



City of Arts & Innovation

Mobility & Infrastructure Committee

TO: MOBILITY & INFRASTRUCTURE COMMITTEE DATE: SEPT. 10, 2020
FROM: PUBLIC WORKS DEPARTMENT WARDS: 6
SUBJECT: NORTHGATE GONZALEZ MARKET TRAFFIC SIGNAL REQUEST

ISSUE:

Consider a request by Northgate Gonzalez Market to install a midblock traffic signal along Magnolia Avenue west of Tyler Street.

RECOMMENDATION:

That the Mobility & Infrastructure Committee provide direction to staff regarding the requested median opening and traffic signal installation project on Magnolia Avenue west of Tyler Street to serve Northgate Gonzalez Market located at 10391 Magnolia Avenue.

BACKGROUND:

On March 6, 2019 the Northgate Gonzalez Market was presented to the Development Review Committee as a Conceptual Development Review item. The project requested a median break in order to signalize their main entrance/exit driveway on Magnolia Avenue west of Tyler Street. In response, the Traffic Engineering Division requested a traffic study to accompany the proposed circulation modifications because the traffic signal would be located at an undesirably close proximity to the adjacent signalized intersections at Tyler Street and Banbury Drive. At the time of the project's final action & acceptance, a study had not been submitted and the project architect confirmed that Northgate Gonzalez Market was no longer proposing signalized access on Magnolia Avenue.

Following project approval, the Public Works Department was approached by the property owner requesting to install a signalized driveway access on Magnolia Avenue. Traffic Engineering staff conveyed that a median opening at Northgate Gonzalez Market's main entrance/exit driveway location was undesirable due to the close intersection spacing and potential impacts to traffic circulation and safety. Staff relayed that a preferred alternative would be to allow eastbound U-Turn movements at the intersection of Tyler Street at Magnolia

Avenue (which at the time restricted eastbound U-Turns). On August 2, 2019 the property owner's engineer submitted a study evaluating nearby intersection operations and the potential for a signalized median opening. The report did not assess the U-Turn alternative as recommended by staff.

In October 2019, staff and the property owner agreed to partner to modify the traffic signal at Magnolia Avenue at Tyler Street to allow eastbound U-turns to facilitate access onto Northgate Gonzalez Market in preparation to the site's grand opening, which was scheduled for November. Following this operational change, the property owner has continued to request a median opening and signalization at their driveway on Magnolia Avenue. At the July 9, 2020 Mobility & Infrastructure Committee meeting, a request was made for staff to bring a report regarding the property owner's proposal before the committee.

DISCUSSION:

Existing Access Patterns and Requested Access:

The Northgate Gonzalez Market currently has signalized access from Banbury Drive through the adjacent property. Motorists can enter the site via the adjacent Michaels parking lot and the market has additional access along Magnolia Avenue for pass-by traffic and via U-turns at Magnolia Avenue at Tyler Street.

