



June 25, 2016

Mr. Rick C. Brown, PE, PTOE  
Director of Public Works / City Engineer  
City of Wildwood  
16860 Main Street  
Wildwood, MO 63040

RE: Pond-Grover Loop Road Traffic Study

Dear Mr. Brown:

As requested, Lochmueller Group has completed a traffic study evaluating neighborhood traffic flows for the possible completion of Pond-Grover Loop Road in Wildwood, Missouri. The connection of Pond-Grover from Route 109 to Route 100 (opposite Taylor Road) has been planned for some time, and a current residential development proposal known as Brightleaf may be required to construct a portion of the roadway while adding to area traffic. A City committee is currently considering whether to complete the final connection between Green Pines Road and the northern extent of Brightleaf subdivision.

The purpose of this study was to evaluate the traffic impacts associated with the completion of Pond-Grover Loop Road on the primary roadways within the adjoining neighborhoods. The study addressed conditions during the a.m. and p.m. peak periods as well as the total traffic flows over the course of a typical weekday. The study area, primary roadways, and the seven study intersections are shown in **Exhibit 1**.

### Existing Conditions

In order to evaluate traffic flows throughout the study area, seven intersections were evaluated. As part of the Brightleaf traffic study (completed in July 2015 by CBB) turning movement counts were collected at three of the current study intersections, during the morning (7:00 to 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) peak periods. From those counts, it was determined that the peak hours of traffic occur from 7:15 to 8:15 in the morning and from 4:45 to 5:45 in the afternoon.

Using these peak hours, turning movement counts were then collected at the remaining four study area intersections. The seven study area intersections are listed below:

1. Pond-Grover Loop Road at Hickory Manor Drive
2. Pond-Grover Loop Road at Green Pines Drive
3. Forest Leaf Parkway at Fullerton Meadows Drive
4. Forest Leaf Parkway at Green Pines Drive
5. Westglen Farms Drive at Fullerton Meadows Drive
6. Westglen Farms Drive at Green Pines Drive
7. Westglen Farms Drive at Forest Leaf Parkway

The existing peak hour traffic volumes are illustrated in **Exhibit 2**.

In addition to peak hour turning movement counts, the City collected weekly traffic counts at six mid-block locations. These counts were used to determine the Average Daily Traffic (ADT) for the study roadways, as summarized in **Exhibit 3**.

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As shown, daily traffic on the study roadways typically ranges from 1,100 to 1,700 vehicles per day (vpd). The only exception is Westglen Farms to the south of Fullerton Meadows where a combination of several feeder roadways and adjacent commercial development increase traffic to approximately 4,150 vpd.

In addition to the vehicular counts, pedestrian volumes were documented at each study intersection and observations were conducted adjacent to Green Pines Elementary School during arrival and dismissal periods. In general, pedestrian flows were light and no meaningful issues or concerns were documented near the elementary school.

Finally, in order to quantify the travel patterns through the study area, an origin-destination study was completed. License plate information was collected throughout the neighborhood during the morning (7:00 to 9:00 a.m.) and afternoon (3:30 to 5:30 p.m.) peak periods at the eight locations shown in **Exhibit 4**.

The license plate data was then matched up to determine where each vehicle began and/or ended their trip. This provided detailed information about existing travel patterns within and through the entire study area, which allowed for a reliable prediction of traffic diversions if Pond-Grover Loop Road is extended to Route 100.

#### **Traffic Diversions with Completion of Pond-Grover Loop Road**

In order to forecast the volume of traffic that would use Pond-Grover Loop Road if it is completed, the origin-destination information and traffic counts were analyzed. It was determined that traffic from several of the origin-destination pairs would be likely to divert, in part, to Pond-Grover if it is extended.

The routes are displayed in **Exhibit 5**. These pairs include routes between locations 1, 2, 3 or 4 and locations 6, 7 or 8. Location 4 was collected to ensure that any traffic traveling between Hickory Crest Drive and locations 6, 7 or 8 could be identified separately from those traveling further to the west.

It should be noted that very little cut-through traffic (through trips between Route 100 and 109) was documented during the origin-destination study. The relative travel time of traversing the lower-speed and more circuitous local streets versus using the Route 100/109 interchange provides little incentive to cut through the neighborhood. The extension of Pond-Grover Loop Road would not be expected to induce a significant volume of cut-through traffic, as travel speeds and the addition of a roundabout on the roadway within the Brightleaf subdivision would also result in slower travel paths as compared to using the interchange.

