Appendix A

Traffic Analysis Memorandum
TECHNICAL MEMORANDUM

DATE: August 11, 2017
TO: David Corcoran, AICP
    ACHD Project Manager
FROM: Charles Allen, PE, PTOE
       Tim Peterson
SUBJECT: State Street and Pierce Park Intersection Traffic Analysis
CC: Kristen McCoy
     PMX Project Manager
PROJECT NUMBER: 317044
PROJECT NAME: State Street & Pierce Park Lane Intersection Concept Study

INTRODUCTION

The purpose of this memo is to document the traffic analysis conducted for the State Street and Pierce Park Lane Intersection Concept Study. The Ada County Highway District (ACHD) is evaluating alternatives to widen and realign the intersection to improve capacity and correct the existing skew angle. Analysis herein is offered to aid decision making about design features for the project.

BACKGROUND

The State Street and Pierce Park Lane intersection is located in Ada County, including the City of Boise north of State Street and Garden City to the south. State Street is a five-lane, mobility arterial that connects downtown Boise to communities to west. The roadway features a strong, directional commuter flow and the posted speed limit is 45 mph. Pierce Park Lane is a north/south residential collector extending from State Street about 1.3 miles to the north. The roadway has a three-lane cross section near State Street, which narrows to a two-lane cross section farther north. The posted speed limit is 35 mph.

The State Street and Pierce Park Lane intersection is a T-intersection with an approximate 50-degree skew angle. There are multiple commercial driveways and one public roadway (Carlsbad Way) on the north side of State Street near the intersection. Plantation Golf Course primarily fronts much of the south side of State Street. Public roadway on the south side include Plantation Drive and Lakeside Drive located near the intersection. State Street features an eastbound to northbound left-turn lane onto Pierce Park Lane but no dedicated westbound to northbound right-turn lane. At the intersection, Pierce Park Lane has one right-turn lane and one left-turn lane. The left-turn lane can accommodate about 200 feet of queue storage.

The goals of the overall project are to develop a concept design to realign the intersection and improve the skew angle to between 75 and 90 degrees, improve bicycle and pedestrian connectivity and mobility, accommodate future traffic demand, and conform with the State Street Transit and Traffic Operations Plan (TTOP). Final design and right-of-way acquisition are programmed for 2018 and 2019, respectively, with construction scheduled for 2021.
DATA COLLECTION

Parametric acquired AM and PM peak hour intersection counts from ACHD. ACHD collected the intersection counts on January 22, 2015. ACHD also provided existing signal timing plans for the intersection. Finally, ACHD delivered historical roadway counts on the three intersection legs and speed data for State Street west of Pierce Park Lane. Figure 1 summarizes the AM and PM peak hour intersection counts.

Figure 1. Existing (2015) AM and PM Intersection Volumes
TRAFFIC FORECASTS

ACHD provided the Community Planning Association of Southwest Idaho (COMPASS) regional travel demand model outputs to Parametrix for developing traffic forecasts. The model outputs included AM and PM peak hour volumes for baseline (2017) and horizon year (2040) build and no build conditions on model links representing the study area roadways. The 2040 build conditions in the travel demand model assume a third lane on State Street in each direction functioning as a High Occupancy Vehicle (HOV)/transit lane as per the TTOP. However, according to the TTOP, isolated State Street projects will first iteratively widen State Street to three general purpose lanes in each direction. Then, sometime after a third lane is complete throughout the corridor, the outside lane will be converted to the HOV/transit lane. Because the HOV/transit lane transition timeframe is uncertain, the traffic analysis for this study investigates conditions before the third lane converts to HOV/transit operation.

Parametrix calibrated the outputs to the existing traffic count data and generated AM and PM peak hour turning movement forecasts for 2040 build and no build conditions (see Figures 2 and 3). The 2040 model outputs report an approximate 30 percent increase to traffic volumes on State Street for no build conditions. Model outputs predict considerably more growth for State Street under build conditions – up to 50 percent. This increased growth is related to the increased capacity on State Street from the additional travel lane in each direction. The State Street corridor is already an important link between downtown Boise and communities to the west and increasing the corridor capacity strengthens its role in conveying trips to and from the central Boise area.

Predicted growth for Pierce Park Lane is more subdued, approximately 20 percent for 2040 no build forecasts and approximately 30 percent for 2040 build forecasts. Because State Street and the foothills bracket Pierce Park Lane, there is limited opportunity for the roadway to experience increased through traffic. Most growth will likely occur from land use changes and infill development of existing parcels.
Figure 2. 2040 No Build Forecast AM and PM Intersection Volumes
TRAFFIC ANALYSIS

The Highway Capacity Manual 2010 (HCM) defines intersection Level of Service (LOS) according to the amount of average control delay experienced by drivers. LOS is reported on an A to F scale with LOS A representing the best operating conditions and LOS F the worst. Table 1 summarizes the relationship between intersection LOS and average control delay.
Parametrix utilized the traffic analysis and simulation program Synchro/SimTraffic version 8 to evaluate intersection performance. Synchro/SimTraffic offers a delay calculation methodology comparable, but not identical, to the HCM but also maintains the ability to conduct LOS analysis strictly with HCM methods. Because certain design alternatives featured elements not currently supported by the HCM methodology, Parametrix reported LOS results according to the Synchro-specific LOS calculations. This allowed for a more consistent comparison across the range of build alternative designs.

### Table 1. LOS Criteria for Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Average Control Delay (seconds/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0 – 10</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10 – 20</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 20 – 35</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 35 – 55</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 55 – 80</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 80</td>
</tr>
</tbody>
</table>

Source: HCM

### EXISTING CONDITIONS

Parametrix conducted intersection analysis for existing AM and PM peak hour conditions. Tables 2 and 3 summarize the results of existing conditions analysis. As can be seen from the tables, the overall intersection LOS is currently operating at acceptable levels for both AM and PM peak hours. However, key movements yield a high volume-to-capacity (v/c) ratio and/or substantial 95th percentile queue lengths. For example, during the PM peak hour, the westbound movement exhibits a v/c ratio near 0.9 and the 95th percentile queues exceed 1,200 feet. This data reflects the strong directional commuter flow on State Street. It should be noted that queues predicted in the traffic analysis may fluctuate from real world conditions due to the influence of upstream traffic signals, such as the Ellens Ferry Drive signal on State Street.