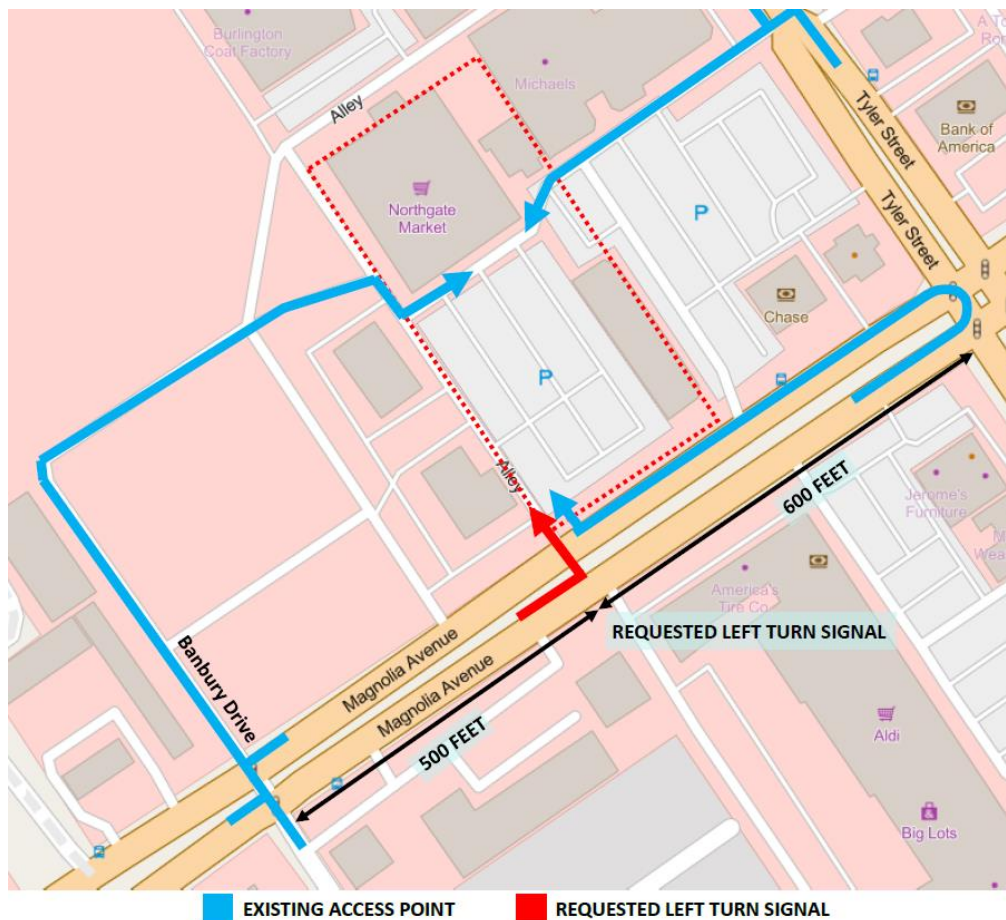


Figure 1: Existing and requested access to Northgate Gonzalez Market

The property owner has requested additional access via a new median opening on Magnolia Avenue along with a new signal for eastbound left turns into the project's main driveway. The property owner cites the financial performance of the market and a hesitance for customers to use the Banbury Drive signal or make U-turns at the signal on Tyler Street. A recent count at the respective intersections (Thursday December 5, 2019) recorded 154 vehicles completing a left turn towards the site at Magnolia Avenue & Banbury Driver between 4:00 and 6:00 PM, and 97 vehicles completing U-Turn movements at Magnolia Avenue at Tyler Street.

The property owner has additionally expressed concern that an upcoming development project to their west will restrict access to their site via the Banbury Drive entry. Staff confirmed that the adjacent property owner will be required to provide cross-access, and staff encourages the two property owners to negotiate optimal access patterns between the two sites.

The Northgate Gonzalez Market has requested to install a “half-signal” that would require a new opening in the median along Magnolia Ave. The requested signal would be installed at the cost of the property owner and would signalize left turns into the site – left turns out of the site would be restricted. The proposed signal concept is pictured below in Figure 2:

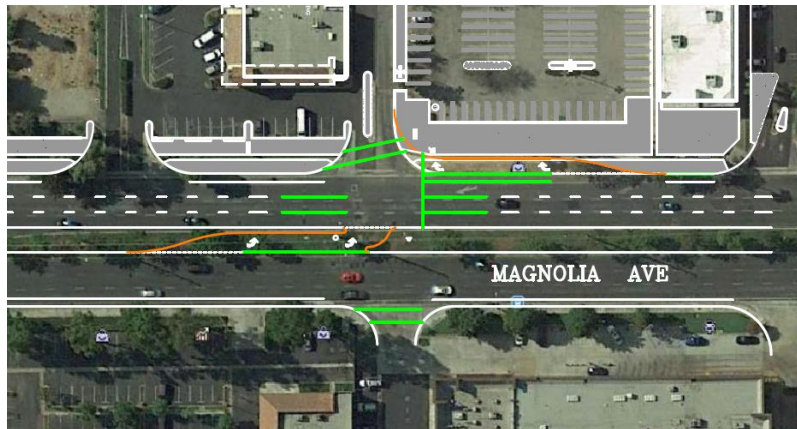


Figure 2: Requested Half-Signal and Median Opening

Assessment of the Requested Traffic Signal:

Staff has identified several key concerns related to the requested traffic signal:

1. **SAFETY**

The requested signal would be approximately 600' west of Magnolia Avenue at Tyler Street, the intersection that experiences the highest number of collisions in the City. The 184 collisions at Magnolia Avenue at Tyler Street in the past 5 years is nearly double that of the second highest intersection of Iowa Avenue at Blaine Street. The Traffic Engineering Division is planning to apply for a Highway Safety Improvement program grant for this location to reduce the collision rate and/or install equipment to modify the traffic signal operations to reduce red-light violations.