From the origin-destination data, it was determined that approximately 25 to 35 percent of the traffic currently using Green Pines Drive between Pond-Grover Loop Road and Forest Leaf Parkway would be diverted to the Pond-Grover Loop Road extension due to the shorter travel time that it would provide. This amounts to 25 to 40 trips in each direction during the morning and afternoon peak hours.

Additionally, a portion of the traffic from Hickory Manor Drive and Paradise Peak Circle which currently travels to/from Route 109 would be expected to divert to the Pond-Grover Loop Road extension to travel east on Route 100. In total, this would represent 15 to 20 trips during the morning and afternoon peak hour.



Based on the existing ADT counts, the directional distribution of traffic on Pond-Grover Loop Road is unbalanced with a greater volume of traffic headed westbound than eastbound over the course a day. This is likely due to the Eatherton Road intersection's  $\frac{3}{4}$  access which restricts left turns onto Route 109.

Specifically, residents destined for Sandalwood Creek Drive can enter the area from either direction on Route 109 but cannot use Eatherton Road to travel south on Route 109 without first heading north to the roundabout at Pond-Grover Loop Road and making a U-turn. Consequently, some motorists are traveling north and accessing Pond-Grover Loop Road via Hickory Crest Drive then heading west to Route 109. It is expected that approximately 10 vehicles per hour would divert from this route to the Pond-Grover Loop Road extension to head directly south to Route 100.

In addition to these quantifiable traffic flows that already exist within the neighborhood, it is anticipated that some additional trips would use the Pond-Grover Loop extension for local shopping activities. In particular, the introduction of a signalized access opposite Taylor Road would likely attract some shopping trips destined to the Town Center that currently use other routes. It is estimated that approximately 20 peak hour trips would be added from these diversions.

In total, diversions from existing traffic within the area would be expected to add 90-115 peak period trips to the extension of Pond-Grover Loop Road. Based on existing hourly flows throughout the day, this would represent approximately 1,000 vehicles per day.

In addition to existing traffic diversions, traffic from the proposed Brightleaf subdivision would also use the new connection. The trip generation and directional distribution estimates in the traffic study for the Brightleaf subdivision were reviewed and it was determined that these estimates were reasonable. It is expected that approximately 20% of the proposed subdivision's traffic would use the Pond-Grover Loop Road extension to travel to/from the north on Route 109. This amounts to 20 to 30 vehicles using Pond-Grover Loop Road during the morning and afternoon peak hours to the south of Green Pines Drive, or approximately 360 vehicles per day.

To the north of Route 100, traffic generated by Brightleaf would be significantly higher. It is estimated that the new subdivision would add 110 to 140 vehicles per peak hour to the section of Pond-Grover Loop Road immediately north of Route 100, or approximately 1,620 vehicles per day.

In summary, based on *daily traffic estimates*, the following volumes would be expected to use Pond-Grover Loop Road if it is completed between Green Pines Drive and Route 100. The primary traffic diversions that would use the new roadway are shown graphically in **Exhibit 6**.

- 500 vpd diverted from Green Pines Drive
- 200 vpd diverted from trips currently heading west from Hickory Manor and Paradise Peak to instead head east on Pond-Grover towards Route 100
- 100 vpd diverted from Hickory Crest Drive heading west to instead head east on Pond-Grover towards Route 100
- 200 vpd diverted from Town Center trips
- 360 vpd from Brightleaf south of Green Pines and 1,620 vpd north of Route 100

In total, **the projected ADT utilizing Pond-Grover Loop Road upon its completion (and build-out of Brightleaf subdivision) would be approximately 1,360 vpd south of Green Pines Drive and 2,620 north of Route 100.** During peak periods, this amounts to approximately 140 and 260 vehicles per hour using Pond-Grover Loop Road south of Green Pines Drive and north of Route 100, respectively, or an average of 2-4 vehicles per minute.

### Emergency Service Considerations

In order to assess the potential roadway connection's impact on emergency services, the Fire Marshall for Metro West Fire Protection District was consulted. Based on Metro West's analysis, the extension of the Pond-Grover Loop Road would save approximately 83 seconds in a response to Hickory Valley Court and Hickory Crest. **This could save nearly three minutes in total transport time to a hospital.**

According to the Fire Marshall, three minutes could be the difference between life and death in life-threatening situations, and in the case of a stroke it could be the difference between a full recovery and permanent disabilities. In addition, the road would give emergency service providers a secondary means of ingress and egress to the area.