### Table 2. Existing AM and PM Peak Hour Delay and LOS

<table>
<thead>
<tr>
<th>Delay/LOS</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11/B</td>
<td>25/C</td>
</tr>
</tbody>
</table>

### Table 3. Existing Conditions – Key Approaches

<table>
<thead>
<tr>
<th>Approach</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>v/c</td>
<td>(50th/95th)</td>
</tr>
<tr>
<td>EB Left</td>
<td>0.16</td>
<td>25/50 ft</td>
</tr>
<tr>
<td>EB Through</td>
<td>0.50</td>
<td>225/325 ft</td>
</tr>
<tr>
<td>WB Through</td>
<td>0.31</td>
<td>150/200 ft</td>
</tr>
<tr>
<td>SB Left</td>
<td>0.70</td>
<td>150/225 ft</td>
</tr>
</tbody>
</table>
2040 No Build Analysis

A no build analysis was conducted to provide the context for developing and evaluating the range of alternatives. Parametrix applied the 2040 no build forecast volumes (see Figure 2) to represent the 2040 no build conditions. Tables 4 and 5 summarize the no build analysis results. As can be seen in Tables 4 and 5, the increased volumes on State Street create congestion during the PM peak hour. The westbound direction in particular experiences a v/c ratio greater than 1.0 and queues are expected to extend over 1,700 feet – as far back as the Ellens Ferry signal.

Table 4. 2040 No Build AM and PM Peak Hour Delay and LOS

<table>
<thead>
<tr>
<th>Delay/LOS</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14 / B</td>
<td>74 / E</td>
</tr>
</tbody>
</table>

Table 5. 2040 No Build Conditions – Key Approaches

<table>
<thead>
<tr>
<th>Key Approaches</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>v/c</td>
<td>Queues (50th/95th)</td>
</tr>
<tr>
<td>EB Left</td>
<td>0.25</td>
<td>25/50 ft</td>
</tr>
<tr>
<td>EB Through</td>
<td>0.66</td>
<td>375/550 ft</td>
</tr>
<tr>
<td>WB Through</td>
<td>0.41</td>
<td>225/300 ft</td>
</tr>
<tr>
<td>SB Left</td>
<td>0.74</td>
<td>175/250 ft</td>
</tr>
</tbody>
</table>
2040 Alternatives Analysis

The project team screened several design concepts prior to conducting detailed traffic analysis. Concepts that were inconsistent with planning documents or did not meet the stakeholder goals were dismissed from further analysis. Table 6 documents the concepts dismissed during early screening.

Table 6. Early Concept Screening

<table>
<thead>
<tr>
<th>Concept</th>
<th>Reasons for Dismissal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous EB Green (High-T) Phasing</td>
<td>Does not meet goals of State Street TTOP, challenging for pedestrian crossings and does not support potential redevelopment on south side of State Street.</td>
</tr>
<tr>
<td>Signalized Median U-turns</td>
<td>Creates additional conflicting movements and travel distances. Increases number of lanes needed on State Street. Short queue storage on State Street between Pierce Park Lane and Ellens Ferry Drive.</td>
</tr>
<tr>
<td>Widen State Street, Maintain Pierce Park Lane Skew Angle</td>
<td>Does not achieve ACHD primary goal of correcting the skew angle. Does not improve safety. Does not support potential redevelopment on south side of State Street.</td>
</tr>
<tr>
<td>Bike Box on Pierce Park Lane</td>
<td>At a three leg intersection, only provides marginal benefit to cyclists.</td>
</tr>
</tbody>
</table>

After the initial alternatives screening, the project team formed a base build alternative with four optional treatments. The components of the base build alternative are described below and shown in Appendix A.

- improving the skew angle of the intersection to approximately 80 degrees by realigning Pierce Park Lane,
- widening State Street to three lanes in each direction and adding a raised median between Hertford Way and Ellens Ferry Drive,
- adding a second left-turn lane from Pierce Park Lane to State Street,
- adding a dedicated right-turn lane on State Street, and
- adding bike lanes on Pierce Park Lane and State Street.

The optional treatments include:

- Option 1: A left-in access from eastbound State Street to Hertford Way
- Option 2: Westbound to eastbound mid-block U-turn on State Street west of Plantation Drive
- Option 3: Westbound to eastbound U-turn lane at the Pierce Park Lane signal
- Option 4: Pedestrian crosswalk on the east side of intersection

Raised Median Impacts

The base alternative and each of the optional treatments include some form of a raised median on State Street. The raised median will require drivers that previously made left turns to or from State Street access points to divert their path. This involves rerouting to make a direct left-turn at another location or else conducting some combination of a U-turn and a right turn on State Street.

Parametrix estimated the various impacts of the diverted left-turning vehicles for the base alternative and the four optional treatments using trip generation and trip distribution estimates for State Street land uses. Specifically, Parametrix calculated the approximate number of entering and exiting peak hour trips generated by land uses according to data from the Trip Generation Manual, 9th Edition published by the Institute of Transportation Engineers (ITE). Then, using the prevailing traffic flows on State Street, Parametrix estimated the proportion of vehicles turning to or from the east and west (see Appendix B for full ITE trip generation summary).
Finally, Parametrix reassigned left-turn movements to various left-turn or U-turn opportunities based on the relative location of each land use and the median breaks associated with the design option.

Figure 4 summarizes the aggregate left-turn volumes from land uses in the vicinity of State Street that are anticipated to be affected by the raised median in the base alternative design and also contribute to new turning movements at the State Street and Pierce Park Lane intersection. Figure 5 depicts how the affected left-turns will reroute through the State Street and Pierce Park Lane intersection under various design options. For example, in the base alternative, drivers that used to be able to make a left turn out of land uses on the south side of State Street and west of Pierce Park Lane are anticipated to now turn right on State Street and make a U-turn at Pierce Park Lane. Overall, the alternatives may add up to 30 westbound left turns and 65 westbound U-turns at the State Street and Pierce Park Lane intersection.

It should be noted that these rerouting volumes are estimates and that actual traffic patterns are heavily dependent on property-specific characteristics and future travel patterns. By 2040, a raised median will have been in place on State Street for many years and existing properties may evolve into land uses that do not generate as many direct left-turns (i.e. pass-by-trip-dependent land uses).

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Figure 4. Left Turns Volumes Anticipated to Reroute to Pierce Park Lane due to State Street Raised Median
Analysis Results

It is important to note that alternative analysis incorporates the 2040 build volumes (see Figure 3). These volumes reflect the significant increase over 2040 no build forecasts primarily due to the widening of State Street to three lanes in each direction. Thus, results from the build alternative showcase how the intersection designs operate with a higher traffic volume demand than the no build analysis. Additionally, each alternative assumes the left turn from State Street to Pierce Park lane operates with a flashing yellow signal head and phasing scheme.

With the exception of Option 4, the base build alternative and all options exhibit an overall intersection LOS D or better in both AM and PM peak hours (see Table 7). Option 4 functions at LOS E during the PM peak hour largely due to the east crosswalk requiring an exclusive pedestrian signal phase, which decreases the amount of green time available for vehicle movements. For this analysis, the exclusive pedestrian phase was configured to serve five pedestrian calls per hour. This equates to the pedestrian phase actuating about once every 12 minutes or approximately 20 percent of signal cycles.

