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Advanced Transportation Planning and Traffic Engineering

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Technical Memorandum with Addendum REVISED

Re: The Aurora Highlands – Filing 7, Phases 1-3
Spacing requirement between 26th Ave. and first interior intersection.

This technical memorandum addresses a “Key Issue” from the Public Works Department comments in a Pre-Application Meeting on March 12, 2020. Specifically, the comment reads:

Per the City’s Roadway Design and Construction Manual, section 4.07.7.02.5.01 “Access points shall be no closer than 300 feet to arterial intersections. Depending on site characteristics access control may be required.”

- *Based on a careful reading of the above criteria and discussion with Traffic Management, no access onto 26th or Aurora Highlands Pkwy. that is full movement will be allowed closer than 300’ based on centerline to centerline measurement. Consider adjusting to have any proposed access points closer than 300’ be either exit only or physically limited to right in/right out or redesigning to have the first access point at 300’ spacing.*

The City’s interpretation of this standard implies that between the first interior street intersection and 26th Ave. must be spaced 300’ or more centerline to centerline. However, the section cited by the City refers to the spacing between a driveway/curb cut access and not a street intersection. There are two distinct sections in the manual. One is for spacing between street intersections, the other is for spacing between access locations (driveways and curb cuts) and street intersections.

Section 4.07 Specification for Fire Lanes, Private Streets, or Drives, and Parking Lots and all subheadings thereof refer to a specific type of driveway/curb cut access and not a street intersection.

Section 4.04 Horizontal Alignment and all subheadings provide specifications on how streets and intersections of all types should be designed and laid out.



Section 4.07.7.02.5.01 correctly refers to a specific type of parcel and parking access (not a street intersection) and where it should be located (on the street) no closer than 300' to an arterial intersection. This requirement is commonly applied by the City to driveway accesses to i.e. gas stations, convenience stores, office buildings, restaurants, etc. In many cases, access control is required at these locations, i.e. exit only or left in and/or left out movement restrictions.

The City has no spacing requirements for between an arterial or collector and the first interior intersection. However, in **Section 4.04.2.01.1 Local street type 1**, there is a condition that between an arterial intersection and the first interior intersection, single-family detached, two family and single family attached duplex dwellings shall not be allowed to front the local street where projected future traffic volumes at full-build and 20 years are in excess of 2,000 vehicles per day. In this case, no accesses are proposed between the first interior intersection and 26th Ave.

Addendum

In a June 8, 2020 email to Todd Johnson from Victor Rachael, the City commented thusly:

"I would like to discuss the attached memo with you, when you have a moment. As discussed with Rita, we'll have to agree to disagree. The attached memo does not address comments from staff regarding sight distance, queuing, safety, etc., and will not suffice for approval without those technical details (previously requested)."

In response, here are the technical details as requested.

The distance from the centerline of the internal roadway to centerline of 26th Ave. is approximately 200 feet. A left turn is generally made at 15 mph and a right turn is at 9 mph. These are the default values in Synchro. The sight distance required by CDOT at 25 mph is 150 feet. The COA distance requirements in Table 4.04.6.04.17.01 – Intersection Sight Distance indicates that the sight distance for a conflicting approach vehicle traveling at 10 mph is 73.4 feet and at 15 mph it is 110.1 feet. The COA standards are consistent with those reported in AASHTO's Green Book. Based on these facts, it can be concluded that the sight distance from the first internal street intersection to 26th Ave. is adequate.

Regarding queuing, the highest recorded 95thile queue on southbound approach to 26th Ave. at a stop-controlled intersection is 1.3 vehicles which equates to 50 feet. The distance from the southern flowline of the first internal street intersection to the northside flowline of 26th Ave. is approximately 130 feet. Even if the queue length is exceeded the duration would be minimal and not cause undue delay to the entering vehicle from the side street. Based on these facts, it can be concluded that there is sufficient stacking area for the 95thile queue length at each of the stop-controlled intersections



Regarding safety, if the intersection is designed to COA standards, then the intersection must be considered nominally safe. Crashes at these types of intersections are rare and random events per the Highway Safety Manual (HSM). If the intersection meets design standards, then any crash is human error (distraction, inattention, carelessness, speeding, road rage, and so on). The HSM includes in Chapter 12 predictive methodology that indicates the likelihood of a crash at this type of intersection and with anticipated range of approach volumes is a 1 in 10-year event.

2nd Addendum

Recently COA approved the traffic study prepared by HRGreen in May 2020 for Filings 4 and 5 of Aurora Highlands. The site plan for the study area shows the distance from Denali Blvd. on 39th Ave. to the first intersection to be well short of 300 feet – probably at about the same distance as shown in this filing. A Google Earth review of Aurora’s existing neighborhoods adjacent to major arterial reveals countless instances where the first intersection spacing from the arterial roadway is less than 300 feet. Those reviewed are generally within 150 to 200 feet.

Respectfully submitted,

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