

# CIRCULATION IMPACT STUDY

## TAKE-5 AUTOMATIC CAR WASH

### 2520 BRUNSWICK PIKE

### BLOCK 2201 – LOT 20

### TOWNSHIPS OF LAWRENCE, NEW JERSEY

## Prepared For:

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## Introduction

This Circulation Impact Study is prepared pursuant to Lawrence Township Ordinance 814, and is a supplement to the Traffic Impact Study, also prepared by Pennoni Associates, Inc. For simplicity, this report is prepared to follow the format of the ordinance to ensure completeness.

### 1. Planning Report

- a. The site address is 2520 Brunswick Pike (US Route 1 Business), also known as Block 2201, lot 20. The existing site is occupied by an abandoned Dollar General store. The proposed redevelopment includes the complete removal of the existing facility for a new automated car wash facility complete with one (1) 90' express washing tunnel. The site is zoned HC "Highway Commercial" in which car washes are a permitted use.

US Route 1 is a median divided highway. The proposed development will maintain the existing right-in driveway from northbound Brunswick Pike and the right-out driveway on the adjacent property (lot 21) onto northbound Brunswick Pike. The entrance driveway will provide access to the proposed automatic car wash wherein patrons can choose to enter the washing tunnel queue or utilize the vacuuming bays, of which 14 are proposed.

The existing site includes a two-way paved connection at the rear of the site which permits cross access from lot 17.02 to the south and lot 21 to the north.

- b. The proposed redevelopment does not include a new street system or modifications to any existing streets including rights-of-way and cartways. The existing pedestrian sidewalk along the Brunswick Pike frontage is proposed to remain.
- c. We have reviewed the Circulation section of the "Master Plan of Township of Lawrence" dated June 14, 1995, and the "Master Plan: Circulation Plan Element Amendment – Bicycle & Pedestrian Plan" dated June 17, 2019. The existing design of Brunswick Pike appears to adhere to the desired design discussed within the Master Plan for both vehicular and pedestrian movement. Direct access is provided to lots 20 and 21 through a shared access driveway on the lot 20 frontage. The lots also share an exit driveway location on the lot 21 frontage. Pedestrian sidewalk is in place for the full frontage of lot 20. The sidewalk crosses the existing paved entrance driveway apron at grade for pedestrian accessibility. There are no proposed modifications to the existing improvements within the Brunswick Pike r-o-w.

The Plan promotes the reduction of vehicle trips onto the roadway system, including interconnectivity between properties. However, NJDOT major access policy does not promote private driveway access directly to/from a jug handle, as is the case with lot 17.02 which is included in this report's circulation study area. Since the interconnection of lots 21 and 20 to lot 17.02 promotes the use of a non-conforming access and egress from 17.02 onto the Texas Ave jughandle, the benefit of the interconnection is arguably removed by the safety concerns of additional trips to a non-conforming access/egress configuration to the highway.

- d. The applicant has met with the Township informally on two occasions to discuss the proposed redevelopment. The Township indicated the importance to provide a 40' minimum width vegetated buffer at the rear of the property due to the presence of existing residential dwellings to the immediate east of the property. The Township also expressed the desire to maintain the paved interconnectivity between properties. Due to the location of the existing building on lot 17.02 approximately 60' from the rear property line, and due to the loading operations located at the rear of said building, it is not possible to provide a 40' wide vegetated buffer and a two-way drive aisle. Approximately 76' would be required between the adjacent building and the rear property to provide for the buffer and drive aisle in addition to a minimum 12' parallel loading area behind the adjacent building.

Consequently, the applicant has elected to provide the desired 40' wide buffer, and remove the paved drive aisle. Please note title research for lot 20 has revealed a cross access easement for the drive aisle does not exist.

Vehicle movements with the maintenance of the interconnecting rear drive aisle:

- South bound Route 1 traffic wanting to access lot 17.02 may do so by using the nearside jughandle to Texas Avenue, to access lot 20 (car wash lot) and use the connecting drive aisle to access lot 17.02.
- East bound Texas Ave traffic wanting to access lot 17.02 may do so by continuing across Route 1 at the signal to the lot 20 access, and use the connecting drive aisle to access lot 17.02.
- Traffic wanting to egress lots 20 or 21 to south bound Route 1 or west bound Texas Ave. may do so by using the connecting drive aisle to lot 17.02, and using the exit driveway to the Texas Ave/ Route 1 signal which permits south, west and north movements.
- Traffic wanting to access multiple services on lots 17.02, 20 or 21 may do so by using the connecting drive aisle without having to egress onto Route 1.