Although overall LOS is favorable for most design configurations, examination of individual approaches shows congestion for the westbound movement on State Street during the PM peak hour. However, this congestion is significantly less than the no build conditions and, at the same time, the intersection serves a higher throughput.
than no build conditions. All designs offer an improvement over the 2040 no build performance for the left turn from Pierce Park Lane because of the dual left-turn lane configuration.

Options 1, 2, and 3 all allow some form of left-turn or U-turn access to driveways on State Street, which helps reduce turning movements at the Pierce Park Lane signal and/or shortens travel distances. Of all the designs, Option 1 does the best job of minimizing the effects of increased volumes because of the high number of trips that can turn directly into Hertford Way instead of using the Pierce Park Lane signal.

Parametrix also analyzed a scenario combining elements from all four options (see Appendix A). To avoid the Option 4 exclusive pedestrian phase, the Option 3 westbound U-turn lane was moved behind the crosswalk, so the east crosswalk pedestrian phase can operate concurrently with the westbound U-turn. The left-turn into Hertford Way from Option 1 decreases left-turn volumes at Pierce Park. Finally, crosswalks on both sides of the intersection maximizes pedestrian mobility.

### Table 7. 2040 Build Alternative AM and PM Peak Hour Delay and LOS

<table>
<thead>
<tr>
<th>Build Alternative</th>
<th>Delay/LOS</th>
<th>Option 1 Hertford Left-in</th>
<th>Option 2 Mid-block U-turn West of Plantation</th>
<th>Option 3 U-turn at Pierce Park Signal</th>
<th>Option 4 East-side Crosswalk</th>
<th>Combine 1-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>10 / A-B</td>
<td>10 / A-B</td>
<td>10 / A-B</td>
<td>11 / B</td>
<td>13 / B</td>
<td>14 / B</td>
</tr>
<tr>
<td>PM</td>
<td>47 / D</td>
<td>40 / D</td>
<td>47 / D</td>
<td>45 / D</td>
<td>74 / E</td>
<td>30 / C</td>
</tr>
</tbody>
</table>

### Table 8. 2040 Build Alternative PM Peak Hour – Key Approaches

<table>
<thead>
<tr>
<th>Key Approach</th>
<th>Base</th>
<th>Option 1 Hertford Left-in</th>
<th>Option 2 Mid-block U-turn West of Plantation</th>
<th>Option 3 U-turn at Pierce Park Signal</th>
<th>Option 4 East-side Crosswalk</th>
<th>Combine 1-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB Left</td>
<td>0.90</td>
<td>350/650 ft</td>
<td>0.83</td>
<td>350/650 ft</td>
<td>0.94</td>
<td>350/650 ft</td>
</tr>
<tr>
<td>EB Through</td>
<td>0.43</td>
<td>175/250 ft</td>
<td>0.42</td>
<td>175/250 ft</td>
<td>0.46</td>
<td>250/325 ft</td>
</tr>
<tr>
<td>WB Through</td>
<td>1.06</td>
<td>1125/1,200 ft</td>
<td>1.03</td>
<td>1125/1,200 ft</td>
<td>1.04</td>
<td>1,075/1,150 ft</td>
</tr>
<tr>
<td>SB Left</td>
<td>0.32</td>
<td>75/100 ft</td>
<td>0.35</td>
<td>75/100 ft</td>
<td>0.29</td>
<td>75/100 ft</td>
</tr>
</tbody>
</table>

### Table 9. 2040 Build Alternative AM Peak Hour – Key Approaches

<table>
<thead>
<tr>
<th>Key Approach</th>
<th>Base</th>
<th>Option 1 Hertford Left-in</th>
<th>Option 2 Mid-block U-turn West of Plantation</th>
<th>Option 3 U-turn at Pierce Park Signal</th>
<th>Option 4 East-side Crosswalk</th>
<th>Combine 1-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB Left</td>
<td>0.43</td>
<td>50/75 ft</td>
<td>0.38</td>
<td>50/75 ft</td>
<td>0.42</td>
<td>50/75 ft</td>
</tr>
<tr>
<td>EB Through</td>
<td>0.52</td>
<td>200/300 ft</td>
<td>0.52</td>
<td>200/300 ft</td>
<td>0.54</td>
<td>275/400 ft</td>
</tr>
<tr>
<td>WB Through</td>
<td>0.30</td>
<td>125/200 ft</td>
<td>0.30</td>
<td>150/200 ft</td>
<td>0.29</td>
<td>125/175 ft</td>
</tr>
<tr>
<td>SB Left</td>
<td>0.57</td>
<td>100/150 ft</td>
<td>0.57</td>
<td>100/150 ft</td>
<td>0.58</td>
<td>100/150 ft</td>
</tr>
</tbody>
</table>

ACHD
State Street and Pierce Park Intersection Traffic Analysis

317044
August 11, 2017
CONCLUSIONS

Parametrix evaluated a base alternative design for the State Street and Pierce Park Lane intersection with four optional design add-ons. The base alternative and each of the options significantly improve performance measures as compared to no build conditions with the exception of Option 4, which adds a crosswalk on the east leg of the intersection. The crosswalk reduces pedestrian travel times for individuals walking between the southeast northeast corners of the intersection. Instead of having to make a two-stage crossing across the west leg of State Street and Pierce Park Lane, pedestrians can cross the east leg of State Street directly. This configuration offers a more direct path to the planned location of bus stop on eastbound State Street. However, the option requires a special, pedestrian-only phase to function, which decreases the amount of green time available for vehicle movements and results in LOS E during the PM peak hour. Though the exclusive pedestrian phase is not expected actuate with every cycle, the assumed usage rate of once every 12 minutes is enough to affect vehicle delay significantly.

The base build alternative and most design options increase delay somewhat for the eastbound to northbound left turn during the PM peak hour. This is primarily due to the raised median on State Street and the resulting shift in left turns from State Street driveways to the State Street and Pierce Park Lane signal. The option to add a left-in movement from State Street to Hertford Lane is the most effective option at minimizing this impact. However, some combination median breaks and/or U-turn opportunities may provide the best balance between property access and safety.

