SUMMIT

LAND MANAGEMENT

# FAIRMONT PRINCESS EXPANSION
# Scottsdale, Arizona

## REVISED Traffic Impact Analysis

### October 2023

**Prepared for:**
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**For Submittal to:**
CITY OF SCOTTSDALE

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# *Executive Summary*

## *Introduction*

The existing Scottsdale Fairmont Princess Resort consists of 751 hotel guest rooms; and 61,577 square feet of ballroom, conference rooms, and meeting rooms; plus internal retail, restaurant, and event areas.

The Scottsdale Fairmont Princess Resort is planning an expansion consisting of an additional 35,000 square feet of ballroom, conference, and meeting rooms; 16,500 square feet of restaurant; 10,754 square feet of coffee shop (Roasterie); and an additional 198 hotel guest rooms. (Of these 198 new hotel guest rooms, 43 additional were previously approved by Case# 5-ZN-2015 but never constructed. Consequently, the existing traffic counts do not include the traffic generated by these previously approved, unconstructed, hotel rooms. Therefore, 155 of these additional guest rooms are new with the current request). One of the primary purposes of the expansion is to satisfy the conference and meeting room demand of both the existing and proposed hotel room number.

The ballroom, conference rooms, and meeting rooms expansion to the existing Fairmont Princess Resort will occur on property that currently contains an event lawn and parking area. The hotel room, restaurant, and coffee shop expansions are on currently vacant property.

The restaurant will be in the northwest corner of the resort property, located in the immediate southeast corner of the intersection of Cottage Terrace Lane and Princess Boulevard. The restaurant clientele will consist of both guests of the Scottsdale Fairmont Princess Resort and people who do not utilize other facilities of the Scottsdale Fairmont Princess Resort.

The coffee shop will be located internal to the Scottsdale Fairmont Princess Resort, and therefore the clientele will only be people who utilize other facilities of the Scottsdale Fairmont Princess Resort or who reside within walking distance of the coffee shop.

## *Results*

The proposed Fairmont Princess Resort expansion is anticipated to generate an additional; as a total of both directions; 3,114 weekday day; 129 weekday morning peak hour of adjacent street; 209 weekday evening peak hour of adjacent vehicles; 2,733 Saturday day; and 2,144 Sunday day.

## *Recommendations without Fairmont Princess Expansion*

Because of the Scottsdale / Princess excessive eastbound delay during all three (3) peak hours, and the 5 to 14 times larger eastbound right-turn volume than the eastbound through volume, the City of Scottsdale should consider converting the southernmost eastbound lane to an exclusive right-turn lane. This would enable a right-turn-arrow overlap with the northbound left-turn arrow.

Because of the seventeen (17) left-turn-head-on collisions involving northbound and southbound vehicles from 2015 to 2021, the City of Scottsdale should consider converting the north / south left-turn arrows from Permissive and Exclusive to Exclusive only.

## *Recommendations with Fairmont Princess Expansion*

A new right-turn-in-right-turn-out access is proposed with Princess Boulevard, approximately 300 feet east of Cottage Terrace Lane. A sight line easement of 390 feet, measured parallel to the southernmost curb line, from the centerline of the access to an approaching eastbound vehicle. The area north of the sight line easement must be clear of all objects taller than 30 inches above the Princess Boulevard pavement, with the exception of necessary traffic control signs.

No other improvements are justified or necessary.

## *Introduction*

The Scottsdale Fairmont Princess Resort is planning an expansion consisting of an additional 35,000 square feet of ballroom, conference, and meeting rooms; 16,500 square feet of restaurant; 10,754 square feet of coffee shop (Roasterie); and an additional 198 hotel guest rooms. (Of these 198 new hotel guest rooms, 43 additional were previously approved by Case# 5-ZN-2015 but never constructed. Consequently, the existing traffic counts do not include the traffic generated by these previously approved, unconstructed, hotel rooms. Therefore, 155 of these additional guest rooms are new with the current request). A primary purpose of the expansion is to increase the available conference and meeting room area to become proportionate to the existing and proposed hotel guest room number. The existing conference and meeting room area has proven inadequate to support the existing hotel guest room number. The Scottsdale Fairmont Princess Resort anticipates that the expanded resort will satisfy potential client expectation for both hotel guest room number, and conference and meeting room area.

Another purpose of the expansion is to include on the resort property a free-standing high-quality restaurant and a free-standing coffee shop (Roasterie).

The location of the Scottsdale Fairmont Princess Resort is depicted in **Figure 1**.

