This memorandum summarizes the trip generation and distribution (TG&D) analysis prepared for the West Plains Circle K development proposed in Spokane, WA. The study was prepared to provide a preliminary assessment of development traffic impacts on the City as a function of the building permit process. City of Spokane is the lead review agency for this study. The study will also be submitted to WSDOT for comment, given the development is located along U.S. Route 2. Other agencies can comment per request of staff with the city engineer’s office, as needed.

1. PROJECT DESCRIPTION

The West Plains Circle K is proposed on 1.94-acres situated in the northwest quadrant of the Flint Rd/U.S. Route 2 (U.S. 2) intersection in Spokane. The proposal includes a 5,200 square-foot (s.f.) convenience store with 7 covered fuel pumps, providing for 14 fueling positions on the site. The project fronts about 285 feet of Flint Rd and 290 feet of U.S. 2.

Access is proposed by two driveways along Flint Rd and a single driveway U.S. 2. Center lane striping dictates the driveway located on U.S. 2 and the southern driveway on Flint Road would be limited to right-in and right-out turn movements. Lane striping may need to be revised to allow left-turns at the northern driveway on Flint Road, but this is feasible as the approach is aligned north of the southbound left-turn lane at the signalized intersection with U.S. Route 2. Driveways will provide access to fueling facilities and a paved parking lot with 27 stalls used to support the convenience store. Two stalls would have ADA compliance designs.

The development occupies portions of parcels 25194.9049 and 25194.9030, situated in a light industrial zone (LI) of the City. Construction is anticipated through summer 2021 with buildout and occupancy anticipated by fall. Attached Figure 1 provides a project location map. Attached Figure 2 provides the most current site plan.

2. TRIP GENERATION

Trip generation for the Circle K project was developed using the methods outlined by the Trip Generation Manual (10th Edition, ITE, 2017). Trip Generation is a nationally recognized and locally accepted method for forecasting traffic for a range of commercial, retail, and residential land uses. Projection methodologies were developed based on the survey of other land use developments located throughout the United States.
Trip generation was calculated using Land Use Code 853 for a convenience market with gasoline pumps, the best land use fit given the primary business of Circle K is that of a convenience store. Calculations were performed using rates that equate trips to building area. A description of this Code is as follows:

- This land use includes convenience markets with gasoline pumps where the primary business is the selling of convenience items, not the fueling of motor vehicles. The sites included in this land use category have the following two specific characteristics:
  - The gross floor area of the convenience market is at least 2,000 gross square feet.
  - The number of vehicle fueling positions is less than 10.

The proposed project has more than 10 fueling positions. However, the other land use is Gasoline/Service Station with Convenience Market (945), in which the convenience market is between 2,000 and 3,000 square feet and there are at least 10 fueling positions. The project's convenience store is bigger than the one for this land use. The Land Use Code 853 for a convenience market with gasoline pumps is more conservative, so it was used for this report.

Calculations from the Trip Generation Manual yield total trips. However, not all of these trips are new to streets. Internal, diverted, and pass-by are terms used to describe trip types that make up total trips for a commercial project. A description of these trip types and applied calculations is described below as based on the ITE Trip Generation Handbook (3rd Edition 2014):

- **Internal Trip.** These trips travel between land uses of a multi-use, commercial project without using the adjacent roadway system as accomplished by local streets or through shared parking lots and access easements. These trips are calculated using procedures provided in the ITE Handbook. However, only a single land use is proposed for the site. As such, no internal trips were assumed for this study.

- **Pass-By Trip.** These trips are made as a stop at the proposed land use in-route to another destination. The impacts of these trips are typically limited to turning movements at development access points as they redirect from adjacent street traffic. Pass-by trips are calculated according to rates provided within the ITE Handbook. Pass by rates for these types of land uses can range as high as 85-percent, but a 60-percent pass by rate was used to assume a conservative analysis of new trip impacts. This is lower than Handbook recommended values for the AM and PM peak hours.

- **Diverted Trips.** These are trips pulled from roadways (and competing land uses) beyond the adjacent streets, diverting to other roadways before approaching a project site. These trips impact routes to/from roadways from which they were diverted. Diverted trips were neglected for this study to ensure a conservative analysis.