Parametrix evaluated a scenario combining elements from all four options. To reduce the impact of the exclusive pedestrian phase from the east crosswalk, the crosswalk was positioned in front of the westbound U-turn lane from Option 3. This way, the eastbound crosswalk phase could run concurrently with the westbound U-turn phase and reduce the signal timing inefficiency. Results show the combined scenario operates better than or similar to all other options.
APPENDIX A

PROPOSED BUILD ALTERNATIVE DISPLAY
RECOMMENDED ALTERNATIVE

STATE STREET & PIERCE PARK LANE

Legend
- New Sidewalk
- New Pavement
- New Curb
- New Raised Median
- New Sidewalk Buffer
- New Bike Lane
- Proposed VRT Stop
- Signalized Intersection

New Sidewalk
New Pavement
New Curb
New Raised Median
New Sidewalk Buffer
New Bike Lane
Proposed VRT Stop
Signalized Intersection
Appendix B

ITE TRIP GENERATION SUMMARY
### PM Turn Volumes Impacted by Median

#### West of Pierce Park

<table>
<thead>
<tr>
<th>N Side of State (U-turn to enter property)</th>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Entering %</th>
<th>Num</th>
<th>Left-ins %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrift Store</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>25</td>
<td>3.71</td>
<td>93</td>
<td>50%</td>
<td>46</td>
<td>40%</td>
<td>19</td>
</tr>
<tr>
<td>Les Schwab Tires</td>
<td>848</td>
<td>1,000 sq ft</td>
<td>10</td>
<td>4.15</td>
<td>42</td>
<td>43%</td>
<td>18</td>
<td>40%</td>
<td>7</td>
</tr>
<tr>
<td>Auto Repair</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>3.71</td>
<td>15</td>
<td>50%</td>
<td>7</td>
<td>40%</td>
<td>3</td>
</tr>
<tr>
<td>Car Wash</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>3.71</td>
<td>7</td>
<td>50%</td>
<td>4</td>
<td>40%</td>
<td>1</td>
</tr>
<tr>
<td>Auto Sales</td>
<td>841</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>2.62</td>
<td>5</td>
<td>40%</td>
<td>2</td>
<td>40%</td>
<td>1</td>
</tr>
<tr>
<td>Auto Sales</td>
<td>841</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>2.62</td>
<td>4</td>
<td>40%</td>
<td>2</td>
<td>40%</td>
<td>1</td>
</tr>
<tr>
<td>Café</td>
<td>931</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>7.49</td>
<td>15</td>
<td>67%</td>
<td>10</td>
<td>40%</td>
<td>4</td>
</tr>
<tr>
<td>Strip Commercial</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>7</td>
<td>3.71</td>
<td>26</td>
<td>48%</td>
<td>12</td>
<td>40%</td>
<td>5</td>
</tr>
</tbody>
</table>

#### S Side of State (U-turn to exit property)

<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Exiting %</th>
<th>Num</th>
<th>Left-outs %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>820</td>
<td>1,000 sq ft</td>
<td>0.5</td>
<td>3.71</td>
<td>2</td>
<td>52%</td>
<td>1</td>
<td>60%</td>
<td>1</td>
</tr>
<tr>
<td>820</td>
<td>1,000 sq ft</td>
<td>7</td>
<td>3.71</td>
<td>26</td>
<td>52%</td>
<td>14</td>
<td>60%</td>
<td>8</td>
</tr>
<tr>
<td>820</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>3.71</td>
<td>15</td>
<td>52%</td>
<td>8</td>
<td>60%</td>
<td>5</td>
</tr>
<tr>
<td>210 Dwelling Units</td>
<td>15</td>
<td>1</td>
<td>37%</td>
<td>6</td>
<td>60%</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
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#### East of Pierce Park

<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Exiting %</th>
<th>Num</th>
<th>Left-outs %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
<td>1,000 sq ft</td>
<td>14.5</td>
<td>3.57</td>
<td>52</td>
<td>72%</td>
<td>37</td>
<td>40%</td>
<td>15</td>
</tr>
<tr>
<td>210 Dwelling Units</td>
<td>27</td>
<td>1</td>
<td>37%</td>
<td>10</td>
<td>40%</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>925</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>11.34</td>
<td>45</td>
<td>34%</td>
<td>15</td>
<td>40%</td>
<td>6</td>
</tr>
<tr>
<td>710</td>
<td>1,000 sq ft</td>
<td>10</td>
<td>1.49</td>
<td>15</td>
<td>83%</td>
<td>12</td>
<td>40%</td>
<td>5</td>
</tr>
<tr>
<td>820</td>
<td>1,000 sq ft</td>
<td>21</td>
<td>3.71</td>
<td>78</td>
<td>50%</td>
<td>39</td>
<td>40%</td>
<td>16</td>
</tr>
<tr>
<td>720</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>3.57</td>
<td>14</td>
<td>72%</td>
<td>10</td>
<td>40%</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Hertford Neighborhood

<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Entering %</th>
<th>Num</th>
<th>Left-ins %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 Dwelling Units</td>
<td>164</td>
<td>1</td>
<td>63%</td>
<td>103</td>
<td>40%</td>
<td>41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New L-turn at Pierce Park signal 19
New U-turn at Pierce Park signal 39
Total 57

U-turn at first median break west of Pierce Park or at U-turn lane at Pierce Park 50
## AM Turn Volumes Impacted by Median

### West of Pierce Park

<table>
<thead>
<tr>
<th>N Side of State (U-turn to enter property)</th>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Entering %</th>
<th>Num</th>
<th>Left-ins %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrift Store</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>25</td>
<td>0.96</td>
<td>24</td>
<td>62%</td>
<td>15</td>
<td>65%</td>
<td>10</td>
</tr>
<tr>
<td>Les Schwab Tires</td>
<td>848</td>
<td>1,000 sq ft</td>
<td>10</td>
<td>2.89</td>
<td>29</td>
<td>63%</td>
<td>18</td>
<td>65%</td>
<td>12</td>
</tr>
<tr>
<td>Auto Repair</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>0.96</td>
<td>4</td>
<td>62%</td>
<td>2</td>
<td>65%</td>
<td>2</td>
</tr>
<tr>
<td>Car Wash</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>0.96</td>
<td>2</td>
<td>62%</td>
<td>1</td>
<td>65%</td>
<td>1</td>
</tr>
<tr>
<td>Auto Sales</td>
<td>841</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>1.92</td>
<td>4</td>
<td>75%</td>
<td>3</td>
<td>65%</td>
<td>2</td>
</tr>
<tr>
<td>Auto Sales</td>
<td>841</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>1.92</td>
<td>3</td>
<td>75%</td>
<td>2</td>
<td>65%</td>
<td>1</td>
</tr>
<tr>
<td>Café</td>
<td>931</td>
<td>1,000 sq ft</td>
<td>2</td>
<td>0.96</td>
<td>7</td>
<td>62%</td>
<td>4</td>
<td>65%</td>
<td>3</td>
</tr>
</tbody>
</table>