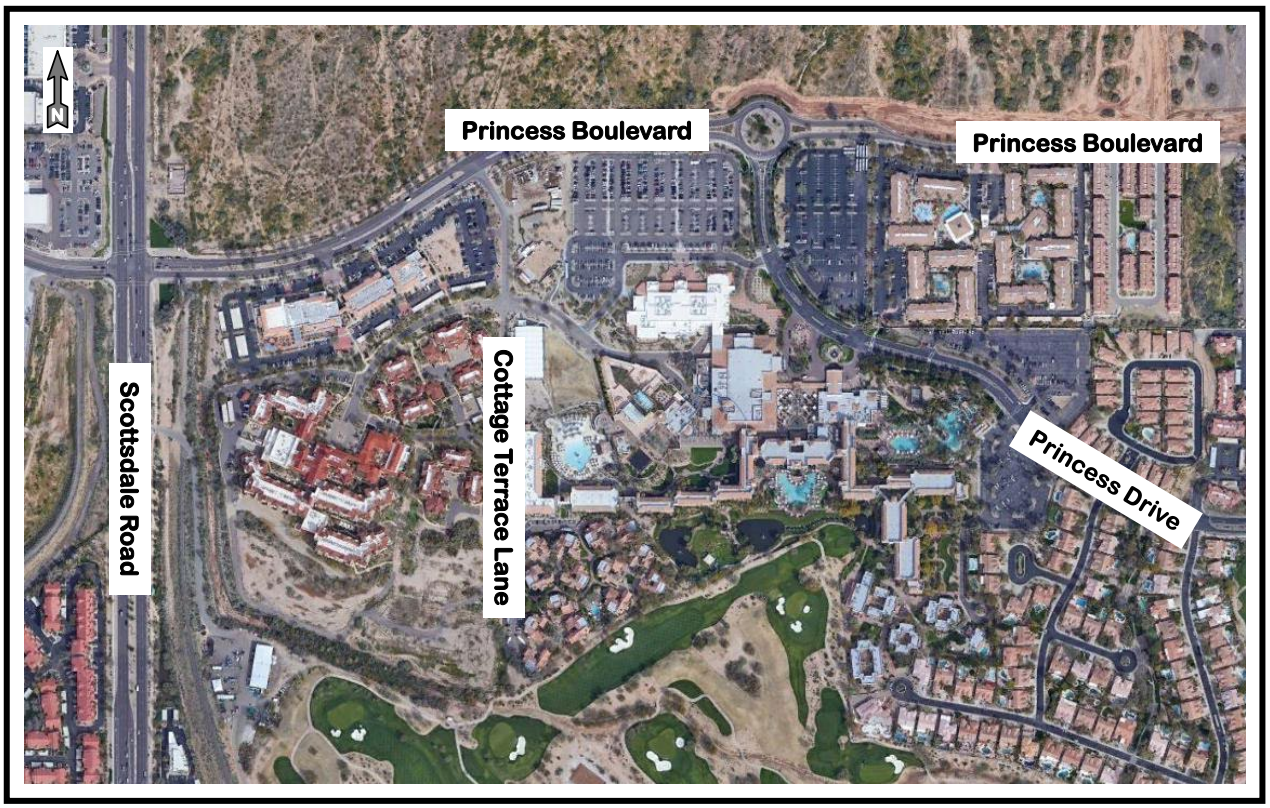



**Figure 1: General Vicinity Map with Aerial Photograph**

**Figure 2** depicts the locations of The Scottsdale Fairmont Princess Expansion facilities.

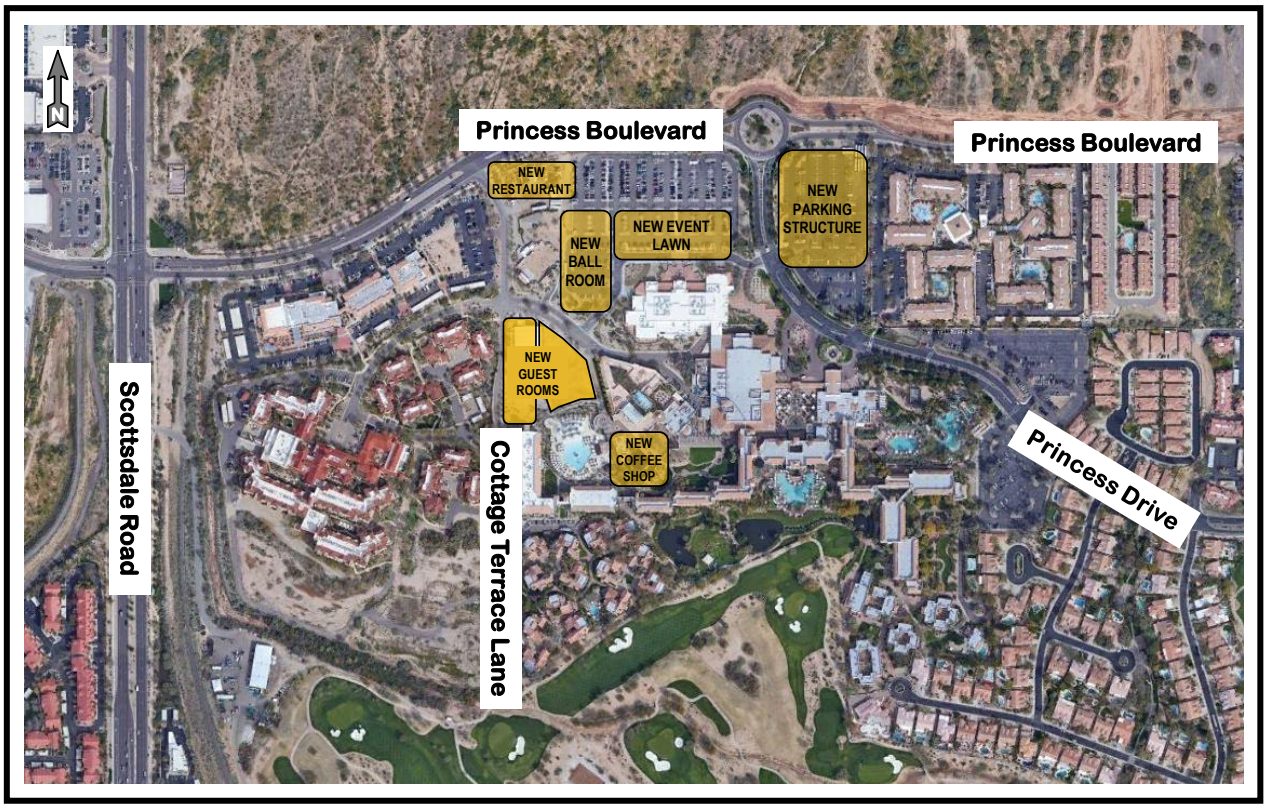



**Figure 2: Fairmont Princess Expansion Site Plan**

## *Scope of Study*

Seven (7) purposes exist for this analysis:

- ❖ Evaluate historic collision experience at adjacent intersections.
- ❖ Evaluate existing traffic operation at adjacent intersections.
- ❖ Estimate and evaluate future ambient 2025 traffic volumes.
- ❖ Estimate new traffic generated by the proposed Fairmont Princess Expansion.
- ❖ Distribute and assign new traffic to adjacent intersections.
- ❖ Evaluate 2025 with Fairmont Princess Expansion traffic conditions at adjacent intersections.
- ❖ Determine need for modified traffic control at adjacent intersections.

The three (3) study intersections, with their traffic control are:

1. Scottsdale Road and Princess Boulevard (Signal-controlled)
2. Cottage Terrace Lane and Princess Boulevard (Northbound stop-controlled)
3. Princess Drive and Princess Boulevard (Roundabout)

## *Surrounding Transportation System*

**Figure 3** provides a street map of the general vicinity, with traffic control and lane configurations at the three (3) study intersections. The dominant access to Fairmont Princess will remain Princess Boulevard to Scottsdale Road, with secondary access of Princess Drive to Hayden Road.

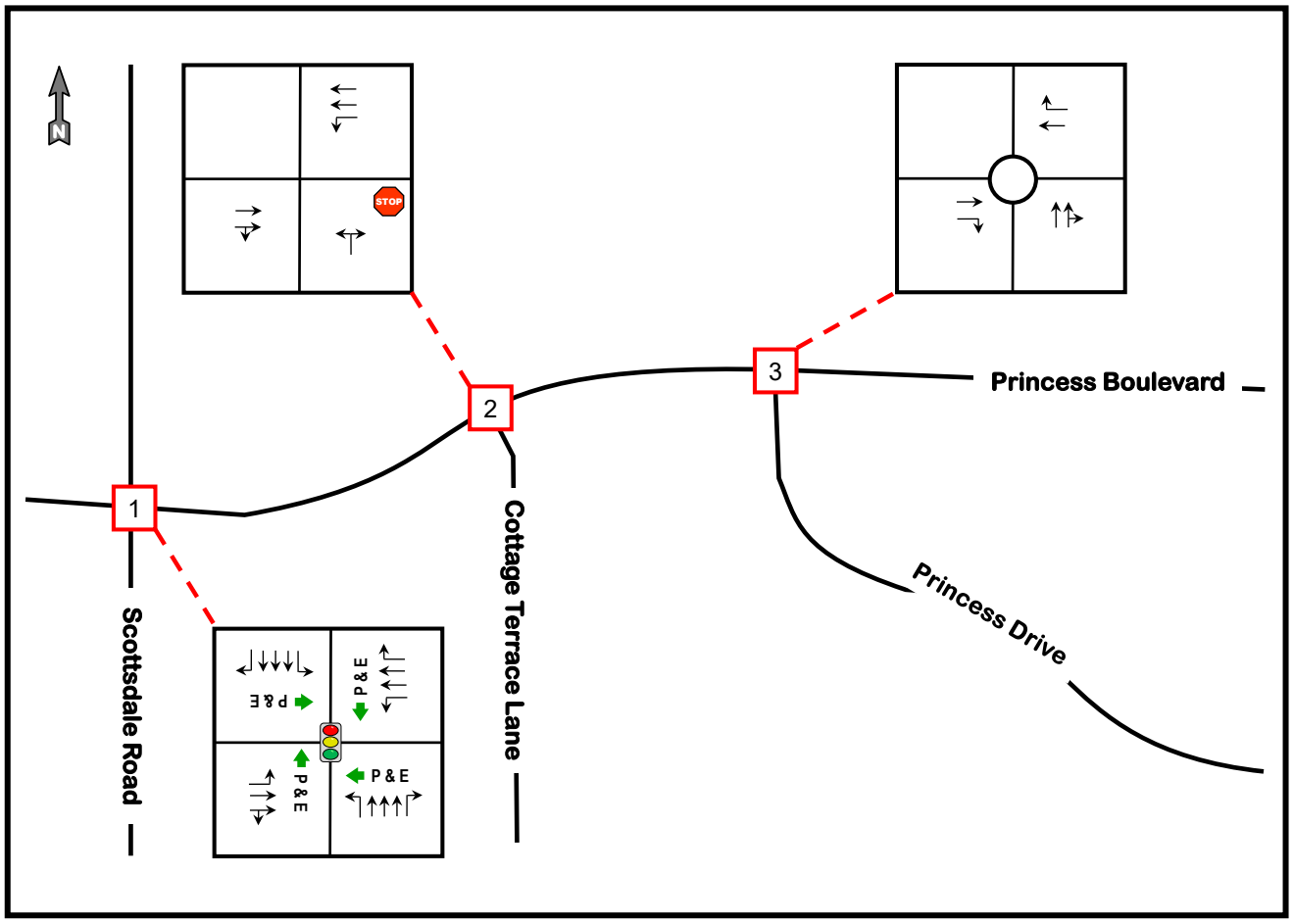



**Figure 3: General Vicinity Streets and Intersection Lane Configurations**

## *Collision Analysis*

Arizona Department of Transportation collision data for the three (3) vicinity study intersections of Scottsdale / Princess, Cottage Terrace / Princess, and Princess Drive / Princess Boulevard were analyzed for calendar years 2015 through 2021.