- **New Trips.** These trips remain following the determination of internal, pass-by, and diverted trips. These have the highest impact to the street system because they represent a gain to both driveway and off-site traffic. They are specific-purpose trips.

Total trips are calculated from the Trip Generation Manual, followed by internal adjustments. Then pass-by and diverted adjustments are performed, when applicable. Total trip generation and various trip types were forecast for the typical weekday and AM and PM peak hours. A summary of trip forecasts is shown with **Table 1** for the weekday and peak hours.
Table 1. Summary Project Trip Generation

<table>
<thead>
<tr>
<th>Development</th>
<th>Build Area</th>
<th>Weekday</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inbound</td>
<td>Outbound</td>
</tr>
<tr>
<td>Market W/Gas Pumps</td>
<td>5,200 s.f.</td>
<td>3,250</td>
<td>106</td>
<td>105</td>
</tr>
<tr>
<td>- Less Pass-By Trips</td>
<td>-1,950</td>
<td>-64</td>
<td>-64</td>
<td>-126</td>
</tr>
<tr>
<td>Net New Trips</td>
<td>1,300</td>
<td>42</td>
<td>41</td>
<td>83</td>
</tr>
</tbody>
</table>


As shown, 3,250 weekday trips are generated by the project 211 trips generated during the AM peak hour and 256 trips during the PM peak hour. About 1950 weekday, 126 AM peak hour, and 154 PM peak hour trips are forecast as pass-by. This leaves a total of 1,300 weekday trips with 83 AM peak hour and 102 PM peak hour trips as new to the area, impacting streets and intersections removed from the development.

3. TRIP DISTRIBUTION & ASSIGNMENT

The distribution and assignment of new project trips were estimated to provide an initial impact assessment to help identify where volume changes are forecast on area streets. To predict these trip distributions, ADT count volumes were compared for arterials that provide primary approach and departure routes to/from the development. Individual ADT counts available from the City and WSDOT were compared to gain a sense of how commuters are approaching, departing, and traveling through the study area (as defined via volume densities). Distributions were proportioned initially to these streets based on the comparison of ADT volumes. Adjustments and rounding were applied to raw distributions to address housing and business densities situated around the site. As this project is located along U.S. 2, a higher proportion of net new trips were forecast to/from the east and west of the project versus what was calculated initially with raw distributions.

New trip assignments were then developed by multiplying distributions and total trip generation. Trip distributions and the resulting trip assignments are shown on Table 2 for the weekday and peak commute hours of the weekday.

Table 2. Trip Distribution and Assignment

<table>
<thead>
<tr>
<th>Location</th>
<th>ADT Compare</th>
<th>Raw Distribution</th>
<th>Adjusted Distribution</th>
<th>Weekday Trips</th>
<th>AM Peak Trips</th>
<th>PM Peak Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. 2 W/of Project Approach</td>
<td>36,000</td>
<td>46.6%</td>
<td>47%</td>
<td>611</td>
<td>39</td>
<td>48</td>
</tr>
<tr>
<td>U.S. 2 E/of Flint Rd</td>
<td>36,000</td>
<td>46.6%</td>
<td>47%</td>
<td>611</td>
<td>39</td>
<td>48</td>
</tr>
<tr>
<td>Flint Rd N/of Project Approach</td>
<td>2,500</td>
<td>3.2%</td>
<td>2%</td>
<td>26</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Flint Rd S/of U.S. 2</td>
<td>2,800</td>
<td>3.6%</td>
<td>4%</td>
<td>54</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Totals on ADT/Cordon Line</td>
<td>77,300</td>
<td>100%</td>
<td>100%</td>
<td>1,300</td>
<td>83</td>
<td>102</td>
</tr>
</tbody>
</table>

All pass-by trips were assumed from U.S. 2 as the primary commute route adjacent to the site. A 60-percent westbound versus 40-percent eastbound directional distribution was assumed to/from U.S. 2 during the AM peak hour with the reverse 40-percent westbound and 60-percent eastbound directional assessment for the PM peak hour. Pass-by reflects the prevailing movements of U.S. 2 traffic during peak hours.