### Functional Classification & Recommended Design of Pond-Grover Loop Road

The Federal Highway Administration (FHWA) has published information regarding roadway functional classification concepts, criteria and procedures. This information outlines distinction between different functional classification categories. East-West Gateway uses these guidelines to determine functional classifications for the roadways in the Saint Louis region. In the study area, most roads are classified as local roads with West Glen Farms classified as a Major Collector, Route 109 as a Minor Arterial, and Route 100 as a Principal Arterial.

Urban Minor Collectors serve both land access and traffic circulation in lower density residential and commercial/industrial areas and help distribute trips between local roads and arterials. Typical ADT volumes on Urban Minor Collectors range from 1,100 to 6,300 vehicles.

Local Roads make up the majority of roadways accounting for approximately 70 percent of total roadway mileage over an entire regional system. Local Roads provide direct access to land, provide access to higher-level roadways and typically do not carry significant through traffic. Local Roads typically have ADT volumes of 80 to 700 vehicles.

Based on both the ADT estimates and the types of trips expected to utilize Pond-Grover Loop Road, it would likely function as a **residential Urban Minor Collector**. However, it would be at the low end of a collector street from a traffic volume perspective.

**It is recommended that the roadway be designed with one lane in each direction and include traffic calming measures.** The second phase of this study will evaluate the roadway design and consider appropriate traffic calming measures in detail.

The roundabout and cross-section with a landscaped median proposed for the section of the roadway within Brightleaf will also serve to calm traffic, resulting in slower speeds and less propensity to attract



any cut-through traffic. It is anticipated that these and other treatments will be considered along both the existing and new sections of Pond-Grover Loop Road as the study process moves forward.

It is our understanding that pedestrian crossings of Pond-Grover Loop Road, if extended, are a concern, particularly as it relates to interaction with Green Pines Elementary and crossings at the intersection with Green Pines Drive. Based on the projected volumes, traffic activity on Pond-Grover Loop Road in this area will be similar to current traffic on Green Pines Drive, Forest Leaf Parkway and Fullerton Meadows Drive. It will be important to properly design the intersection of Pond-Grover Loop Road and Green Pines Drive to safely accommodate pedestrian crossings in all directions. The introduction of a landscaped median and/or a potential roundabout would facilitate two-stage pedestrian crossings, which would greatly enhance pedestrian safety.

Finally, it is our understanding that a park is under development on the west side of Route 109 and will connect to Pond-Grover Loop Road. While some neighborhood residents would use Pond-Grover (with or without its full extension) to access the park, the completion of the roadway would not be expected to attract regional traffic destined to the park. As noted previously, the use of the Route 100/109 interchange would remain a substantially quicker path for those trips, and the park's completion would not be expected to significantly alter the traffic volumes using Pond-Grover Loop Road south of Green Pines Drive.

We trust that you will find this traffic study useful in evaluating the prudence of extending Pond-Grover Loop Road between Green Pines Drive and Brightleaf subdivision. Please do not hesitate to contact our office with any questions you may have regarding this material.