### South Side of State (U-turn to exit property)

<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Exiting %</th>
<th>Num</th>
<th>Left-outs %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrift Store</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>0.5</td>
<td>0.96</td>
<td>0</td>
<td>38%</td>
<td>0</td>
<td>35%</td>
</tr>
<tr>
<td>Les Schwab Tires</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>7</td>
<td>0.96</td>
<td>7</td>
<td>38%</td>
<td>3</td>
<td>35%</td>
</tr>
<tr>
<td>Auto Repair</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>0.96</td>
<td>4</td>
<td>38%</td>
<td>1</td>
<td>35%</td>
</tr>
<tr>
<td>Single Family Residential</td>
<td>210</td>
<td>Dwelling Units</td>
<td>15</td>
<td>0.75</td>
<td>11</td>
<td>75%</td>
<td>8</td>
<td>35%</td>
</tr>
</tbody>
</table>

### East of Pierce Park

<table>
<thead>
<tr>
<th>N Side of State (U-turn to exit property)</th>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Entering %</th>
<th>Num</th>
<th>Left-ins %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Bldg</td>
<td>720</td>
<td>1,000 sq ft</td>
<td>14.5</td>
<td>2.39</td>
<td>35</td>
<td>21%</td>
<td>7</td>
<td>65%</td>
<td>5</td>
</tr>
<tr>
<td>27 Single Res</td>
<td>210</td>
<td>Dwelling Units</td>
<td>27</td>
<td>0.75</td>
<td>20</td>
<td>75%</td>
<td>15</td>
<td>65%</td>
<td>10</td>
</tr>
<tr>
<td>Bar</td>
<td>925</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>1.56</td>
<td>16</td>
<td>12%</td>
<td>2</td>
<td>65%</td>
<td>1</td>
</tr>
<tr>
<td>Offices</td>
<td>710</td>
<td>1,000 sq ft</td>
<td>10</td>
<td>1.56</td>
<td>16</td>
<td>12%</td>
<td>2</td>
<td>65%</td>
<td>1</td>
</tr>
<tr>
<td>Garden/Pet Supply Store</td>
<td>820</td>
<td>1,000 sq ft</td>
<td>21</td>
<td>0.96</td>
<td>20</td>
<td>38%</td>
<td>8</td>
<td>65%</td>
<td>5</td>
</tr>
<tr>
<td>Veterinary Hospital</td>
<td>720</td>
<td>1,000 sq ft</td>
<td>4</td>
<td>2.39</td>
<td>10</td>
<td>21%</td>
<td>2</td>
<td>65%</td>
<td>1</td>
</tr>
</tbody>
</table>

### Hertford Neighborhood

<table>
<thead>
<tr>
<th>N Side of State (U-turn to enter property)</th>
<th>ITE Code</th>
<th>Unit Type</th>
<th>Units</th>
<th>Trip Rate</th>
<th>Total</th>
<th>Entering %</th>
<th>Num</th>
<th>Left-ins %</th>
<th>Num</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Residential</td>
<td>210</td>
<td>Dwelling Units</td>
<td>164</td>
<td>0.75</td>
<td>123</td>
<td>25%</td>
<td>31</td>
<td>65%</td>
<td>20</td>
</tr>
</tbody>
</table>

 Already making Left at Pierce Park 9% 2
 New L-turn at Pierce Park signal 27% 5
 New U-turn at Pierce Park signal 64% 13

New L-turn at Pierce Park signal 10
New U-turn at Pierce Park signal 25
Total 34
Appendix B

Drainage Memorandum
This Technical Memorandum has been prepared to summarize and memorialize the post-project storm drainage design for the State Street & Pierce Park Lane Intersection (ACHD Project No. 317044).

**Pre-Project Conditions**

The State Street and Pierce Park Lane Intersection project proposes to 1) reconstruct State Street to meet the State Street Transit and Traffic Operations Plan (TTOP), 2) realign Pierce Park Lane to intersect with State Street at a minimum angle of 75°, and 3) improve pedestrian and bicycle connectivity and safety. Proposed improvements include widening State Street to six lanes between Ellens Ferry Dr and N Hertford Way to accommodate the TTOP, expanding Pierce Park Lane near the intersection to allow additional turn lanes, installing new curb and gutter along widened sections, installing detached sidewalks in areas where existing sidewalks must be removed to accommodate widening, constructing a 12-foot center medians along State Street, installing storm drainage improvements, and irrigation relocations. Portions of existing curb, gutter, and sidewalk will be retained with the project.

In the pre-project condition, the majority of the north side of State Street within the project limits does not have curb and gutter, allowing runoff to flow and pool in areas between the roadway and detached sidewalk before infiltrating. On the south side of State Street, sidewalk was recently installed from Ellens Ferry drive to the eastern edge of the Plantation Golf Course, and is separated from the roadway by a small strip of gravel. Along the golf course, curb with drainage gaps and an asphalt pavement pedestrian path was recently installed. Water flows across the path where gaps in the curb occur, and enters a swale. There is another section of sidewalk without curb and gutter on the south side of State Street from Plantation Drive to the western most Lakeside Dr intersection. The majority of this section abuts the asphalt roadway, with the small strips of gravel separating it in some areas. From Lakeside Drive to the western project limit, the south side of State Street has no curb and gutter, so runoff pools in a swale between the edge of pavement and detached sidewalk. The profile of State Street slopes gently (about 0.3%) to the west across the project area.

The stretch of Pierce Park Lane within the project vicinity currently has continuous curb and gutter facilities. Runoff flows into a piped storm drainage system through various catch basins. There is a high point about 75 feet south of the intersection of Pierce Park Lane and W Lucky Lane, and a low point about 50 feet north of the same intersection. Pierce Park Lane has about a 0.15% slope to the north, and a 0.2% slope to the south towards State Street from this high point. Runoff collected from along Pierce Park Lane south of Lucky Lane is treated by two underground infiltration facilities. One facility is located between two storm drain manholes located about 75’
and 175 feet south of W Lucky Lane on the east side of Pierce Park Lane. The other facility is located along the north property line of the Jackson’s Chevron.

Additionally, the Boise Valley Canal managed by the Boise Valley Irrigation Ditch Company (BVIDC) runs just south of Lucky Lane behind the properties fronting State Street west of Pierce Park Lane. To the east of Pierce Park Lane the canal veers away from Lucky Lane eventually intersecting Ellens Ferry Drive near its intersection with North Crimson Place. A piped lateral crosses State Street near the western most intersection with Lakeside Dr. After crossing the roadway, this lateral runs along State Street extending to the western project limit. The Boise Valley Irrigation Ditch Company did not claim ownership of any other facilities near the project.

