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December 8, 2016

Polo Brown Company
Mr. Daniel Brown, President

RE: Willow Springs Ranch
Transportation Memorandum
Monument, Colorado
LSC #164710

Dear Mr. Brown:

In response to your request, LSC Transportation Consultants, Inc. has prepared transportation memorandum for the proposed Willow Springs Ranch development planned to be located in the Town of Monument, Colorado. As shown in Figure 1, the site is located north of Baptist Road, east of Mitchell Road and Forest Lakes Drive and west of the Union Pacific Railroad tracks. The proposed development was most recently studied in the Willow Springs Ranch Updated Traffic Impact Analysis by LSC, dated January 27, 2011.

LAND USE AND PROPOSED ACCESS PLAN

The proposed Willow Springs Ranch development is currently planned to contain 396 single-family homes, with about 268 homes in the northern portion of the site and 128 homes in the southern portion of the site. The currently proposed site plan is attached. The January 2011 traffic impact study assumed a maximum of 450 single-family homes, with about 260 homes in the northern portion of the site and about 190 homes in the southern portion of the site. ▯

The January 2011 LSC report assumed four full-movement access points to the future Forest Lakes Drive to serve the homes in the southern portion of the site. The homes in the northern portion of the site were assumed to have access via a new roadway planned to be constructed extending east from Mitchell Avenue to Synthes Avenue along the northern border of the site. The previous study also showed a potential extension of Mitchell Avenue south to Baptist Road.

Since completion of the 2011 report, Forest Lakes Drive has been constructed adjacent to the site. The locations of the three northern access points to Forest Lakes remain unchanged from the 2011 study. The southernmost access has been shifted south to form the north leg of the newly reconstructed Baptist Road/Forest Lakes Drive/Hay Creek Road intersection.

The updated plan shows right-of-way dedication for a proposed north/south collector which would ultimately allow for a road connection between Baptist Road and Synthes Avenue. Portions of this new north/south collector would be completed as part of this project to provide access for the homes in the northern portion of the site. The previously proposed east/west street from Mitchell Avenue is Synthes Avenue is no longer part of the plan and Mitchell Avenue is no longer planned to be extended south to Baptist Road.

TRIP GENERATION

Updated estimates of the vehicle trips expected to be generated by the site have been made using the nationally published trip generation rates found in Trip Generation, 9th Edition, 2012 by the Institute of Transportation Engineers (ITE). Table 1 shows the results of the trip generation estimates. Table 1 shows the average weekday and weekday morning and afternoon peak hour trip generation estimates as well as a comparison to the trip generation estimate from the 2011 traffic impact study.

The site could be expected to generate about 3,770 vehicle-trips on the average weekday, with about half entering and half exiting in a 24-hour period. This is about 537 fewer trips than was assumed in the 2011 study. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 74 vehicles would enter and 223 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 249 vehicles would enter and 147 vehicles would exit the site.

AREA BACKGROUND LAND USE, TRIP GENERATION AND TRAFFIC VOLUMES

Background traffic is the traffic estimated to be on the adjacent roadways without consideration of the proposed development. Background traffic includes existing traffic volumes plus the traffic expected to be generated by nearby existing and approved developments, but assumes zero traffic generated by the site. The 2035 background traffic volume estimates shown in the 2011 study were based on the current traffic conditions at that time, the future expected development in the surrounding area to the west of the railroad tracks and north of the Air Force Academy, the El Paso County 2030 Major Transportation Corridors Plan, the latest Pikes Peak Area Council of Governments (PPACG) traffic model, and the Tri-Lakes Area Transportation Plan, plus the Forest Lakes and Lake of the Rockies traffic studies by LSC.

Since the completion of the 2011 report, the plans for two of the major future subdivision in the area, Forest Lakes and Lake of the Rockies, have had only minor revisions. The Forest Lakes subdivision is planned to have one more home than was assumed in the previous report and the Lake of the Rockies is planned to have four fewer homes.

Although Mitchell Road is no longer planned to extend south to Baptist Road, the new north/south collector road which will ultimately extend from Baptist Road to Synthes Avenue will provide a similar function. It is likely that most of the background traffic that was assumed

to use the Mitchell Road connection in the 2011 study would now use this new connection except in the case of Forest Lakes. Given the new alignment of the north/south connection, it is likely that fewer trips generated by Forest Lakes would travel north/south west of the railroad tracks than if the previously-envisioned Mitchell Road connection were implemented. Similarly, as most of the Willow Spring southern lots would access Forest Lakes Drive, it is likely that fewer Willow Springs-generated trips from the southern part of the plan would travel north/south west of the railroad tracks when compared to the assumption of the previously-envisioned Mitchell Road connection.