Sincerely,

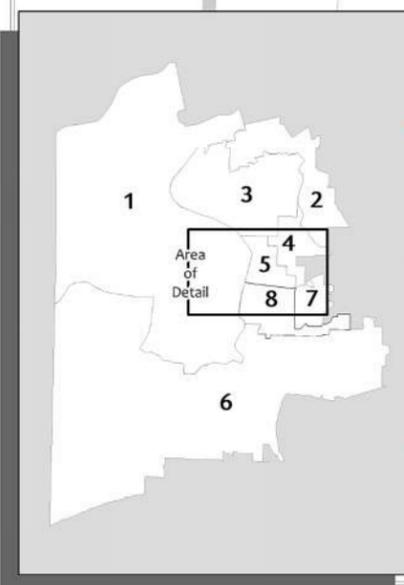
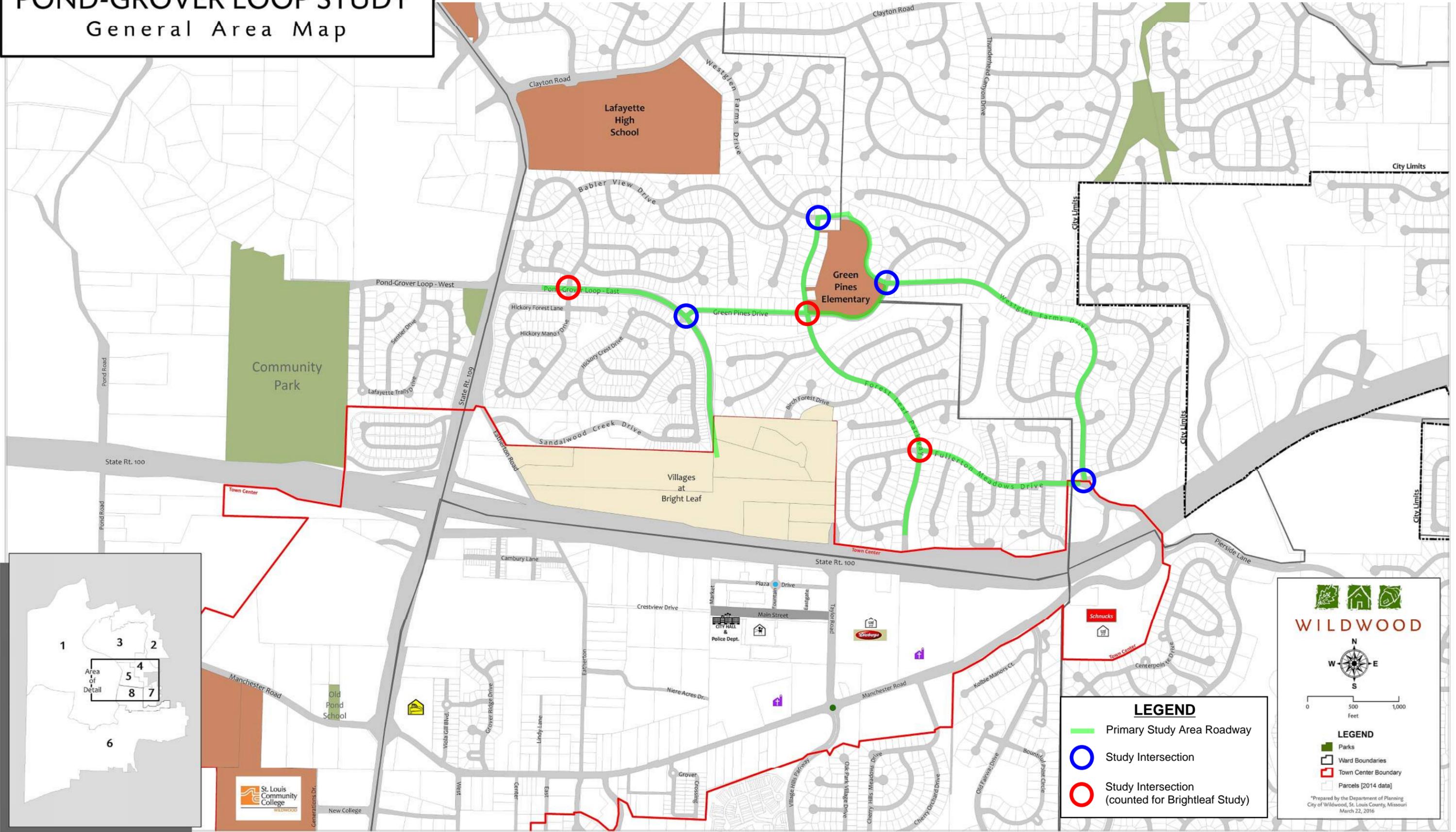
**Lochmueller Group, Inc.**

A handwritten signature in black ink that reads "Dustin B. Riechmann".

Dustin B. Riechmann, PE, PTOE  
Traffic Engineering Manager

CITY OF WILDWOOD, MISSOURI  
**POND-GROVER LOOP STUDY**  
 General Area Map

**EXHIBIT 1: STUDY AREA ROADWAYS AND INTERSECTIONS**



**LEGEND**

- Primary Study Area Roadway
- Study Intersection
- Study Intersection (counted for Brightleaf Study)