High Incidence Intersection Report

7/20/20

Number of Collisions for the Top 50 Locations

From 7/20/2015 to 7/20/2020

<u>Rank</u>	<u>Intersection</u>	<u>Total Collisions</u>
1	Tyler St at Magnolia Av	184
2	Iowa Av at Blaine St	100
3	Van Buren Bl at Arlington Av	97
4	University Av at Chicago Av	85
5	University Av at Iowa Av	83

Figure 3: Citywide High Incidence Intersection Report

An additional traffic signal at the Northgate Gonzalez Market may exacerbate existing safety concerns along the corridor. Not only is the proposed signal below the recommended traffic signal spacing of approximately one quarter mile, the existing signals along Magnolia Avenue near the Galleria at Tyler are currently closely spaced. The National Cooperative Highway Research Program's (NCHRP) Report 900 concludes that as the number of traffic signals per mile rises, so too does the rate of collisions. There are currently seven traffic signals within one linear mile of each other along this stretch of Magnolia Avenue; the NCHRP chart shown in Figure 4 leads Staff to conclude that continuing to add signals to this corridor at similar intervals may degrade safety.

Signals per Mile	Crash Rate (crashes per million vehicle miles)
≤ 2	3.5
2.01–4	6.9
4.01–6	7.5
> 6	9.1

Figure 4: NCHRP Report 900 - Crash Rate vs. Signal Spacing

Magnolia Avenue between Polk Street and Hole Avenue (which encompasses the requested traffic signal location) also falls on the Southern California Association of Government's (SCAG) Regional High Injury Network because of the rate of Auto-Pedestrian fatalities and serious injuries. This means that the rate of pedestrian involved collisions is higher than that of most roadways within the 38,000 square mile SCAG region. A new signal with median opening would introduce additional vehicular conflict points to pedestrians walking along Magnolia Avenue and impede walkability on an already impacted stretch of roadway. The full map is accessible at: <http://maps.scag.ca.gov/hin/index.html>

According to the AASHTO Policy on Geometric Design of Urban Highways and Streets, at 40 MPH, the recommended decision sight distance for a stop on an urban road is 690 feet – the proposed intersection (signalized or otherwise) is less than 600 feet from adjacent intersections. Motorists encountering an unanticipated permitted left turn across three lanes of vehicle traffic may have difficulty reacting appropriately.

2. SIGNAL WARRANTS

The traffic signal does not meet California Manual of Uniform Traffic Control Devices warrants. Signal warrants use existing or projected traffic characteristics of an intersection to assess the appropriateness of a traffic signal. The “Peak Hour” traffic signal warrant is assessed by plotting the sum of the minor street volume against that of the major street volume. The plotted point must fall above the minimum value designated for the number of lanes at the intersection in order for a signal to be considered warranted. Signals that are not warranted often experience a higher rate of violations as motorists do not understand the purpose of a signal; however, staff would also not recommend an unsignalized median break to cross three lanes of traffic on Magnolia Avenue in close proximity to the intersection with Tyler Street.

As illustrated in Figure 5, the proposed signal would not meet traffic signal warrants during its peak hours of operation, the number of side-street vehicles would not reach the recommended levels for installation of a traffic signal (highlighted in red). The chart was developed using volumes provided by the property owner’s engineer in Attachment 1. The report prepared by the property owner’s engineer estimates that only 31 vehicles will use the left turn signal during the AM Peak Hour, and 75 during the PM Peak Hour. As measured in the field, the available Banbury Drive left turn and Magnolia Avenue U-Turn provide sufficient capacity to handle the inbound left turning motorists.