FINDINGS AND CONCLUSIONS

Trip Generation

- The site is projected to generate about 3,770 vehicle-trips on the average weekday, with about half entering and half exiting in a 24-hour period. This is about 537 fewer trips than was assumed in the 2011 study. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 74 vehicles would enter and 223 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 249 vehicles would enter and 147 vehicles would exit the site.

Projected Levels of Service

- As both the Willow Springs (north part) site-trip generation and the area background trip generation are projected to be comparable to the projected pre-connection/short term volumes on Mitchell Avenue and the level of service analysis and queuing analysis at the 2nd/Mitchell intersection from the 2011 report are likely still valid.
- For the long term, given the comparable site and background trip generation estimates, a new north/south connection is projected to serve a similar function as the previously proposed Mitchell extension and given some anticipated north/south travel demand reduction west of the railroad tracks as described above, the long-term volumes on Mitchell Avenue and the level of service analysis and queuing analysis at the 2nd/Mitchell intersection from the 2011 report are likely still valid, if not conservative.

Short-term Roadway Improvement Recommendations from the Previous Report

2nd Street/Mitchell Avenue

- Numerous times a day, a railroad gate closure on 2nd Street results in the eastbound vehicles occasionally queuing back onto Mitchell Avenue. The Town of Monument previously required construction of a north-bound right-turn stacking/storage lane at the Mitchell Avenue/2nd Street intersection to provide storage for the queued waiting vehicles.

2nd Street/Beacon Lite Road

- In order to maintain acceptable levels of service at 2nd/Beacon Lite, a traffic signal or modern roundabout may need to be installed at this intersection at some point in the future depending on the growth of this and other projects served by 2nd Street and Beacon Lite Road. The Town previously indicated that Willow Springs Ranch would need to contribute their fair share toward the cost of a upgraded traffic control (future traffic signal or roundabout).

Baptist Road/Old Denver Road

- Since completion of the 2011 report this intersection of Baptist Road/Old Denver Road has been reconstructed as a one-lane modern roundabout. Any recommendations for this intersection contained in the 2011 report no longer apply.

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Please contact me if you have any questions regarding this memorandum.

Respectfully submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By 

Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH

Enclosures: Table 1
Site Plan Exhibit

**Table 1
Willow Springs Ranch
Trip Generation Estimates**

| Land Use Code | Land Use Description | Trip Generation Units | Trip Generation Rates ⁽¹⁾ | | | | Total Trips Generated | | | | | |
|--|--------------------------------|-----------------------|--------------------------------------|-------------------|------|---------------------|-----------------------|-------------------------|-------------------|------------|---------------------|------------|
| | | | Average Weekday Traffic | Morning Peak Hour | | Afternoon Peak Hour | | Average Weekday Traffic | Morning Peak Hour | | Afternoon Peak Hour | |
| | | | | In | Out | In | Out | | In | Out | In | Out |
| Trip Generation Estimate Based on The Currently Proposed Plan | | | | | | | | | | | | |
| North Part of Site | | | | | | | | | | | | |
| 210 | Single-Family Detached Housing | 268 DU ⁽²⁾ | 9.52 | 0.19 | 0.56 | 0.63 | 0.37 | 2,551 | 50 | 151 | 169 | 99 |
| South Part of Site | | | | | | | | | | | | |
| 210 | Single-Family Detached Housing | 128 DU | 9.52 | 0.19 | 0.56 | 0.63 | 0.37 | 1,219 | 24 | 72 | 81 | 47 |
| | Total | 396 DU | | | | | | 3,770 | 74 | 223 | 249 | 147 |
| Trip Generation Estimate Based on The Approved Plan⁽³⁾ | | | | | | | | | | | | |
| North Part of Site | | | | | | | | | | | | |
| 210 | Single-Family Detached Housing | 260 DU | 9.57 | 0.19 | 0.56 | 0.64 | 0.37 | 2,488 | 49 | 146 | 165 | 97 |
| South Part of Site | | | | | | | | | | | | |
| 210 | Single-Family Detached Housing | 190 DU | 9.57 | 0.19 | 0.56 | 0.64 | 0.37 | 1,818 | 36 | 107 | 121 | 71 |
| | Total | 450 DU | | | | | | 4,307 | 84 | 253 | 286 | 168 |
| | Change | -54 DU | | | | | | -537 | -10 | -30 | -37 | -22 |