**Appendix A** provides the complete collision data. **Table 1** through **Table 7** summarize the collision data for each year by intersection separately.

**Table 1: Collision Manner History Summary: 2015**

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 1 | 9 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 17 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Princess Drive & Princess Boulevard | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 1 | 9 | 1 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 18 |

## Table 2: Collision Manner History Summary: 2016

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 0 | 8 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 12 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Princess Drive & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 8 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 12 |

## Table 3: Collision Manner History Summary: 2017

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 2 | 14 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 20 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| | | | | | | | | | | | |
| TOTAL | 2 | 14 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 21 |

## Table 4: Collision Manner History Summary: 2018

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 3 | 2 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 12 |
| Cottage Terrace & Princess Boulevard | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Princess Drive & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 4 | 2 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 13 |

## Table 5: Collision Manner History Summary: 2019

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 0 | 9 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 12 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Princess Drive & Princess Boulevard | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| TOTAL | 0 | 10 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 14 |

## Table 6: Collision Manner History Summary: 2020

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 2 | 7 | 1 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 14 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Princess Drive & Princess Boulevard | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 2 | 7 | 3 | 2 | 1 | 0 | 1 | 0 | 0 | 1 | 17 |

## Table 7: Collision Manner History Summary: 2021

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scottsdale Road & Princess Boulevard | 1 | 15 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 25 |
| Cottage Terrace & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Princess Drive & Princess Boulevard | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 15 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 25 |

The Scottsdale / Princess intersection experienced 112 of the 120 collisions (93%) at the three (3) study intersections. The dominant collision manner at Scottsdale / Princess intersection is rear-end, which is typical for urban intersections. The number of rear-end collisions also fluctuates from year-to-year, which is also common in urban environments.

**Table 8** summarizes the manner of collision for all three intersections for each of the seven (7) years.

**Table 8: Collision Manner History Summary: All 3 Intersections for 2015 through 2021**

| | ANGLE | REAR-END | SINGLE VEHICLE | LEFT-TURN HEAD-ON | LEFT-TURN ANGLE | LEFT-TURN OTHER | SIDE-SWIPE SAME | SIDE-SWIPE OPPOSITE | HEAD-ON | OTHER | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 1 | 9 | 1 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 18 |
| 2016 | 0 | 8 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 12 |
| 2017 | 2 | 14 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 21 |
| 2018 | 4 | 2 | 0 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 13 |
| 2019 | 0 | 10 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 14 |
| 2020 | 2 | 7 | 3 | 2 | 1 | 0 | 1 | 0 | 0 | 1 | 17 |
| 2021 | 1 | 15 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 25 |
| TOTAL | 10 | 65 | 7 | 19 | 6 | 0 | 9 | 0 | 1 | 3 | 120 |
| PORTION | 8% | 54% | 6% | 16% | 5% | 0% | 8% | 0% | 1% | 3% | 100% |

**Table 9** summarizes the travel directions of the vehicles involved in each collision for all seven (7) years. Collision travel direction is not reported for every collision in the Arizona Department of Transportation data. The largest number of collisions is both northbound vehicles, followed by both southbound vehicles, then northbound and southbound vehicles.

**Table 9: Collision Travel Direction: By Intersection for 2015 through 2021**

| | S & P | C & P | P & P | TOTAL |
|---|---|---|---|---|
| Northbound Only | 1 | 0 | 0 | 1 |
| Southbound Only | 2 | 0 | 0 | 2 |
| Eastbound Only | 0 | 1 | 1 | 2 |
| Westbound Only | 1 | 0 | 1 | 2 |
| **Northbound and Northbound** | **42** | **0** | **0** | **42** |
| **Southbound and Southbound** | **24** | **0** | **0** | **24** |
| Eastbound and Eastbound | 2 | 1 | 0 | 3 |
| Westbound and Westbound | 6 | 0 | 0 | 6 |
| Northbound and Eastbound | 2 | 2 | 1 | 5 |
| Northbound and Westbound | 4 | 0 | 0 | 4 |
| Southbound and Eastbound | 1 | 0 | 0 | 1 |
| Southbound and Westbound | 6 | 0 | 0 | 6 |
| **Northbound and Southbound** | **17** | **0** | **0** | **17** |
| Eastbound and Westbound | 4 | 0 | 0 | 4 |
| TOTAL | 112 | 4 | 3 | 119 |

Of the nineteen (19) northbound and southbound travel direction collisions in seven (7) years, seventeen (17) were left-turn-head-on collisions at the Scottsdale / Princess intersection. Twelve (12) involved a northbound left-turning vehicle and a southbound through vehicle; and five (5) involved a southbound left-turning vehicle and a northbound through vehicle. The City of Scottsdale should consider converting the north / south left-turn arrows from Permissive and Exclusive to Exclusive only.

**Table 10** summarizes the worst injury severities in each collision for all seven (7) years. Collision injury severity is not reported for every collision in the Arizona Department of Transportation data. The severity of no injury dominates the data. At the Scottsdale / Princess intersection, four (4) suspected serious injury collisions and one (1) fatal injury collision occurred.

**Table 10: Collision Injury Severity: By Intersection for 2015 through 2021**

| SEVERITY | S & P | C & P | P & P | TOTAL |
|---|---|---|---|---|
| No Injury | 55 | 3 | 3 | 61 |
| Possible Injury | 20 | 0 | 1 | 21 |
| Suspected Minor Injury | 14 | 0 | 0 | 14 |
| Suspected Serious Injury | 4 | 0 | 0 | 4 |
| Fatal Injury | 1 | 0 | 0 | 1 |
| Unknown | 0 | 0 | 0 | 0 |
| Not Reported | 0 | 0 | 0 | 0 |
| TOTAL | 94 | 3 | 4 | 101 |

**Table 11** summarizes collisions by travel direction as a total of all three (3) intersections, with the three (3) highest percentage of collisions highlighted.

**Table 11: Collision Travel Direction: All 3 Intersections for 2015 through 2021**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | TOTAL | PORTION |
|---|---|---|---|---|---|---|---|---|---|
| Northbound Only | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1% |
| Southbound Only | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 2% |
| Eastbound Only | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2% |
| Westbound Only | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2% |
| Northbound and Northbound | 5 | 4 | 10 | 3 | 8 | 5 | 7 | 42 | 35% |
| Southbound and Southbound | 6 | 4 | 4 | 1 | 0 | 2 | 7 | 24 | 20% |
| Eastbound and Eastbound | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 3% |
| Westbound and Westbound | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 6 | 5% |
| Northbound and Eastbound | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 5 | 4% |
| Northbound and Westbound | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 4 | 3% |
| Southbound and Eastbound | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1% |
| Southbound and Westbound | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 6 | 5% |
| Northbound and Southbound | 4 | 0 | 2 | 3 | 2 | 2 | 4 | 17 | 14% |
| Eastbound and Westbound | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 4 | 3% |
| TOTAL | 18 | 12 | 21 | 13 | 13 | 17 | 25 | 119 | 100% |

**Table 12** summarizes the collision injury severities for all three (3) intersections for all years 2015 through 2021.

**Table 12: Collision Injury Severity Summary: All 3 Intersections for 2015 through 2021**

| SEVERITY | NUMBER | PORTION |
|---|---|---|
| No Injury | 74 | 62% |
| Possible Injury | 24 | 20% |
| Suspected Minor Injury | 17 | 14% |
| Suspected Serious Injury | 4 | 3% |
| Fatal Injury | 1 | 1% |
| Unknown | 0 | 0% |
| Not Reported | 0 | 0% |
| TOTAL | 120 | 100% |

Two (2) of the four (4) collisions with suspected serious injuries occurred in 2015. Both of these collisions were left-turn-head-on involving northbound and southbound vehicles. Both occurred during daylight hours. One involved a southbound left-turning vehicle and a northbound through vehicle. The driver of the northbound vehicle was cited for "failure to yield the right-of-way". The report also noted that the northbound driver was distracted by an unknown device. The other collision involved a southbound through vehicle whose driver was cited for driving in the opposing traffic lane.