Removal of the connecting drive aisle results in the following:

- South bound traffic wanting to access lot 17.02 must continue past the Texas Ave signal to the next jughandle (opposite Lake Court) to access north bound Route 1.
- East bound Texas Ave. traffic wanting to access lot 17.02 must turn south bound on Route 1 to the Lake Court jughandle to access north bound Route 1.
- Traffic egressing lots 20 or 21, wanting to proceed south bound onto Route 1 or west bound onto Texas Ave, must turn right onto north bound Route 1 to the E. Darrah Lane jughandle onto south bound Route 1. Likewise, these trips are removed from the use of the non-conforming driveway egress from lot 17.02 directly onto the Texas Ave. Jug handle.
- Vehicles on lot 17.02 wanting to access lots 20 or 21 must egress into the Route 1 jughandle, proceed the short distance on north bound Route 1 to the lot 20 entrance driveway.
- Vehicles on lots 20 or 21 wanting to access lot 17.02 will need to proceed to northbound Route 1 and use the E. Darrah Lane jughandle to south bound Route 1, to the Lake Court Jughandle to north bound Route 1. *These additional maneuvers are avoided if the vehicle visits 17.02 before lots 20 and/or 21.*

Adequacy of the vehicle maneuvers resulting from the connecting driveway removal:

- While the above documents the additional movements necessary for the scenarios provided, counts were performed on lot 20 at the connecting rear drive aisle during the Weekday AM and PM peak hours, and Saturday midday peak hour. Figure 3 within the TIS documents the turn and straight movements in all directions for the rear drive aisle.

Based on this figure, the sum of movements during the weekday PM peak (14) results in the maximum trips during any of the studied peak hours. 4 of this trips proceeded from lot 17.02 to lot 21, 5 of the trips are proceeded from lot 20 right onto lot 17.02, and 5 trips are proceeded from lot 21 to lot 17.02. This equates to 4 trips using the lot 17.02 entrance driveway (1 trip every 15 minutes), and 10 vehicles using the lot 17.02 exit driveway (1 trip every 6 minutes) which were generated by adjacent lots 20 and 21. This volume is considered to be minimal as the NJDOT defines significant traffic through one point of access/egress to be 100 vehicles per hour or greater.

- The distance from the lot 21 exit driveway to the E. Darah Lane left turn is 0.46 miles. The distance from the Texas Ave right turn onto south bound Rt. 1 to the Lake Court signal is 0.34 miles. The location of the jug handles north and south of lot 20 are relatively short.
- There are no impacts to pedestrians and bicyclers as a result of the proposed improvements. The existing sidewalk along the Route 1 frontage is proposed to remain.
- The vehicle trips to and from lots 20 and 21 via the non-conforming lot 17.02 driveways (although minimal as defined in the first bullet above), will be removed. We believe the reduction of trips to/from the non-confirming jug handle driveways on lot 17.02 would be supported by the NJDOT.

- e. Based on the counts defined in “d”, a maximum of 14 peak hour trips will be added to the highway by removing the connecting drive aisle on lot 20. However, the same number of trips using the non-conforming driveway on lot 17.02 will be removed. Safety of the vehicle maneuvers as a result of the drive aisle removal is arguably enhanced. While trips are added to the highway, and additional highway movements are required to reach the destination, the routes to do so are in compliance with the NJDOT access code. Conversely, the removal of the shorter, non-compliant route is an enhancement to safety as users of a jughandle general do not anticipate maneuvers onto and off of the highway directly within the jughandle.

The safety to pedestrians and bicyclers is not impacted positively or negatively by the proposed improvements.

- f. Lot 17.02 has direct access and egress to Route 1 which is proposed to remain unchanged. Lot 20 (car wash lot) has direct access from Route 1 and relies on the existing lot 21 exit driveway for egress onto Route 1. Likewise, Lot 21 has the ability to use the lot 20 access drive, and has egress onto Route 1 along its frontage. There is a cross access easement for the shared use of the driveways between lots 20 and 21. Lot 21 also has an access driveway at the north side of its frontage to Route 1 (Lot 21 does not need to rely on the lot 20 access driveway for access to its services). There are no proposed modifications to any of the driveways. The access of lots 20 and

21 to Route 1 is adequate as defined by the NJDOT access code. As stated, the lots 17.02 access drives from the Texas Ave. jughandle are non-compliant, and the removal of the rear connecting drive aisle will result on the reduction of trips to/from the lot 17.02 driveways.

The proposed car wash does not generate pedestrians as the use does not engage in any services other than the washing of a passenger vehicle.

