January 6, 2022
W.O. No. 2021-3147

Spokane County
1026 E. Broadway Avenue
Spokane, WA 99260

Attn: Barry Greene, P.E.

Re: 57th Avenue and Dowdy Road Comprehensive Plan Amendment Change from Light Industrial (LI) to Low Density Residential (LDR) Planning Level Traffic (Trip) Distribution Letter

Dear Mr. Greene:

Per the Spokane County requirements, we have prepared a planning level trip generation and distribution letter for the 10.92 acre +/- property located at 57th Avenue and Dowdy Road.

This letter will establish the potential trip generation and distribution for the change of land use from Light Industrial (LI) to Low Density Residential (LDR) for the subject property as shown on Figure 2, Aerial Plan, and determine if further study may be required. This report will follow the standards for doing traffic distribution letters as required by Spokane County, and the Institute of Transportation Engineers (ITE).

PROJECT DESCRIPTION
The planning level project proposes to change the current land use code designation from Light Industrial (LI) to Low Density Residential (LDR). The subject property is approximately 10.92 acres +/- of undeveloped land. The project site is currently undeveloped and covered in trees, grass, and weeds.

The existing land use is Light Industrial (LI). The assumption was made that if the property was developed under light industrial use that the buildings would cover 50% of the property and would result in a 237,838-sf (237.8 ksf) light industrial buildings.

The proposed zoning is Low Density Residential (LDR) which has a maximum density of 8 residential units per acre, per Chapter 14.606 under the Spokane County Municipal Code. Under the current land use designation, the subject property can be developed into 87(10.92x8) single family residential lots with access to 57th Avenue and Dowdy Road.
**Vicinity / Aerial View of Site**

The site is listed on the current comprehensive plan as Light Industrial and currently zoned as LI. The site lies on a portion of the SE 1/4 of Section 05, T.24N., R.42E., W.M. within Spokane County, Washington. A vicinity map is included as Figure 1 and a preliminary copy of the Aerial Photo is included as Figure 2, please see the Appendix. The parcel numbers for the site are 24051.0402, 24051.0403, & 24051.0408.

**Trip Generation and Distribution**

**Trip Types**

The existing land use is industrial, and the proposed land use is residential. ITE has developed data regarding various trip types that all developments experience. These are found in several places, however, for this analysis the *Trip Generation Manual 10th Edition* as well as the *Trip Generation Handbook* were used to develop the criteria for this analysis.

Generally, all existing and proposed developments will be made up of one or more of the following trip types: new (destination) trips, pass-by trips, diverted trips, and shared (internal trips). In order to better understand the trip types available for land access a description of each specific trip type follows.

**New (Destination) Trips** - These types of trips occur only to access a specific land use such as a new retail development or a new residential subdivision. These types of trips will travel to and from the new site and a single other destination such as home or work. This is the only trip type that will result in a net increase in the total amount of traffic within the study area. The reason primarily is that these trips represent planned trips to a specific destination that never took trips to that part of the City prior to the development being constructed and occupied. This project will develop new trips.

**Pass-by Trips** - These trips represent vehicles which currently use adjacent roadways providing primary access to new land uses or projects and are trips of convenience. These trips, however, have an ultimate destination other than the project in question. They should be viewed as customers who stop in on their way home from work. An example would be on payday, where an individual generally drives by their bank every day without stopping, except on payday. On that day, this driver would drive into the bank, perform the prerequisite banking and then continue on home. In this example, the trip started from work with a destination of home, however on the way, the driver stopped at the grocery store/latte stand and/or bank directly adjacent to their path. Pass-by trips are most always associated with commercial/retail types of development along major roadways. Therefore, for this project pass-by trips will not be considered.

**Diverted (Linked) Trips** - These trips occur when a vehicle takes a different route than normal to access a specific facility. Diverted trips are similar to pass-by trips, but diverted trips occur from roadways, which do not provide direct access to the site. Instead, one or more streets must be utilized to get to and from the site. For this project, because of the many different routes that
can be taken to and from the site, we believe that these would be difficult to track and verify. Therefore, no diverted trips were acknowledged for this analysis.

**Shared Trips** - These are trips which occur on the site where a vehicle/consumer will stop at more than one place on the site. For example, someone destined for a certain shop at a commercial site may stop at a bank just before or after they visit the shop that they went to the site to visit. This trip type reduces the number of new trips generated on the public road system and is most commonly used for commercial developments. Determining these trip types is more difficult to quantify and without specific guidance are usually determined by engineering judgment on a project by project basis. Although some shared trips between land uses may occur with this project, there is no supporting data to justify a large shared trip reduction. Therefore, to be conservative no shared trips were credited for this project.
Trip Generation Characteristics for the Proposed Project

As noted earlier, trip generation rates are determined by use of the Trip Generation Manual, 10th Edition published by the Institute of Transportation Engineers (ITE) to determine the number of trips generated during the PM Peak Hour. The purpose of the Trip Generation Manual is to compile and quantify empirical trip generation rates for specific land uses within the US, UK and Canada.