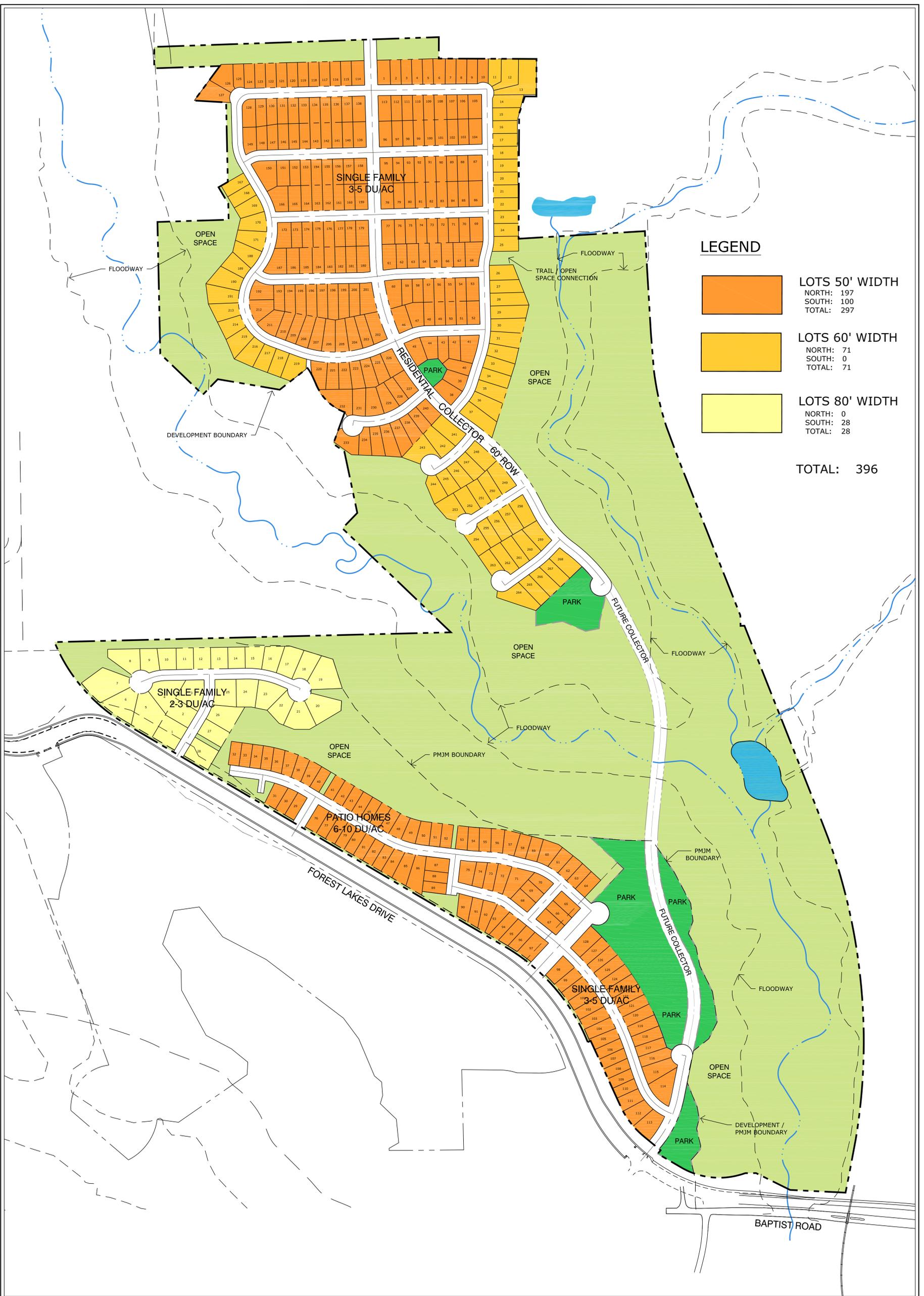
Notes:

(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling unit

(3) Source: "Willow Springs Ranch Update Traffic Study" by LSC dated January 27, 2011

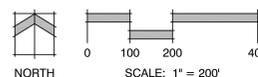
Source: LSC Transportation Consultants, Inc.

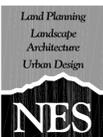


WILLOW SPRINGS - DENSITY STUDY

DATE: 10/11/2016
 ISSUED FOR: D.BROWN
 DRAWN BY: K. MARSHALL
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SCALE: 1" = 200'
 DWG. #:




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