One of the collisions with suspected serious injuries occurred in 2018. The manner of this collision was a side-swipe-same-direction, involving northbound vehicles, and occurred during dark conditions. One vehicle was a motorcycle that was changing lanes, whose driver was cited for speed too fast for conditions.

The fourth collision with suspected serious injuries occurred in 2019. This was a multi-vehicle collision caused by a southbound vehicle whose driver drove off the road to the left and impacted northbound vehicles. No citations were issued.

The fatal collision occurred in 2017 during daylight hours, and was a southbound rear-end collision. A motorcycle was traveling at an estimated speed of 84 miles-per-hour and impacted a stopped car. The driver of the motorcycle died, and was cited for exceeding lawful speed and disregarding traffic signal.

## *Existing Traffic Volumes*

Traffic counts for the Scottsdale / Princess and the Princess / Princess intersection were obtained on 25 May 2022. Traffic counts for the Cottage Terrace / Princess were obtained for a different Scottsdale Fairmont Princess project on 21 October 2021. **Appendix B** provides the turning movement counts for 24 hours in 15-minute increments for the three (3) existing study intersections. As indicated in **Table 13**, the morning peak traffic volume 60-minute period for the Scottsdale / Princess and Cottage Terrace / Princess intersections are approximately noon, while the Princess / Princess intersection peak 60-minute period occurs during the more typical morning peak hour. Therefore, three (3) peak periods were analyzed. The maximum 60-minute period volume, as a sum of all twelve (12) turning movements by intersection, was utilized for each of the three periods.

**Table 13: Morning and Evening Peak 60-minute Volumes Periods**

| Intersection | Morning Peak 60-minute | | | | Evening Peak 60-minute | | |
|---|---|---|---|---|---|---|---|
| Scottsdale / Princess | 11:30 AM | to | 12:30 PM | | 4:30 PM | to | 5:30 PM |
| Cottage Terrace / Princess | 10:45 AM | to | 11:45 AM | | 4:45 PM | to | 5:45 PM |
| Princess / Princess | 7:30 AM | to | 8:30 AM | | 4:00 PM | to | 5:00 PM |

**Figure 4** provides the existing approach and departure volumes for the day. **Figure 5** and **Figure 6** respectively provide the existing approach and departure volumes, and the existing turning volumes for the morning peak hour. **Figure 7** and **Figure 8** respectively provide the existing approach and departure volumes, and the existing turning volumes for the mid-day peak hour. **Figure 9** and **Figure 10** respectfully provide the existing approach and departure volumes, and the existing turning volumes for the evening peak hour.