**Soil Conditions**

No project-related geotechnical analysis has been performed at this time, however, high groundwater is an important consideration given the projects proximity to the Boise River. Stormwater facilities must be designed to ensure minimum groundwater clearances. According to National Resources Conservation Service soil data, infiltration rates vary for soils in the area from 2 to 6 inches per hour.

**Design Criteria / Hydrology Method**

The project will be designed following ACHD’s Drainage Policy. Sizing of proposed infiltration facilities will be the 100-year, 1-hour design storm. Per ACHD policy, the Rational Method was used to determine the design volumes for the conceptual stormwater storage facilities.

ACHD has adopted the Rational Method as their preferred methodology in calculating stormwater runoff.

The peak stormwater runoff rate is estimated from the following equation:

\[ Q = C \times I \times A \]

where:
- \( Q \) = Peak Runoff (cubic feet per second (cfs))
- \( C \) = Surface Runoff Coefficient (unit less)
- \( I \) = Rainfall Intensity (inches/hour)
- \( A \) = Drainage Area (acres (ac))

The rainfall intensity is taken from an Intensity Duration Frequency (IDF) graph or table which is unique to the Boise Area. The Rational Method assumes constant rainfall intensity over a given duration; which is equal to the time of concentration. For shorter durations, the rainfall intensity is higher than longer durations. ACHD’s IDF table was used for all the Rational Method equations.

The Rational Method can be used to estimate the total runoff volume for a given duration and rainfall frequency. This is done by assuming the rainfall runoff starts at zero and increases in a straight line to the peak runoff rate (at the corresponding time of concentration or rainfall duration) and then decreases back to zero at double the rainfall duration. ACHD’s standard to determine runoff volume is the 100-year frequency, 1-hour rainfall duration. The runoff volume can be calculated with the following equation:

\[ V = D \times Q_0 \times 60 \text{ (minutes/hour)} \times 60 \text{ (second/minute)} \]

where:
- \( V \) = Total Runoff Volume (cubic feet (cf))
- \( D \) = Rainfall Duration (hours)
- \( Q_0 \) = Peak Runoff Rate at the given Duration (cfs)

The following C value was chosen based on the proposed project improvements for a 120-foot right of way typical section along State Street. Impervious areas were estimated to cover 90% of the collection area, with pervious
areas covering the remaining 10%. A weighted average of C values for these surfaces yields the overall Surface Runoff Coefficient listed below:

<table>
<thead>
<tr>
<th>C Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.95</td>
<td>Impervious areas including roadway, curb, gutter, and sidewalks</td>
</tr>
<tr>
<td>0.20</td>
<td>Pervious landscaped and undeveloped areas</td>
</tr>
<tr>
<td>0.88</td>
<td>Overall adjusted C value</td>
</tr>
</tbody>
</table>

**Conceptual Post-Project Conditions**

Stormwater concepts for project alternatives have been developed using ACHD’s GSI guidance manual. Table 4-1 of the manual identifies tree and bioswale systems as more applicable green stormwater treatments for Arterials than boiretention areas and permeable pavers. Alternatives for the State Street & Pierce Park Lane Intersection project propose the drainage along State Street to be treated and conveyed via bioswales between the roadway and detached sidewalk. A tree system may be incorporated along the swales to segment runoff storage capacity and improve treatment. A 120-foot right of way width provides enough room for 4-foot wide swales on either side of roadway. With this width, the swales would store approximately 360 CF of runoff per 100 feet of State Street in the project area. This is insufficient storage capacity for the 1-hour design storm, which would produce approximately 1050 CF of water over a typical 100-foot section of State Street. Therefore, additional swale width or another storage facility will be needed to provide adequate storage. It is estimated that two 8-foot wide, by 1-foot deep swales along State Street would be sufficient. If there is difficulty obtaining space for wider swales, runoff from State Street east of the intersection could also potentially be stored in a new stormwater treatment facility in the excess right of way (approximately 0.28 acres) that will become available from the realignment of Pierce Park Lane. There are three options for treating runoff collected along State Street west of Pierce Park Lane that must be evaluated in the selection process: 1) Obtaining additional right of way to accommodate greater swale width, 2) underground facilities within the expected right of way, or 3) property acquisition for a facility to be constructed near the western project limit. Groundwater elevation is unknown throughout the project vicinity, therefore, feasibility of underground facilities cannot be determined until geotechnical information is acquired.

In the post-project condition, the high point on Pierce Park Lane just south of Lucky Lane will be reconstructed at the same approximate elevation as the existing grade. Concept level drainage proposes to match existing drainage patterns to the extent feasible from this high point along the realigned portion of Pierce Park Lane to the intersection of State Street on the south. The project should not impact drainage patterns north of this high point. Runoff from the new alignment will need to be treated at redesigned facilities similar to the existing ones serving the existing length of Pierce Park Lane south of Lucky Lane. The realignment of Pierce Park will necessitate demolition or abandonment of some existing facilities, but will leave about 0.28 acres of unused right of way where Pierce Park Lane currently abuts State Street. This area could accommodate a stormwater storage facility for the runoff from the newly constructed portion of Pierce Park Lane, and from the portion of State Street east of the intersection.

**Summary**

The post-project drainage design will need to size the stormwater facilities for the 100-yr, 1-hr event. Project stormwater objectives should include utilizing GSI methods for stormwater treatment along State Street, and minimizing impacts to existing stormwater and irrigation patterns on the Pierce Park Lane leg of the project.

This is insufficient storage capacity within the proposed typical section along State Street for the 1-hour design storm. Therefore, additional swale width or another storage facility will be needed to provide adequate storage. East of Pierce Park Lane, facilities could include an 8-foot wide by 1-foot deep swale along the roadway, or the excess right of way from the realigned Pierce Park Lane could become a stormwater storage facility. West of
Pierce Park Lane, there are three options for treating runoff collected along State Street which include obtaining additional right of way to accommodate a wider swale, installing underground facilities within the expected right of way, or acquiring property for a facility to be constructed near the western project limit.

Along Pierce Park, runoff from the new alignment could be treated at redesigned facilities similar to the existing ones currently serving Pierce Park Lane or utilizing the unused right of way where Pierce Park Lane currently abuts State Street.