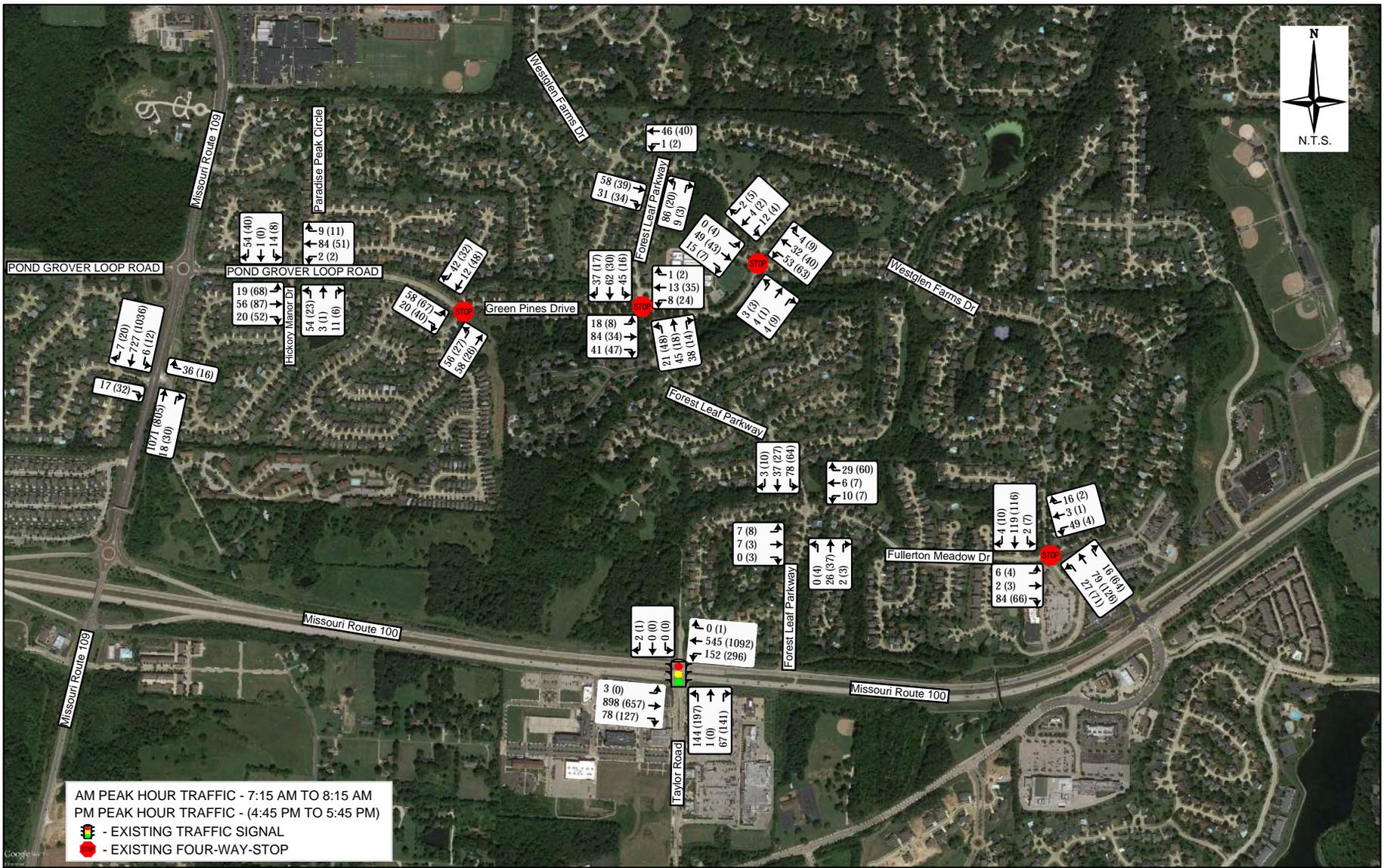
**WILDWOOD**

0 500 1,000  
Feet

**LEGEND**

- Parks
- Ward Boundaries
- Town Center Boundary
- Parcels (2014 data)

\*Prepared by the Department of Planning  
 City of Wildwood, St. Louis County, Missouri  
 March 22, 2016