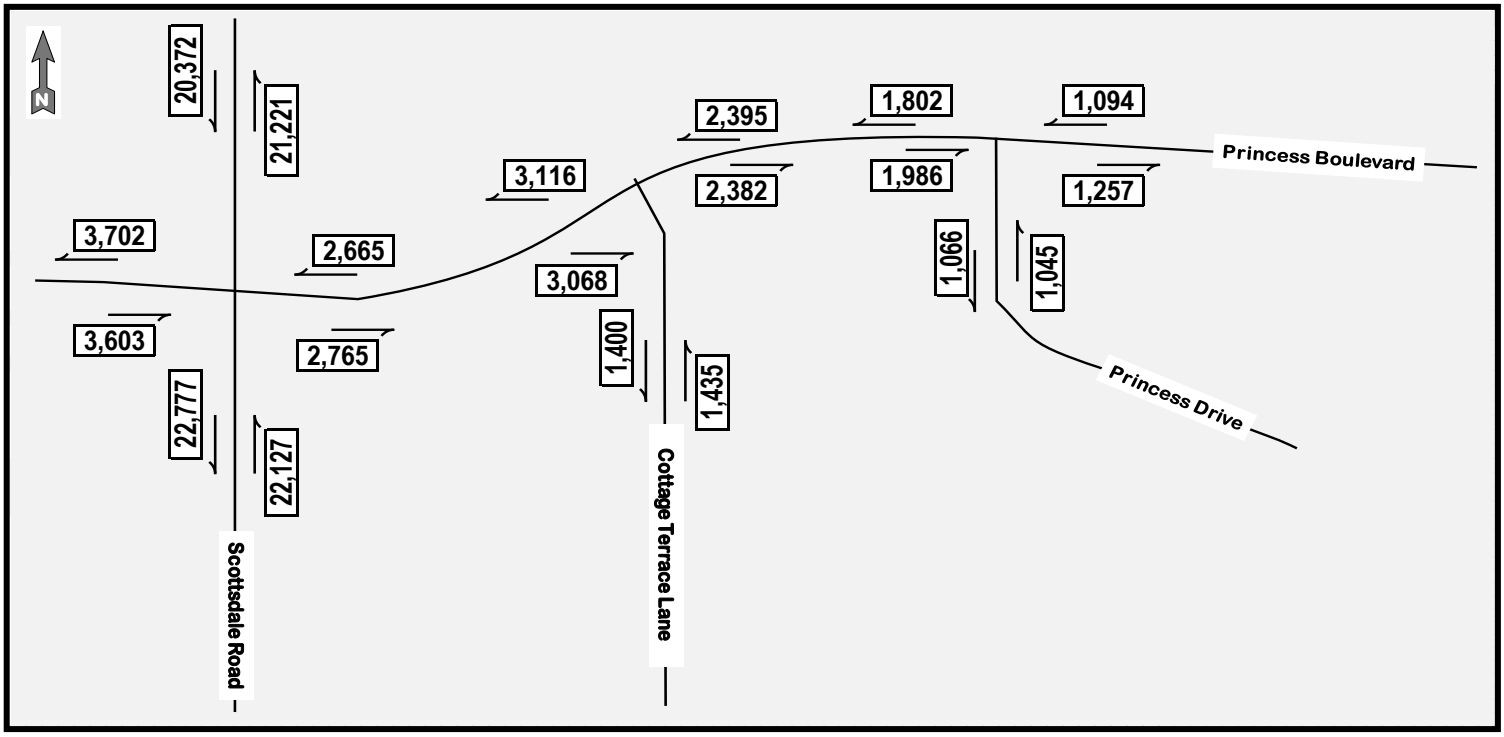



**Figure 4: 2022 Day Approach and Departure Volumes**

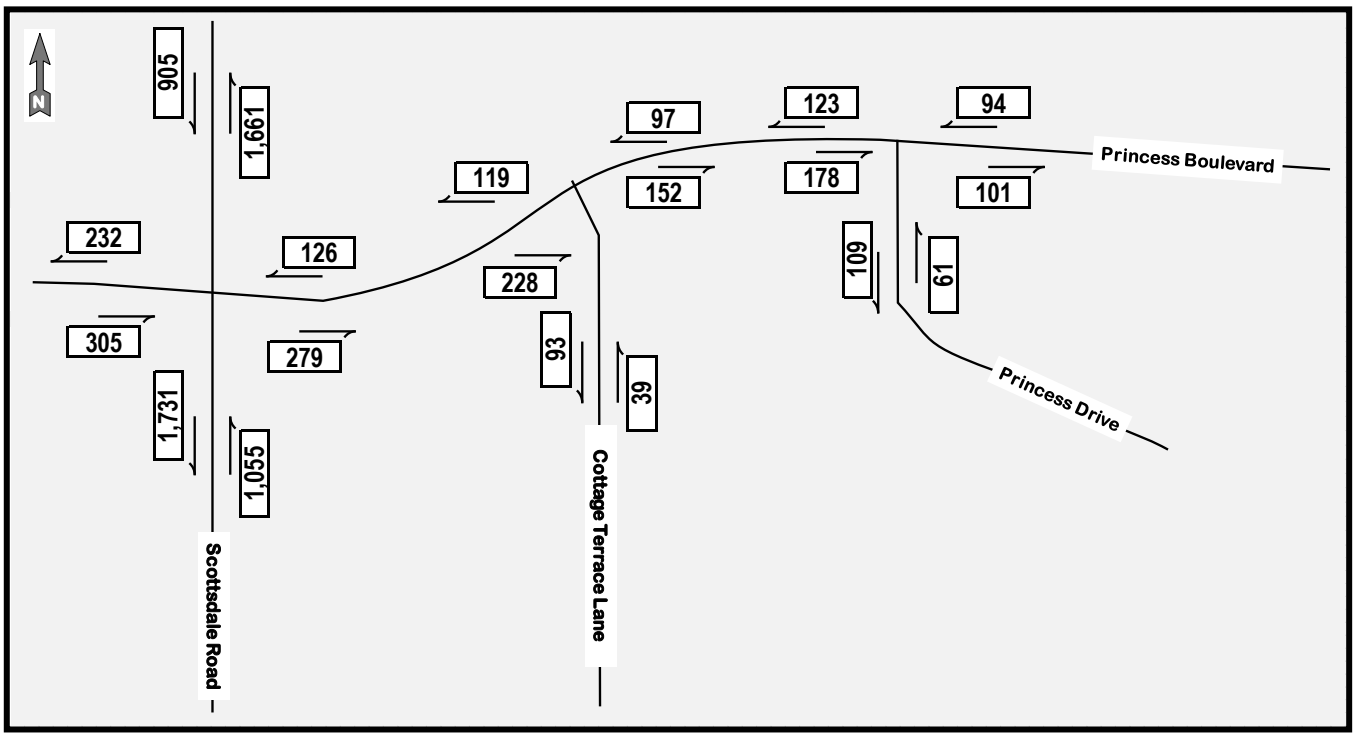



**Figure 5: 2022 AM Peak Hour Approach and Departure Volumes**

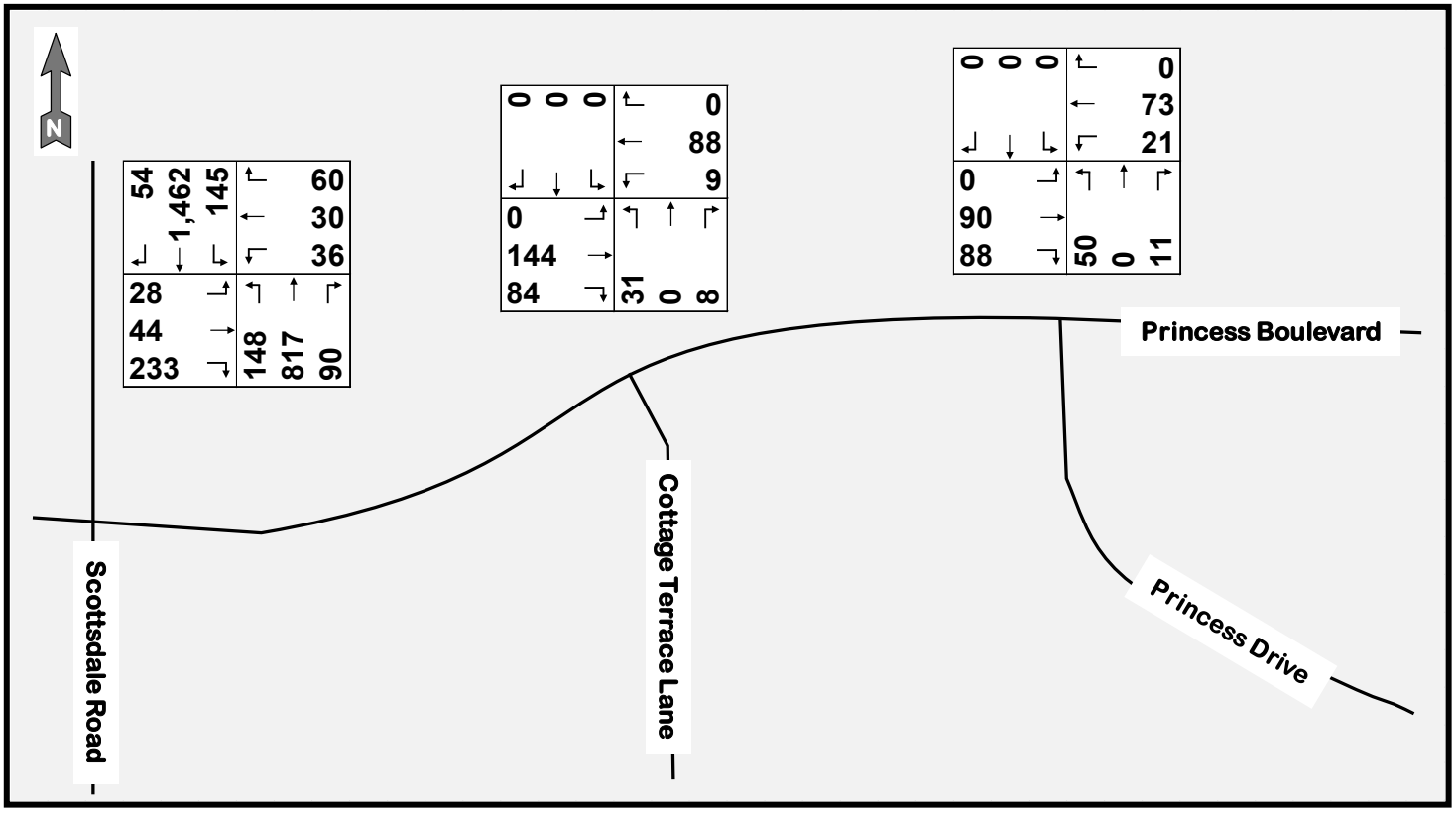



**Figure 6: 2022 AM Peak Hour Turning Volumes**

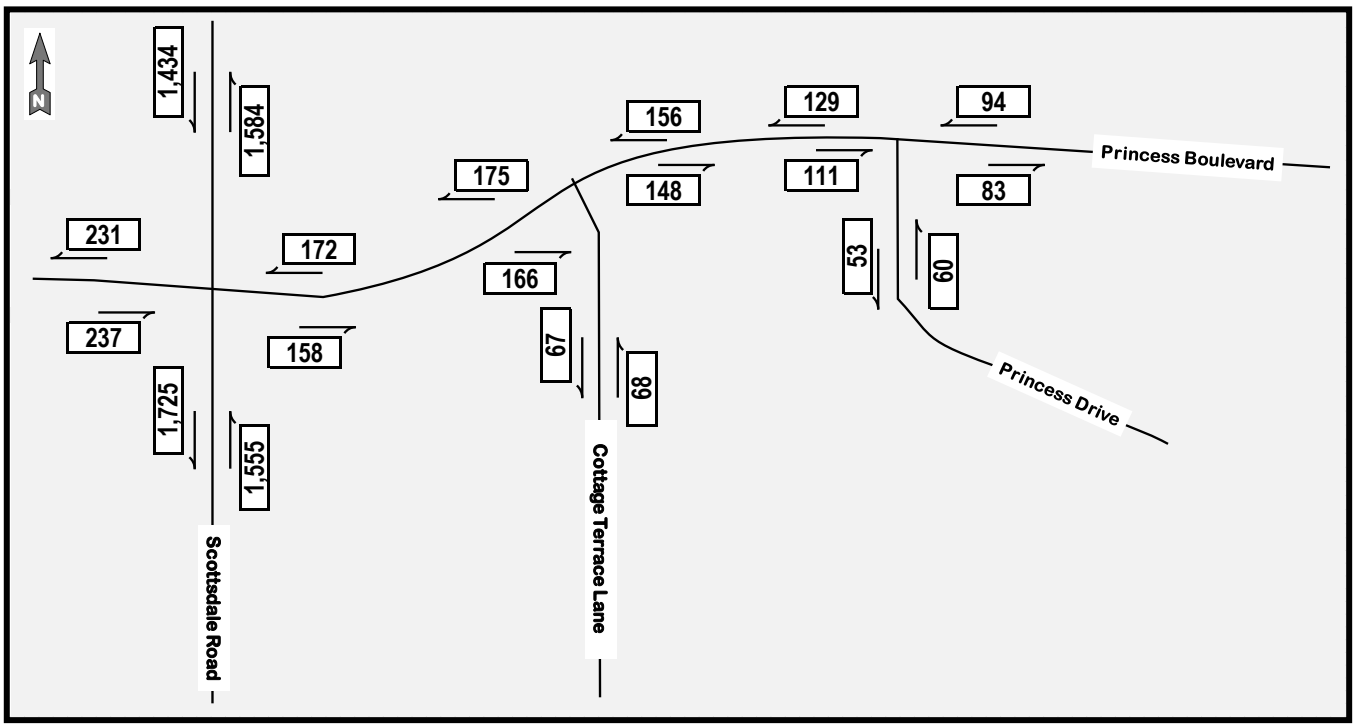



**Figure 7: 2022 MD Peak Hour Approach and Departure Volumes**

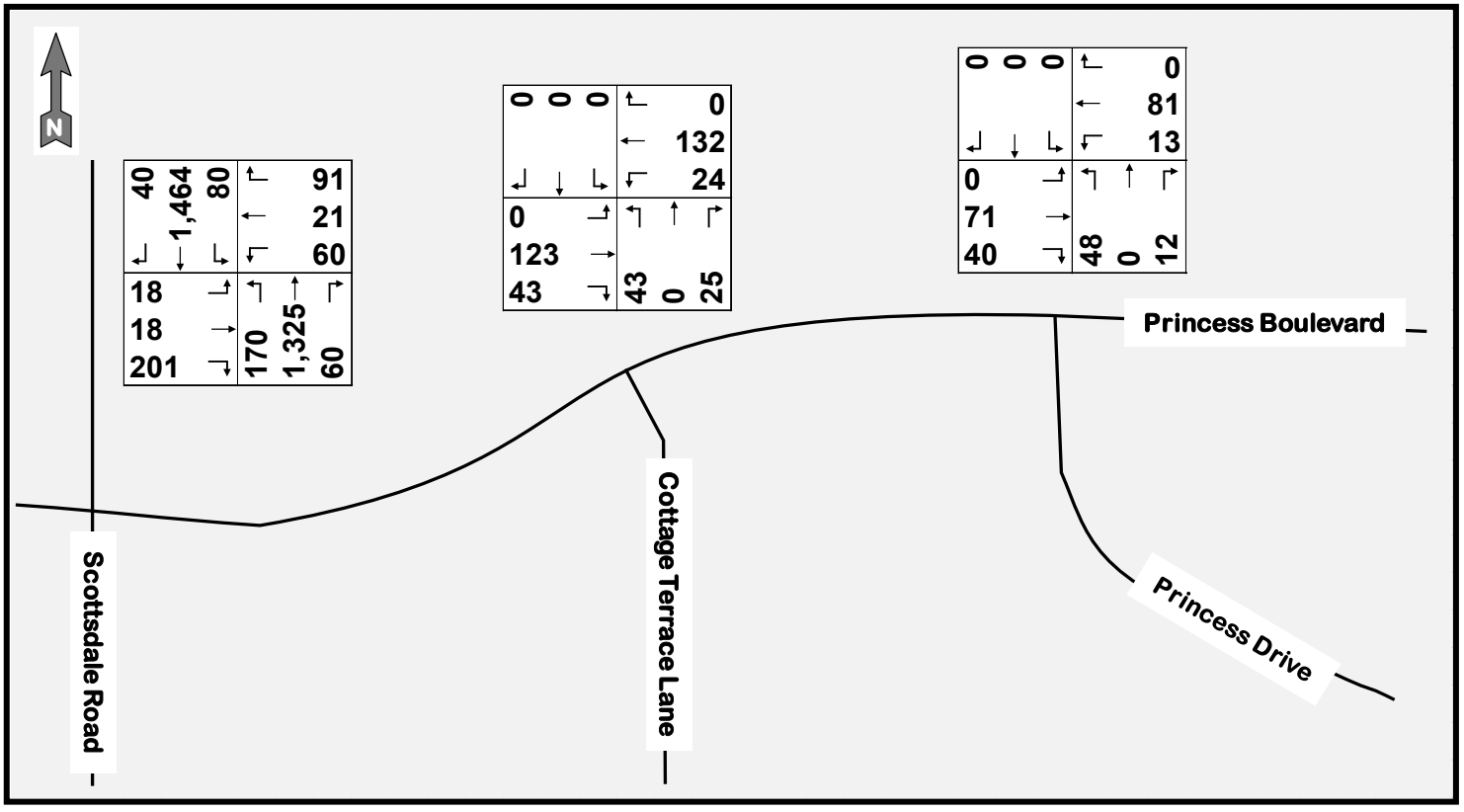



**Figure 8: 2022 MD Peak Hour Turning Volumes**

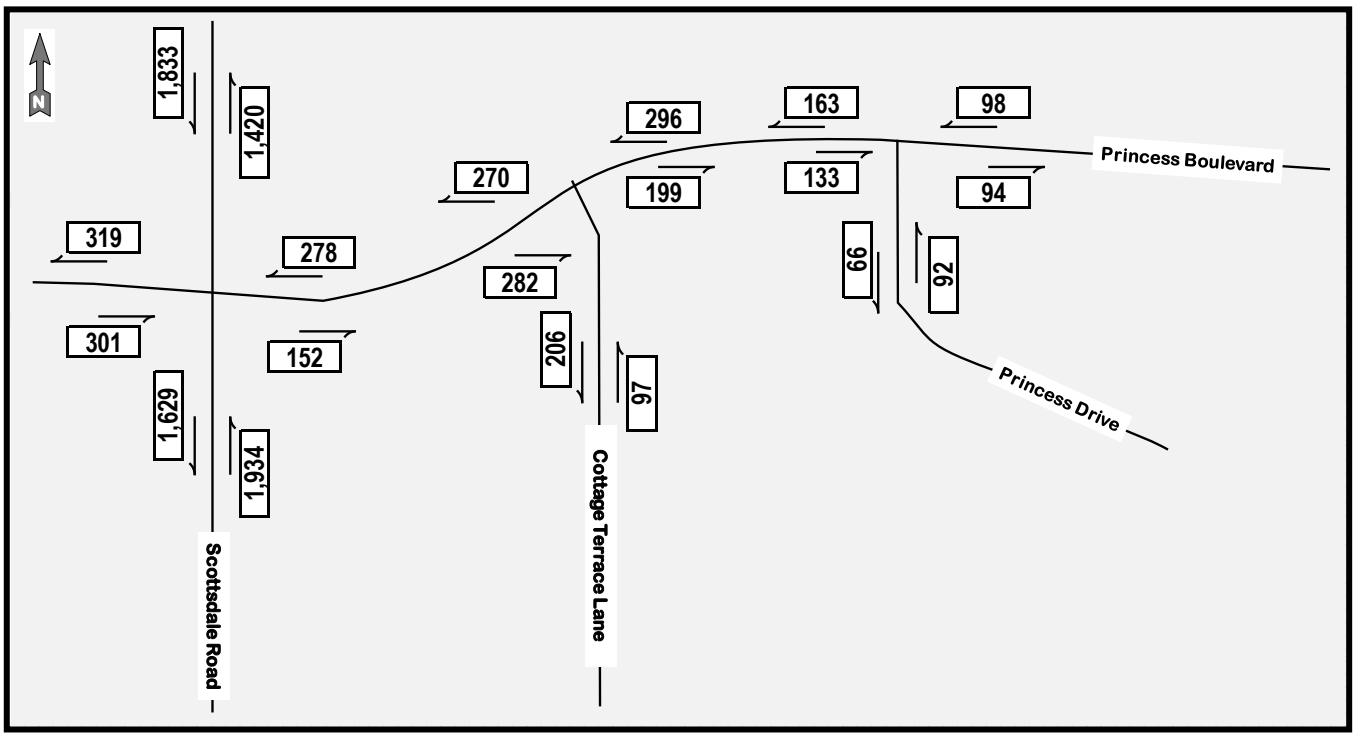



**Figure 9: 2022 PM Peak Hour Approach and Departure Volumes**

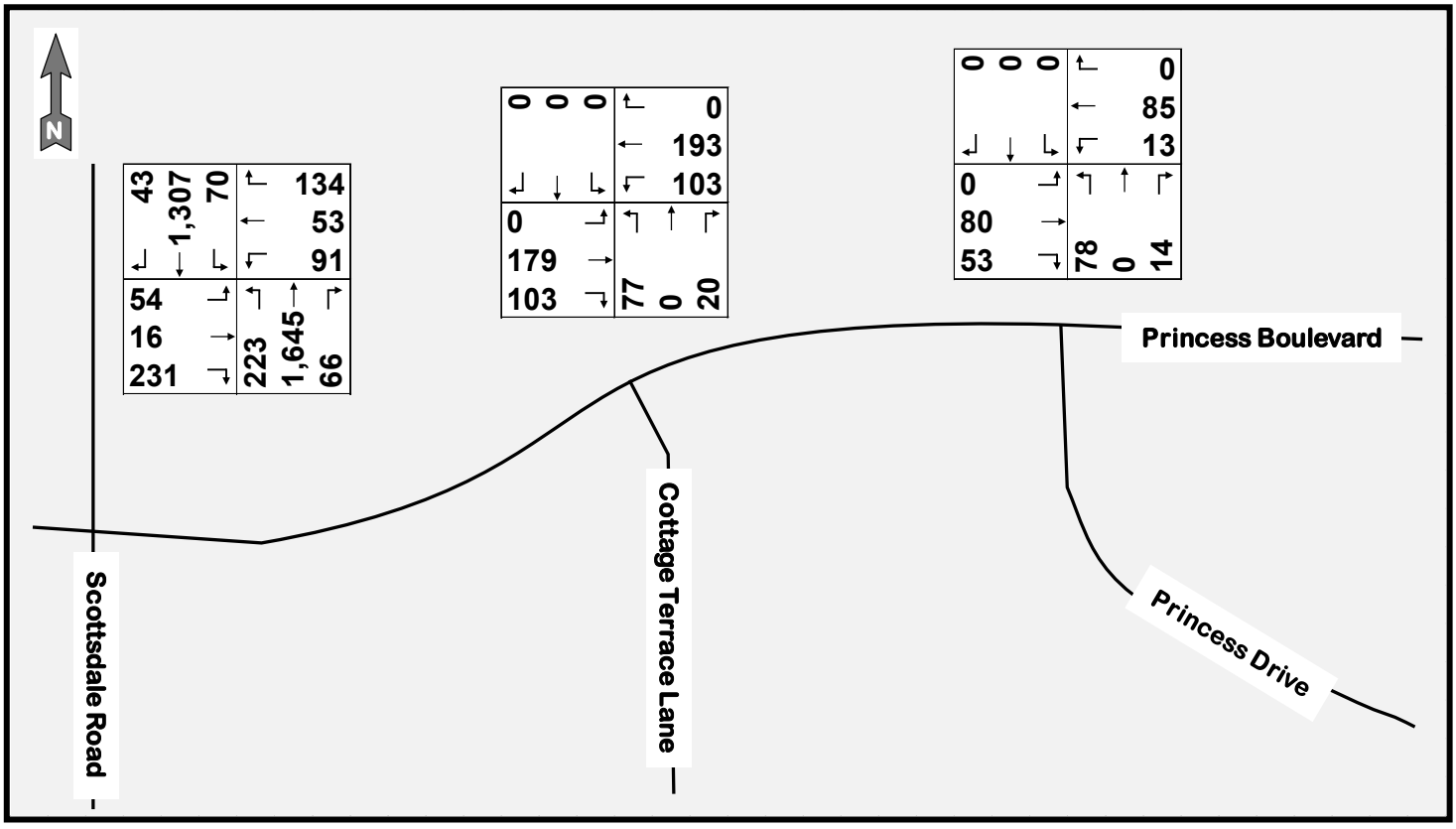



**Figure 10: 2022 PM Peak Hour Turning Volumes**

## *Future Ambient 2025 Volumes*

The City of Scottsdale estimates future traffic volumes in the vicinity of these intersections will increase by 2% exponentially annually through 2025. All volumes were approximated to the nearest or greater ten (10) vehicles-per-hour during the three (3) peak hours, and to the nearest 100 vehicles-per-day. Because other intersections exist between the Scottsdale / Princess and Cottage Terrace / Princess intersections, the approach and departure volumes of these two (2) intersections were not balanced to be equal. Because the new proposed restaurant access intersects with Princess Boulevard between the Cottage Terrace / Princess and Princess / Princess intersections, the approach and departure volumes of these two (2) intersections were balanced to be equal.

**Figure 11** provides the 2025 approach and departure volumes for the day. **Figure 12** and **Figure 13** respectively provide the 2025 approach and departure volumes, and the turning volumes for the morning peak hour. **Figure 14** and **Figure 15** respectively provide the 2025 approach and departure volumes, and the turning volumes for the mid-day peak hour. **Figure 16** and **Figure 17** respectively provide the 2025 approach and departure volumes, and the turning volumes for the evening peak hour.