Existing Land Uses

For the 237,838 sf (237.8 KSF) buildings of the potential existing light industrial land use, Land Use Code (LUC) #110 General Light Industrial was used. LUC #110 will be used to establish the number of potential trips generated by the light industrial land use and are shown in Table 1.

Table 1 - Trip Generation Rates for LUC # 110 – General Light Industrial (Fig. 3&4)

<table>
<thead>
<tr>
<th>Thousand Square Feet (KSF)</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vol. per Fitted Curve</td>
<td>Directional Distribution</td>
</tr>
<tr>
<td></td>
<td>88% In</td>
<td>12% Out</td>
</tr>
<tr>
<td>237.8</td>
<td>85</td>
<td>75</td>
</tr>
</tbody>
</table>

Average Daily Trip Ends (ADT)

<table>
<thead>
<tr>
<th>KSF</th>
<th>Fitted Curve</th>
<th>ADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>237.8</td>
<td>960</td>
<td></td>
</tr>
</tbody>
</table>

Fitted Curve Equations:

AM: Ln(T)=0.74Ln(x)+0.39
PM: Ln(T)=0.69Ln(x)+0.43
ADT: T=3.79(x)+57.96
T = Trips/units, x = Dwelling Units

Proposed Land Uses

For the potential 87 units of the development, Land Use Code (LUC) #210 Single Family Detached Housing will be used. LUC #210 will be used to establish the number of potential trips generated by the proposed land use and are shown on Table 2.

Table 2- Trip Generation Rates for LUC # 210 – Single Family Detached Housing (Fig. 5&6)

<table>
<thead>
<tr>
<th>No. of Dwelling Units</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vol. per Fitted Curve</td>
<td>Directional Distribution</td>
</tr>
<tr>
<td></td>
<td>25% In</td>
<td>75% Out</td>
</tr>
<tr>
<td>87</td>
<td>67</td>
<td>17</td>
</tr>
</tbody>
</table>

Average Daily Trip Ends (ADT)

<table>
<thead>
<tr>
<th>Units</th>
<th>Fitted Curve</th>
<th>ADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>-</td>
<td>915</td>
</tr>
</tbody>
</table>

Fitted Curve Equations:

AM - T = 0.71(x) + 4.80
PM - Ln(T) = 0.96 Ln(x) + 0.20
ADT - Ln(T) = 0.92 Ln(x) + 2.71
T = Trips/units, x = Dwelling Units

Trip Generation Comparison

Since the existing light industrial land use trip generation is proposed to be replaced by the proposed Low-Density Residential trip generation, the difference in trips generated is shown on Table 3.
Table 3 - Trip Generation Comparison (Fig. 7&8)

<table>
<thead>
<tr>
<th>Land Use Code (LUC)</th>
<th>AM Peak Hour</th>
<th></th>
<th>PM Peak Hour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vol. per LUC</td>
<td>Directional Distribution</td>
<td>Vol. per LUC</td>
<td>Directional Distribution</td>
</tr>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>LUC 210 Single Family Housing (Proposed) (87 units)</td>
<td>67</td>
<td>17</td>
<td>50</td>
<td>89</td>
</tr>
<tr>
<td>LUC 110 Light Industrial (Existing) (237.8 KSF)</td>
<td>&lt;85&gt;</td>
<td>&lt;75&gt;</td>
<td>&lt;10&gt;</td>
<td>&lt;68&gt;</td>
</tr>
<tr>
<td>Difference</td>
<td>&lt;18&gt;</td>
<td>&lt;58&gt;</td>
<td>40</td>
<td>21</td>
</tr>
</tbody>
</table>

Average Daily Trip Ends (ADT)

<table>
<thead>
<tr>
<th>Land Use Code (LUC)</th>
<th>Rate</th>
<th>ADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUC 210 Single Family Housing (Proposed) (87 units)</td>
<td>915</td>
<td></td>
</tr>
<tr>
<td>LUC 110 Light Industrial (Existing) (237.8 KSF)</td>
<td>&lt;960&gt;</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>&lt;45&gt;</td>
<td></td>
</tr>
</tbody>
</table>

As shown on Table 3, the change of land use to Low Density Residential is anticipated to generate a total of 18 less trips in the AM peak hour with 58 less trips entering the site and 40 additional trips exiting the site. In the PM peak hour, the Low Density Residential land use is anticipated to generate a total of 21 additional trips, with 47 additional trips entering the site and 26 less trips exiting the site. For average daily trips ends, the Low Density Residential land use is anticipated to generate a total of 45 less average daily trip ends to/from the site.