A summary of net new and pass-by trip assignments was determined for project driveways and the adjacent U.S. 2/Flint Road intersection. A summary of resulting total trip assignments is shown with Figure 3 for the AM and PM peak hours. A summary of pass-by trip assignments is shown...
with Figure 4. Net new trips can be identified through comparing the differential between Figures 3 and 4, respectively.

4. TRANSPORTATION IMPACT FEE’S

City Ordinances C-34305 established transportation impact fees and adopting Chapter 17D.030 to Title 17 of the Spokane Municipal Code. In 2017 the City formed the Transportation Impact Fee Advisory Committee to assist with an update to the code. Their work resulted in several modifications to the code including additional districts and an update to the fee structure and new improvement project list. Ordinance 35811 was adopted by City Council.

This project is in the West Plains District and falls under the ITE Land Use Code of 853/ Service Station/Minimart/ Carwash. This Land Use is paid per Vehicle Fueling Position (VFP) and the cost is outlined below.

- TIF Calculation = 14 VFPs * $3,765.87 / VFP = $52,722.18

The calculation yields a total impact fee of $52,722.18. This fee would be recommended as a mitigated condition as issued with a City Certificate of Concurrency. The TIF would fully and sufficiently address project traffic impacts upon the City, and on U.S. Route 2.

5. SUMMARY AND RECOMMENDATIONS

The West Plains Circle K is proposed with a 5,200-s.f. convenient store and 7 fueling pumps (14 fueling positions) on a 1.94 acre site located in the northwest quadrant of the U.S. 2 and Flint Road intersection in Spokane. Access is proposed through two driveways along Flint Road and one along U.S. 2. Driveways will provide access to site facilities and a paved parking lot with 27 stalls used to support the convenience store.

The development is forecast to generate 3,250 total weekday trips with 211 trips generated during the AM peak hour and 256 trips during the PM peak hour. Following pass-by adjustments, a total of 1,300 weekday trips with 83 AM peak hour and 102 PM peak hour trips would be new, impacting the study area beyond site approach. Nearly all site trips are expected to/from U.S. 2 as the major approach route to/from this area.

A City TIF of $52,722.18 is calculated in the West Plains services area for a convenience store with 14 fueling positions, which would be required as a transportation mitigation to gain receipt of a certificate of concurrency. Addressing the TIF should fully address the transportation impacts of this development, given available capacity at the Flint Road/U.S. 2 signal and provision of left-turn restrictions for the proposed development approach along U.S. 2.

No other recommendations are provided. This ends the trip generation and distribution analyses prepared for the West Plains Circle K development in Spokane. Please contact our office with questions or comments.
WEST PLAINS CIRCLE K CONVENIENCE STORE
TRIP GENERATION AND DISTRIBUTION LETTER
SITE PLAN

WEST PLAINS CIRCLE K CONVENIENCE STORE
TRIP GENERATION AND DISTRIBUTION LETTER

SITE PLAN SOURCE: HOLIDAY CIRCLE K STORES, INC.

T-O ENGINEERS
1717 S. RUSTLE STREET SUITE 201
SPOKANE, WA 99224

PHONE: (509) 319-2580  WWW.TO-ENGINEERS.COM

E-FILE: 210194_Spokane Circle K Trip Letter.dwg  DATE: 6/21/21  JOB: 210/34

© 2021 T-O ENGINEERS. THIS INSTRUMENT IS THE PROPERTY OF T-O ENGINEERS. ANY REPRODUCTION, REUSE OR MODIFICATION OF THIS INSTRUMENT OR ITS CONTENTS WITHOUT SPECIFIC WRITTEN PERMISSION OF T-O ENGINEERS IS STRICTLY PROHIBITED.

N:\210194\20_Planning\CAD\210194_Spokane Circle K Trip Letter.dwg, 6/2/21 7:29:51 AM, Bill White, DWG To PDF 2.3
TOTAL TRIP ASSIGNMENTS
AM AND PM PEAK HOURS

WEST PLAINS CIRCLE K CONVENIENCE STORE
TRIP GENERATION AND DISTRIBUTION LETTER

PRINCIPAL ARTERIAL
MAJOR COLLECTOR
MINOR COLLECTOR
LOCAL STREET

AM PEAK

PM PEAK