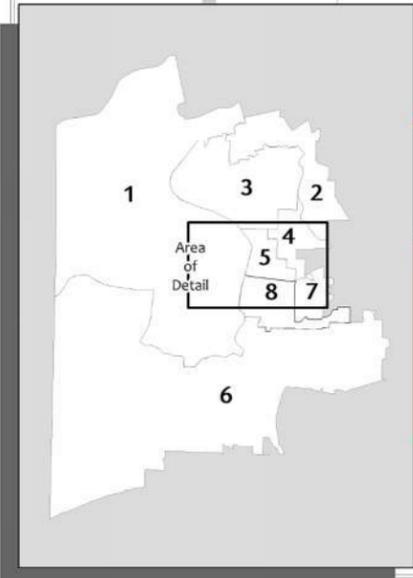
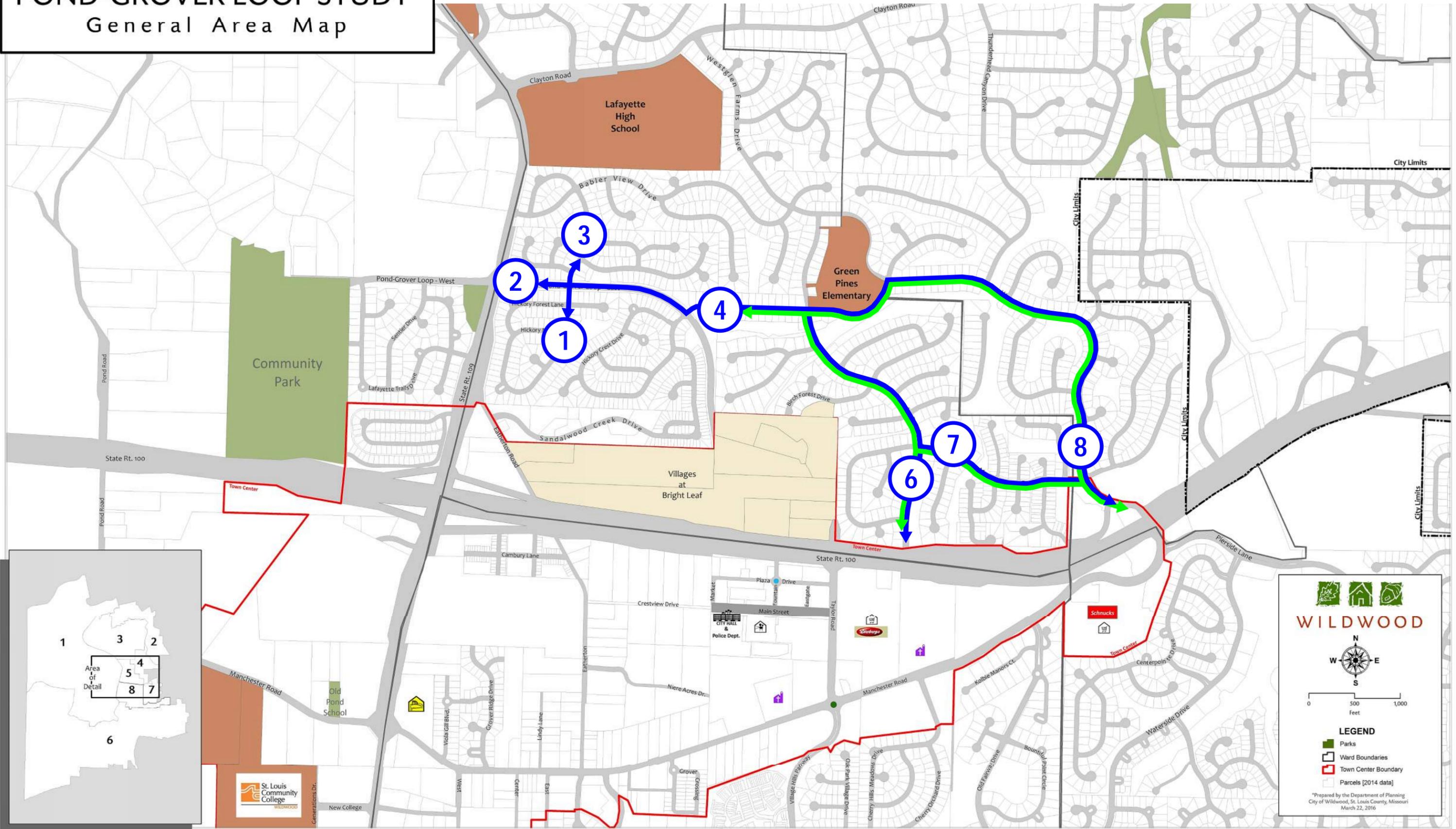
**EXHIBIT 2: EXISTING PEAK HOUR TRAFFIC**





CITY OF WILDWOOD, MISSOURI  
**POND-GROVER LOOP STUDY**  
 General Area Map

**EXHIBIT 5: KEY TRAVEL ROUTES BETWEEN ORIGIN-DESTINATION PAIRS**



**WILDWOOD**

0 500 1,000  
Feet

**LEGEND**

- Parks
- Ward Boundaries
- Town Center Boundary
- Parcels (2014 data)

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 General Area Map

**EXHIBIT 6: PROJECTED DAILY TRAFFIC WITH POND-GROVER EXTENSION**