**Trip Distribution**

It is anticipated that the subject property is accessed via Dowdy Road and 57th Avenue. The roads anticipated to be used by the additional trips generated by a development of the subject property are listed below.

**Dowdy Road** is a north/south, two-way, 2-lane local access road that extends south from Westbow Boulevard through 55th Avenue before terminating at 57th Avenue. Dowdy Road serves light industrial and residential land uses. The posted speed limit on Dowdy Road within the study area is 25 MPH.

**57th Avenue** is an east/west, two-way, 2 lane local access road that extends east from Dowdy Road through Sherri Lee Road and Zabo Road before terminating at Spotted Road. 57th Avenue primarily serves light industrial and residential land uses. The speed limit on 57th Avenue is 25 MPH.

**Westbow Boulevard** is an east/west two-way, 2-lane local access frontage road for I-90, that extends east from Thomas Mallen Road through Holly Road, and Spotted Road before
transitioning into Thorpe Road. Westbow Boulevard generally serves light industrial and residential land uses. The posted speed limit on Westbow Boulevard within the study area is 35 MPH.

**Spotted Road** is a north/south two-way, 2-lane local access road that extends south from Westbow Boulevard through 53rd Avenue, 57th Avenue, Hallett Road, White Road, Andrus Road, and Jensen Road before curving east and terminating at Cheney Spokane Road. Spotted Road generally serves light industrial, residential, and rural land uses. The posted speed limit on Spotted Road within the study area is 45 MPH.

**Existing Transit System**
The existing bus route nearest the project site are Routes 62, 63, 64, 66, & 633. The nearest bus stops from the project site to the routes is 3.3 miles at the West Plains Transit Center. Please see the attached route map.

**Existing Pedestrian System**
There is a sidewalk along the east side of Dowdy Road from 57th Avenue to 55th Avenue. There are sidewalks along both sides of 57th Avenue from Dowdy Road to Zabo Road and the north side of 57th Avenue from Zabo Road to Spotted Road.
**Existing Bike System**
Westbow Boulevard, Spotted Road, and Hallett Road are assigned as a shared roadway within the study area.

Considering many factors such as the surrounding transportation facilities, typical commuting patterns, existing development in the area, and the ADT of surrounding roadways, the traffic for the proposed development is anticipated as follows: 5% of the trips are anticipated to go to/from the west via Westbow Blvd, 25% of the trips are anticipated to go to/from the west via Hallett Road, 10% of the trips are anticipated to go to/from the south via
Spotted Road, 5% of the trips are anticipated to go to/from the east via Hallett Road and 55% of the trips are anticipated to go to/from the east via Westbow Blvd.

Source: ADT counts from Spokane County
Conclusions and Recommendations
It is anticipated that a change of land use to Low Density Residential (LDR) would generate 18 less AM peak hour trips and 21 additional PM peak hour trips. Based on the number of trips generated the location of the project and an understanding of the operation of intersections within the area, we believe that if the change is approved that there would be minimal impact from this project on the surrounding transportation system. Additionally, at the time of any “real” project the “real” project would be reviewed for traffic impact at that time. Therefore, based upon the analysis provided and a working knowledge of traffic in the area we recommend that the comprehensive plan map amendment be allowed to move forward without further analysis.

Should you have any questions related to this document please do not hesitate to call at (509) 893-2617.

Sincerely,

Todd R. Whipple

TRW/kmk

encl. Appendix (Vicinity Map, Aerial View of Site, Trip Dist %)

cc: Sponsor
File
APPENDIX

1. Vicinity Map

2. Aerial View of Site

3. AM Existing Trip Distribution

4. PM Existing Trip Distribution

5. AM Proposed Trip Distribution

6. PM Proposed Trip Distribution

7. AM Trip Distribution Difference

8. PM Trip Distribution Difference
TRIP GENERATION & DISTRIBUTION
57TH AVE & DOWDY RD CPA
57TH AVENUE & DOWDY ROAD
SPOKANE, WASHINGTON

FIGURE 2
AERIAL PLAN
PROJECT SITE

TRIP GENERATION

<table>
<thead>
<tr>
<th></th>
<th>TOTAL</th>
<th>IN</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM PEAK</td>
<td>68</td>
<td>9</td>
<td>59</td>
</tr>
</tbody>
</table>

LEGEND

- ROUTE OF TRAVEL
- PM(IN/OUT)
- 00%

PM EXISTING TRIP DISTRIBUTION

FIGURE 4