Collaboration with BVIDC will need to continue after further project development to address potential impacts to the canal.
Appendix C

Summary of Stakeholder Interviews
MEMORANDUM

DATE: February 2, 2017
TO: David Corcoran
Ada County Highway District
FROM: Kristen McCoy
SUBJECT: Summary of Individual Stakeholder Interviews
PROJECT NAME: State Street & Pierce Park Lane

The State Street and Pierce Park intersection design team has conducted a series of individual stakeholder and property owner meetings. The purpose of the meetings were to:

- Involve stakeholder early in the process and share ACHD’s commitment to involve the community
- Introduce the project
- Understand how vehicles, pedestrians and/or bicycles currently travel to and from the site
- Identify existing deficiencies and/or concerns that should be addressed with the project
- Discuss next steps and project schedule

During the one-on-one stakeholder meetings, participants had a roll plot of the current intersection to use to discuss the project area and identify key property features, and express issues and concerns. The agenda for each meeting included:

1. Introduction and Background
   a. David provided background on the project, including the history of State Street and TTOP which was adopted by ACHD as a long-term plan for State Street through this intersection. He explained that ACHD is now working to improve the intersections, including Pierce Park, to accommodate those long-term plans. He added that this project will develop a concept design for the intersection, and if adopted, will roll into design and construction.
   b. Kristen explained that the first piece of information the team is gathering is input from stakeholders. The information gathered, along with technical data including traffic volumes, crash history, and design standards, will be used to develop improvement alternatives.

2. Stakeholder Feedback
   a. The interview participants then explained what currently works well, what does not work well, and how vehicles, pedestrians, and bicyclists currently get to/from their business. They described current issues/concerns that should be noted as the design team develops improvement alternatives.

3. Schedule and Next Steps
   a. Kristen then explained that the project is in the early stages, and a PIM is going to be held on February 15 to gather more information from the general public on the intersection. Following that PIM, the design team will prepare alternatives which will be brought to the public for consideration in late summer.
   b. Following the second PIM, a recommended alternative will be selected and 30% Concept Design Plans and Report will be prepared. That document will go to the ACHD Commission for decision. If approved, design will be initiated with construction scheduled for 2021.
INTERVIEW PARTICIPANTS

As of February 2, 2017, eight individual meetings have been held with the following stakeholders:

- Idaho Central Credit Union
- Plantation Golf Course
- Pierce Park Elementary (Boise School District)
- Les Schwab Tires
- Viewpoint Windows
- Jackson’s
- Plantation Tune Tech
- Primary Health

In addition the in-person meetings, phone conversations were held with the following businesses. Although they did not want to schedule an in-person meeting, the information they provided is included in this summary.

- Jama Me Tan
- Merritt’s / Gem State Auto (same parcel)
- Hendrick’s Veterinary Hospital

The businesses listed below were contacted via phone and/or email (sometimes several times) with no response as of February 2, 2017.

- St. Vincent de Paul
- Hair of the Dog
- Mr. Auto & Company
- Like-Nu Car Wash
- Hendrick’s Veterinary Hospital
- Pierce Park Greens
- State Street Zamzows
- Clayton Court Apartments

KEY FINDINGS

The key findings listed below are items that were heard most often. Given the variety of participants, some of the findings vary and contradict each other.

- State Street serves a lot of vehicles and is a key east-west route that provides a continuous route through the entire Valley
- Left turns out can be difficult, especially during peak travel times
- Maintaining left turns in and out are important
- Large trucks enter/exit using left turns
- Concern with center median that would restrict left turning movements
- Like the new sidewalks
- New sidewalks are safety and drainage issue
- Impacts to private property are major concern
- Students do not cross State Street to attend Pierce Park Elementary, nor will Boise School District allow that in the future if State Street remains 45 mph.
- Current skew makes it difficult to see
- Bicycle and pedestrian traffic is low
- Several industrial /automotive land uses with heavy truck traffic - concern about large trucks making u-turns if center median installed
MEMORANDUM

DATE:    July 18, 2017
TO:      David Corcoran
          Ada County Highway District
FROM:    Kristen McCoy
SUBJECT: Summary of Follow-Up Stakeholder Interviews
PROJECT NAME: State Street & Pierce Park Lane

The State Street and Pierce Park intersection design team conducted a series of follow-up business and property owner meetings. The meetings provided an opportunity to provide business and/or property owners an update about the project and gather their input on the alternatives. The meetings also provided ACHD an opportunity to address their concerns, issues or questions. During the stakeholder meetings, roll plots with the proposed improvements, and design options for consideration were presented. The agenda for each meeting included:

1. Project Status / What’s Been Done
   a. Following the first round of interviews (early 2017), the project team held an open house to gather input from the public on the current intersection configuration. The information gathered from the initial interviews and public meeting, along with technical data including existing and projected traffic volumes, crash history, and current design standards, were used to develop improvement alternatives.

2. Alternatives Development
   a. The alternatives were evaluated based on their ability to conform to the State Street Transit and Traffic Operational Plan (TTOP), meet current ACHD standards, and improve safety and visibility. Three alternatives were dismissed, while one was advanced for further study. The alternative includes:
      i. Realigning Pierce Park to improve the skew
      ii. Expanding State Street to three lanes in each direction, with bike lanes and detached sidewalks
      iii. Installing a raised median to control access and improve mobility
   b. Four options could be added (independently or collectively) to the primary alternative, which include:
      i. Option 1 allows eastbound vehicles to turn left onto Hertford Way
      ii. Option 2 allows westbound vehicles to make a U-turn
      iii. Option 3 allows westbound vehicles to make a U-turn at the signalized intersection at Pierce Park Lane
      iv. Option 4 provides a crosswalk on the east side of the Pierce Park Lane intersection.

3. Schedule and Next Steps
   a. A PIM is going to be held on June 29th to gather feedback on the alternative and design options for consideration.
   b. Following the second PIM, a recommended alternative will be selected and a Concept Design Report will be prepared. That document will go to the ACHD Commission for decision. If approved, design will be initiated with construction scheduled for 2021.
INTERVIEW PARTICIPANTS

Eleven meetings were held with the following stakeholders:

- Plantation Golf Course
- Jackson’s
- Primary Health
- St. Vincent de Paul
- Pierce Park Elementary (Boise School District)
- Viewpoint Windows
- Plantation Tune Tech
- Les Schwab Tires
- Like-Nu Car Wash
- Zamzows
- Mike & Mini Victory (owners of parcel at NW corner of intersection)

Several other businesses were contacted via phone, email and/or site visit. Although they were not available (or chose not) to meet in person, they were invited to the public open house and provided additional copies of the meeting notification.

- Mr. Auto & Company
- Hendrick’s Veterinary Hospital
- Idaho Central Credit Union

KEY FINDINGS

The key findings listed below are items that were heard most often. Given the variety of participants, some of the findings vary and contradict each other.