## 2. Traffic Impact Report

- a. The proposed redevelopment will occur in one construction phase. Access and egress to each of the 3 lots is defined in section 1.f above. There is no interconnectivity to any other lots or developments.
- b. Existing Conditions Analysis
  1. Refer to the "Introduction" section of the Traffic Impact Study for a description of the study area which includes:
    - Texas Avenue and Rt. 1 SB Nearside Jughandle
    - Brunswick Pike (US Route 1 Business) and Texas Avenue/NB Jughandle
    - Brunswick Pike (US Route 1 Business) and Existing Site Driveway
    - Brunswick Pike (US Route 1 Business) and Rt. 1 SB Jughandle/Dealership Driveway
    - Brunswick Pike (US Route 1 Business) and Rt. 1 NB Jughandle/E. Darrah Lane

The study area was selected as the named intersections may experience changes in trips resulting from the proposed use.

2. Detailed descriptions of the roadways included in the study area are included in the "2023 Existing Conditions" section of the TIS.
3. The car wash use is somewhat unique in that it does not rely on any form of public transit, as use requires the personal vehicle. The only other trips which may access the site are trash collection, (once per week) and employee trips (5 employees). The trip generation from the proposed car wash is not anticipated to have any impact on public transit routes.
4. School bus routes have not been studied for this project, as the site is located within a commercial and retail zoned highway corridor. School buses may use northbound Route 1 in route to residential stops, but no stops exist proximal to the site, and no modifications are proposed to the site driveways, cartways or rights-of way. The trip generation from the proposed car wash is not anticipated to impact bus routes as the AM peak is typically not high during weekdays, and the PM weekday peak occurs after the PM bus drop offs.
5. There are no proposed modifications to sidewalks, crosswalks, or bicycle pathways. Bicyclists will have no reason to access the proposed car wash use as there are no sales of goods offered at the site.
6. Traffic volume data for the existing conditions is included in Appendix A and peak hour volumes are illustrated on Figure 3 of the TIS.

7. Traffic volume analysis for the 2023 existing conditions is provided as Table 3 in the TIS.
- C. Site Traffic Characteristics
1. Traffic generation of the proposed car wash use is documented starting on page 8 of the TIS.
  2. Trip distribution is provided on page 8 and illustrated on Figures 5 and 6 of the TIS.
- d. Future Demands on the Transportation System
1. The analysis of the 2025 No Build Conditions starts on page 6 of the TIS and includes a detail discussion of the level of service for each movement at each intersection within the study area.
  2. The analysis of the 2025 Build conditions with the proposed automated car wash starts on page 8 of the TIS and includes a detailed discussion of the impacts to the level of service for each movement at each intersection within the study area.
- e. Impact Analysis and Recommendations
1. The levels of service are summarized within the TIS and discussed in d.1 and d.2 above.
  2. Comparison of the No-Build and Build conditions are summarized in Appendix E of the TIS.
  3. Recommendations included on page 11 of the TIS state, “The intersection of Brunswick Pike and Texas Ave. Route 1 NB jughandle and Brunswick Pike and Route 1 NB jughandle/E. Darrah Lane require timing modifications to mitigate the increased delay and produce acceptable results. The timing modifications consists of the relocation of green time to the affected movements.
  4. There are no physical improvements proposed for the roadways. However, the proposed timing changes are summarized in Table 7 and Appendix F of the TIS.
- f. Site Plan Analysis
1. Figure 1 of the TIS depicts the aerial existing conditions for the site access points and surrounding intersections. The site plans include the site access configuration.
  2. Required and proposed parking is summarized on the “Site Plan”, sheet CS1001. The proposed employee and vacuum spaces conform to the ordinance requirements.
  3. Brunswick Pike is a median divided highway. The right out only movement from lot 21 onto Brunswick Pike has a left sight line distance of 530’ based on a posted speed limit of 55 MPH based on current AASHTO standards. The exit driveway is existing and not proposed to be modified.

## Conclusions

Please refer to the “Conclusions” section of the TIS for the impact of the propose automated car wash on the intersections within the study area (which includes the removal of the interconnecting drive aisle at the rear of the site).

Signal timing modifications are identified to mitigate the minor increase in delay at existing movements operating with an LOS of F. The site driveway will operate at a LOS A for all peak periods.

The removal of the connecting drive located at the rear of the site will require alternative movements as defined in Section 1.d. of this report. In general, the minimal number of vehicles which utilize the rear drive aisle will need to access Brunswick Pike, and utilize the Lake Court and E. Darrah Lane jughandles to access adjacent properties. By doing so, the vehicles trips using the lot 17.02 driveways from the Texas Ave jughandle will be reduced. This is a benefit as the NJDOT Access Code generally does not permit direct access from private businesses to a jughandle as a safety measure. Due to the minimal number of trips using the rear drive aisle, and the benefit of removing trips from the Texas Ave. jughandle driveways, the proposed car wash site circulation, including the removal of the rear drive aisle is adequate.

That’s said, there is no opposition to providing the two – way rear drive aisle if the Planning Board determines the width of the landscape buffer can be reduced to permit the drive aisle along with space for parallel loading/unloading for the facility on adjacent lot 17.02.