strategy to decrease low-level crime and increase comfort for vulnerable modal travel by increasing lighting, likelihood of ‘eyes’ and the street through

increased local circulation and increasing sight lines. Street connections are a component of accepted CPTED strategies, benefitting the perception of safety active transportation modes and lowering the likelihood of crimes like porch theft and car prowling, among others.

Noise impacts and air pollution.

It is anticipated that street connection will increase traffic at the connection by no more than 50 daily trips. This will result in minimal noise and air pollution. Without the connection, trips between the two developments would be longer and result in a minor increase in air and noise pollution comparatively for the neighborhood.

Social justice issues and any impacts on the unique character of a neighborhood or effects on affordability of housing.

Grass Lake Village was built in the early 2000's and are single family and multi-family residences. The Harrison Mixed-Use development will consist residential apartments and commercial services. Since the majority of the commercial services will front Harrison Avenue and the users of the 3rd Avenue connection will be residential in nature, the demographic profiles of the residents in both neighborhoods are expected to be similar.

Without street connections social justice impacts increase, inducing longer trips on higher-volume, higher-speed and therefore higher stress facilities. This can disproportionately impact disabled populations with Sensory Processing Disorder (SPD) commonly a factor within cognitive disabilities like Autism Spectrum Disorders (ASD) and those with post-traumatic stress disorders (PTSD). According to the best available data from the American Community Survey, disabled populations and veteran populations comprise 11.2% and 8.3% of the population here at the census tract level.² While these demographic population groups are not significant to trigger any federal or state social or environmental justice requirement, there will be an impact should the original planned street connections within this neighborhood not be realized.

Mixtures of residential housing types are common throughout Olympia and expected within the city given the infill development and residential density goals of the City's Comprehensive plan, mixed residential uses are an intended part of any neighborhood. A good example of this is within the Southwest Olympia Area Neighborhood Association (SWONA).³ By connecting these two developments and realizing the planned vision for the overall neighborhood characteristics, the potential for generating social interaction is increased and social isolation is potentially decreased.

Likelihood of diverting significant cross-town arterial traffic on to local neighborhood streets.

Non-neighborhood traffic is not likely to use this connection because it is a non-direct route. The street connection would provide a local circulation option that will benefit drivers traveling between the developments within the neighborhood area. This includes residents, delivery of goods and service, and

² Data identified through WSDOT's Application for Local Planning and Community Accessibility (ALPACA), data snapshot taken 1/8/21.

³ SWONA area can be viewed through <https://olympiawa.gov/city-services/neighborhood-programs/neighborhood-recognition-program.aspx> showing residential apartments along Fern Street, combined with several HOAs, single family and multifamily uses.

provides an emergency route if other streets are temporarily blocked. Increased connectivity between the two developments will reduce the need for vehicles traveling between the two developments to Harrison Avenue and associated transit routes.

Effectiveness of proposed traffic-calming measures.

Per **EDDS 4B.210 Traffic Calming Devices** will be required on the east connection to 3rd Avenue and Grass Lake Village and west connection to “Lot 1.” This improve neighborhood livability by reducing the speed and impact of vehicular traffic on residential neighborhoods by incorporating traffic calming devices. Both devices proposed are one-lane narrow points (**EDDS Std. Dwg. 4-13C**). At the time of Phase 3 development with Craftsman Drive similar traffic calming will be required. The connection terminates at a “T” intersection with stop sign control. Therefore, there is not sufficient distance for vehicles to accelerate to increased speeds.

The cost of a street connection and the cost of any alternative approach to meeting transportation needs if a street connection is not made.

Regardless if the street connection is made for vehicles or becomes a shared-use bike, pedestrian and emergency vehicle access the costs will be similar. If a gate is used for the emergency vehicle access additional costs will pursue.

Consideration of the information in 2030 Olympia Comprehensive Plan Transportation Chapter Appendix A.

This street connection does not apply to a reference from Appendix A.