- Opposition of restricting left turns in/out of businesses
- Support for all design options that provide left-turn and/or u-turns
- Concern large trucks cannot make U-turns where provided

Comment Transcriptions

Plantation Country Club

- Sidewalk is unsafe without barrier from golf course
- Trees along State Street cannot handle construction – they will die
- Restricting left turns should be compensated. They believe compensation could occur in the form of installation of an 8’ tall berm with fence along State Street (on golf course property)
- Supportive of option to break median to allow U-turns between Pierce Park and Hertford

Jackson’s

- Do not support proposed improvements due to impacts to the store
- Would like to see a No Build Option

Primary Health

- Concerned with restricting access to right-in/right-out to State Street at clinic and from Mackenzie
- Not supportive of landscaped medians – need access for emergency vehicles turning left-in to clinic
- Support U-turn at Pierce Park
St. Vincent de Paul

- Opposed to restricting access to right-in/right-out
- Access to/from Pierce Park is already challenging, especially when school is starting and getting out
- Would like access from Pierce Park widened to accommodate large trucks
- Trucks cannot currently go around the building (due to the stored items they have out back). Trucks back up into State Street, stop traffic, and back into the access from State Street
- Support design options to allow U-turns

Boise School District

- Pierce Park Elementary is being reconstructed in a few years and will likely require students to be relocated during that process
- Currently, buses pick up and drop off students that live along Lakeside. With the raised median, they will likely modify route so buses access without needing the left-in access

Viewpoint Windows

- Opposed to raised medians
- Request a break in the access to allow left-in access
- Would support the break in access between Pierce Park and Hertford moving west to provide left-in/U-turn access at driveway
- Need trucks to access from east
- Warehouse is being permitted that will be constructed west of current building. Will house Viewpoint and three other businesses
- Ok with restricting left-out

Plantation Auto Center

- Opposed to median to restrict left-in and left-out access
- Lease the property; do not own
- Parking and access is already an issue; ROW take is a concern

Les Schwab

- Supportive of State Street expansion
- Concerned about restricting access with median but understands the need for safety. Supportive of U-turns
- Would support the break in median between Pierce Park and Hertford moving west to provide room for vehicles exiting to merge over and make the U-turn. Current placement is too close to do that
- Will be remodeling the store this year and will change the flow of the traffic on the lot

Like-Nu Car Wash

- Concerned with medians/restricting access
- Would like to discuss options to modify current access on the lot to improve vehicle flow

Zamzows

- Opposed to raised medians. Would like to see a break in the access to allow left-in turns
Mike & Mini Victory

- Request to coordinate directly with Mike & Mini (not Jackson’s since they are tenants and do not own the property)
- Ready for ACHD to purchase the entire lot rather than continue purchasing small strips, making it difficult to market to commercial tenants
- Support options for U-turns and left-turns
Appendix D

Public Meeting Summaries
STATE STREET & PIERCE PARK INTERSECTION
PUBLIC MEETING #1 SUMMARY OF COMMENTS

Public Open House: February 15, 2017 | 5:30 – 7:30 pm
- 70 sign-ins
- 33 comment forms received
- 119 online surveys completed

The information below reflects a summary of the comment forms and online survey data.

**Primary Transportation Mode**
- Car: 149
- Bike: 23
- Walk: 17
- Bus: 11
- Other (please specify): 2

**Primary Reason for Using the Intersection**
- Commute: 106
- Errands: 69
- Recreation: 88

**ZIP CODE**
WHAT WORKS WELL?

Motorists:
- Flashing yellow
- Traveling east-west
- Traffic flow during off-peak hours

Bicyclists:
- Nothing
- Stoplight and crosswalk
- Buffered sidewalk

Pedestrians:
- Stoplight and crosswalk
- New sidewalks
- Nothing

WHAT DOESN'T WORK WELL?

Motorists:
- Long red time at light
- Turning onto State St (left and right)
- Lack of WB to NB right turn lane on State
- Too much traffic, especially when school gets out
- High speed on State Street
- Hard to see

Bicyclists:
- Lack of bike lanes
- Too dangerous
- High speed on State Street

Pedestrians:
- Aren’t seen by vehicles
- Difficult to cross busy street
- High speed on State Street

TOP PRIORITIES

![Bar chart showing top priorities with Safety at 70, Alleviating Congestion at 60, Visibility at Intersection at 50, Bike Connectivity at 40, Pedestrian Connectivity at 30, Transit at 20, Cost at 10, and Impacts to Private Properties and Businesses at 10.]
SUGGESTED IMPROVEMENTS

- WB to NB right turn lane
- Separated bike lanes
- Better alignment
- Wider lanes
- Longer EB to NB left turn lane
- Bike lanes
- Better timed lights
- Access to ICCU from State Street
- Block left turns / medians
- Decreasing speed on State Street
- Better visibility for bike/ped crossing
- Merge lane for SB to WB turn
- Frontage road to Plantation Golf Course
- Improve it so everyone can see each other
- Tie in golf course access to intersection
- Provide connection to Green Belt
- Do not close access to Carlsbad Rd

CONCERNS / ADDITIONAL COMMENTS

- Landscaping
- Limit disruption to traffic on State
- New housing will create even more traffic
- Do not disrupt school traffic
- Bike/ped education
- Move traffic, widen the intersection for better visibility and keep the sidewalks in place
- No shelter for bus stop
STATE STREET & PIERCE PARK INTERSECTION
PUBLIC MEETING #2 SUMMARY OF COMMENTS

Public Open House: June 29, 2017 | 5:30 – 7:00 pm
• 65 sign-ins
• 26 comment forms received
• 5 online surveys completed
• 3 emails received

The information below reflects a summary of the comment forms, emails and online survey data.

Which design options do you prefer to have added to the proposed realignment alternative?

General Comments:
• Unsignalized left/u-turns are unsafe (7)
• Reduce speed limit to 35 mph (6)
• Concern for business access (4)
• Support proposed improvements (4)
• Buffer the bike lane from traffic (3)
• Sidewalks, landscaping and bike lanes are not necessary on both sides of the street (3)
• Add right-in entrance to Credit Union from State Street (2)
• Bike and pedestrian traffic is low in this area (2)
• Don’t take ROW (2)
• Opposed to raised median (1)
• Improve the signal timing/traffic flow (1)
• Should be looking at mass transit instead of expansion (1)
• Cost of project out-weighs the benefit (1)
• Increase green time for EB to NB left turns (1)
Appendix E

Cost Estimate
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<tr>
<th>Item</th>
<th>Concept Budget</th>
<th>Budget</th>
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<td>Roadway</td>
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<td>$2,430,000</td>
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<tr>
<td>Earthwork</td>
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<tr>
<td>Drainage</td>
<td>$230,000</td>
<td>$250,000</td>
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<tr>
<td>Traffic/Signal</td>
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<tr>
<td>Mobilization/Misc</td>
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<tr>
<td>Design/Construction Inspection</td>
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<tr>
<td>Contingency (25%)</td>
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<tr>
<td>Right-of-Way (Linear impacts)</td>
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<td><strong>Project Total</strong></td>
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