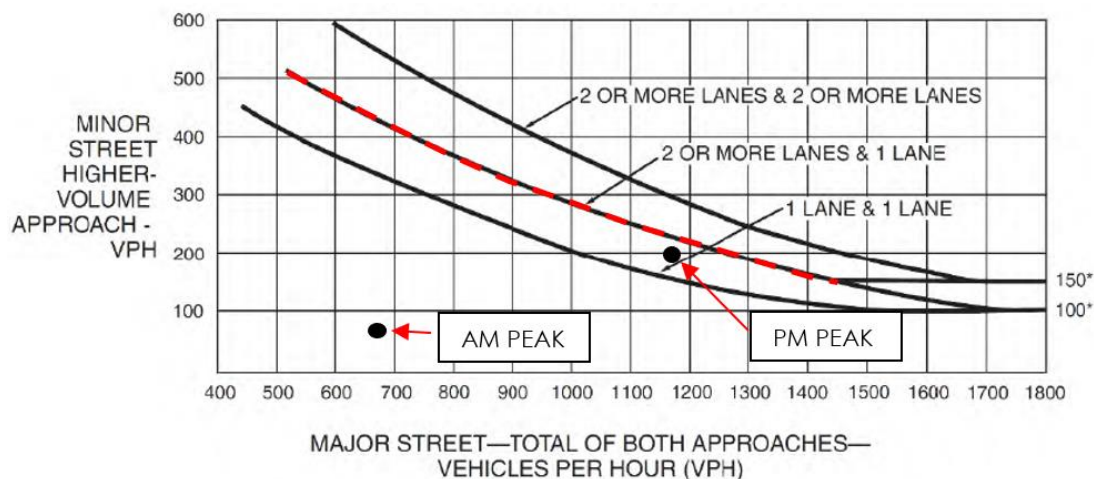


Figure 5: Peak Hour Traffic Signal Warrant Analysis

3. COST

While the Northgate Gonzalez Market has offered to construct the traffic signal and median opening, the City of Riverside would incur all energy, preventative maintenance, and equipment replacement costs for the intersection. Staff anticipates spending 15 hours annually on signal timing and preventative maintenance for the signal. The cost to

maintain a signal can quickly escalate – if the traffic signal cabinet were to be knocked down; for example, the City would incur over \$10,000 in replacement costs. As Riverside continues to grow and more areas are redeveloped, it is not sustainable or practical to signalize driveways onto large sites.

4. *MAGNOLIA AVENUE SPECIFIC PLAN*

The Magnolia Avenue Specific Plan was adopted by the Riverside City Council. A corridor-wide policy objective within the specific plan involves the closure of left turn median openings along Magnolia Avenue. “Policy 2.5: Study the feasibility of left turn lane closures at minor intersections to allow for increased continuity of the landscaped median along the corridor.” The addition of a left turn lane opening through the median for a minor intersection counteracts Policy 2.5 of the Specific Plan.

Findings:

Following a review of traffic safety, signal warrants, long-term costs, and existing policies along this corridor, the Public Works Department does not currently support the installation of a new median opening with or without a traffic signal at the Northgate Gonzalez Market on Magnolia Avenue. While there are safety features and operational enhancements that could be installed alongside the traffic signal, these do not outweigh the existing measured safety concerns along the corridor. An additional median opening to create access adds another point of vehicle conflict within the immediate vicinity of the intersection experiencing the highest rate of collisions Citywide on a corridor that was identified on SCAG’s Regional High Injury Network. Existing policies prompt staff to seek to close left turn median openings to reduce such conflicts. The site is currently served by several access points and has access rights across the sites to its east and west. While the property owner has conveyed that their finances have not been as expected, the construction of the planned 450 adjacent housing units should provide a large customer base for the market. The preliminary plans for this development include cross-access and staff encourages the two property owners to work closely together to optimize access between their sites.

FISCAL IMPACT:

There is no fiscal impact associated with this report.

Prepared by: Kris Martinez, Public Works Director
Certified as to
Availability of Funds: Edward Enriquez, Chief Financial Officer/Treasurer
Approved by: Rafael Guzman, Assistant City Manager
Approved as to Form: Gary G. Geuss

Attachments:

1. Northgate Market Progression Assessment
2. Presentation