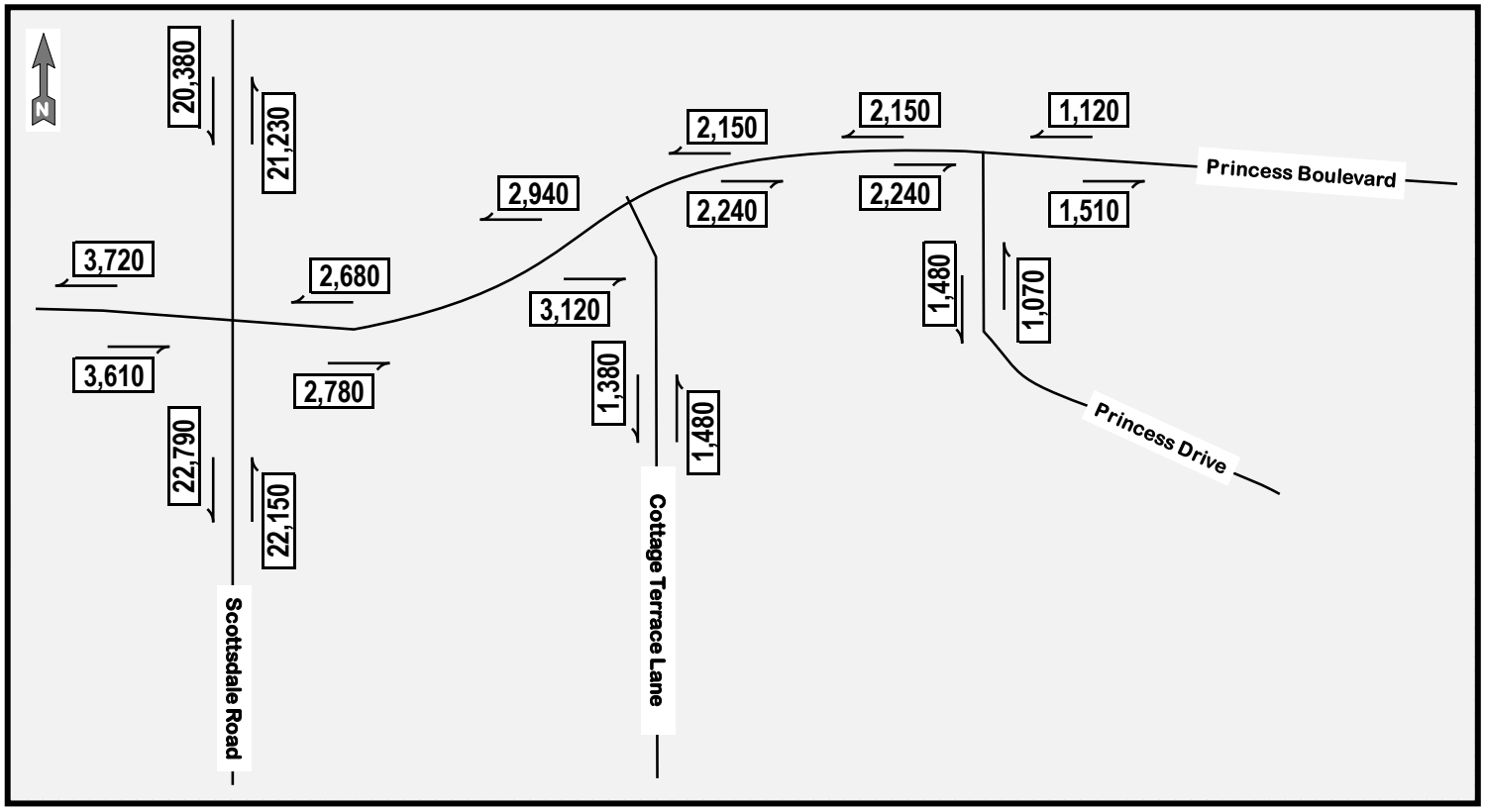



**Figure 11: 2025 Day Approach and Departure Volumes**

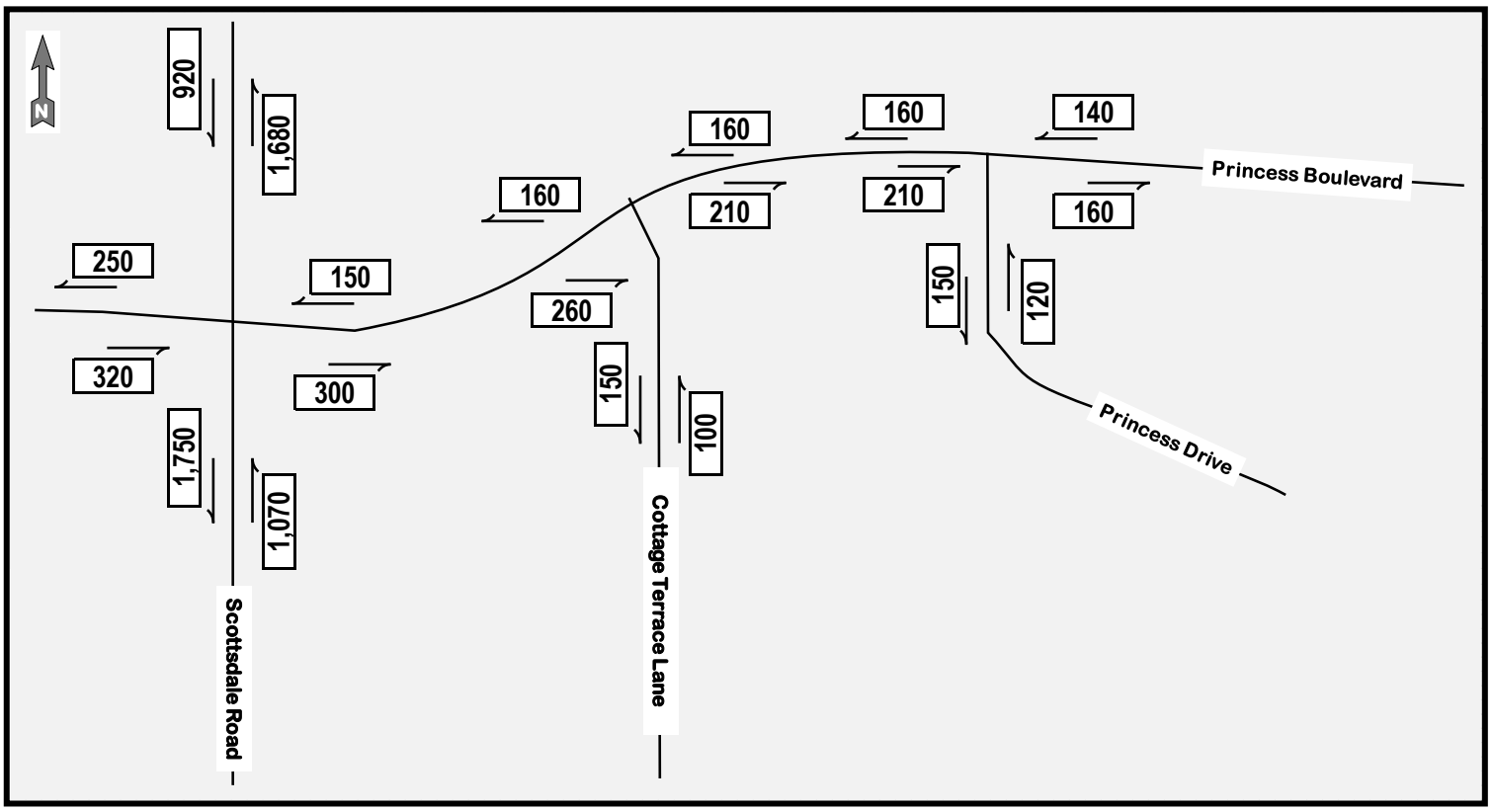



**Figure 12: 2025 AM Peak Hour Approach and Departure Volumes**

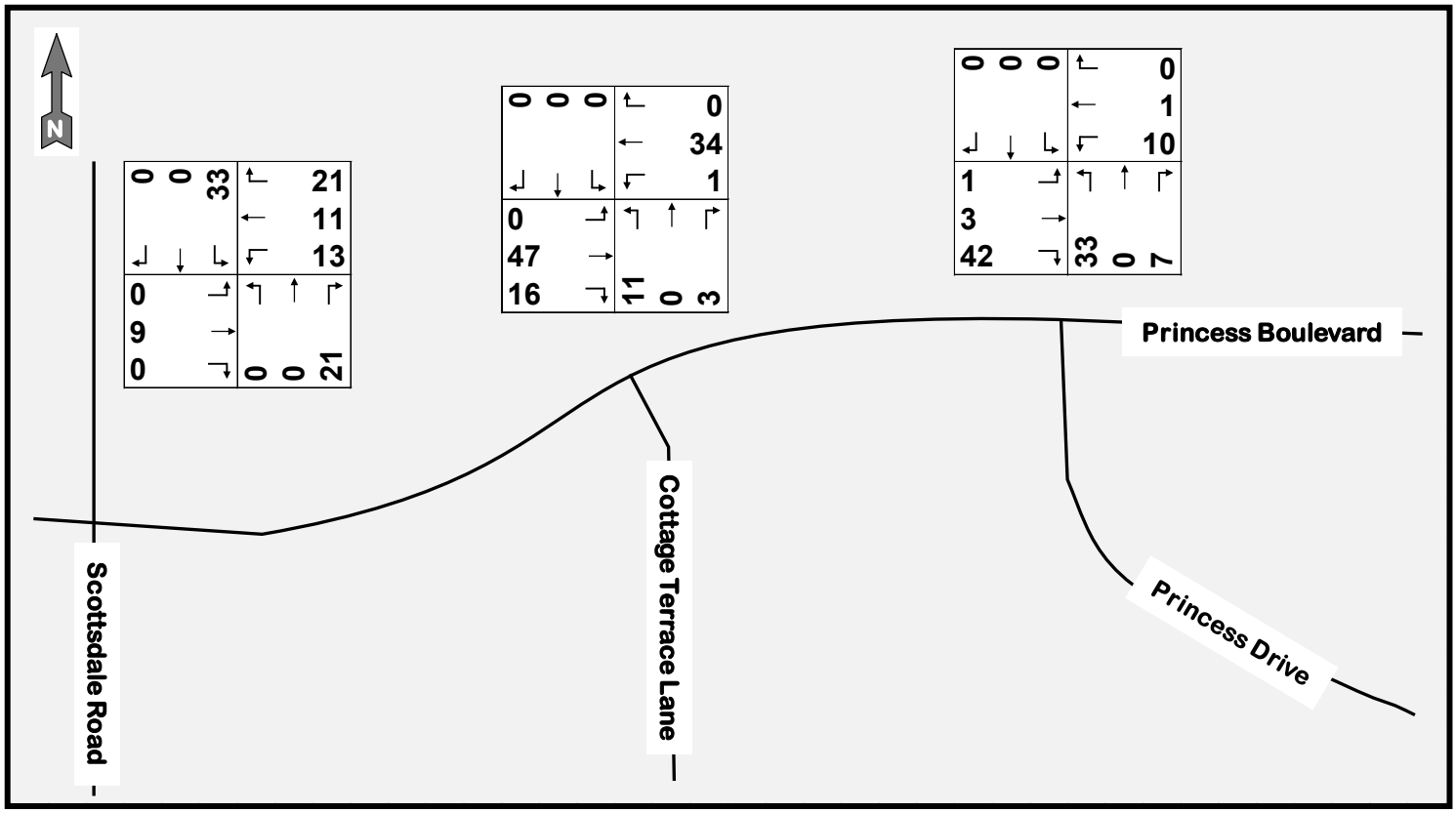



**Figure 13: Ambient 2025 AM Peak Hour Turning Movement Volumes**

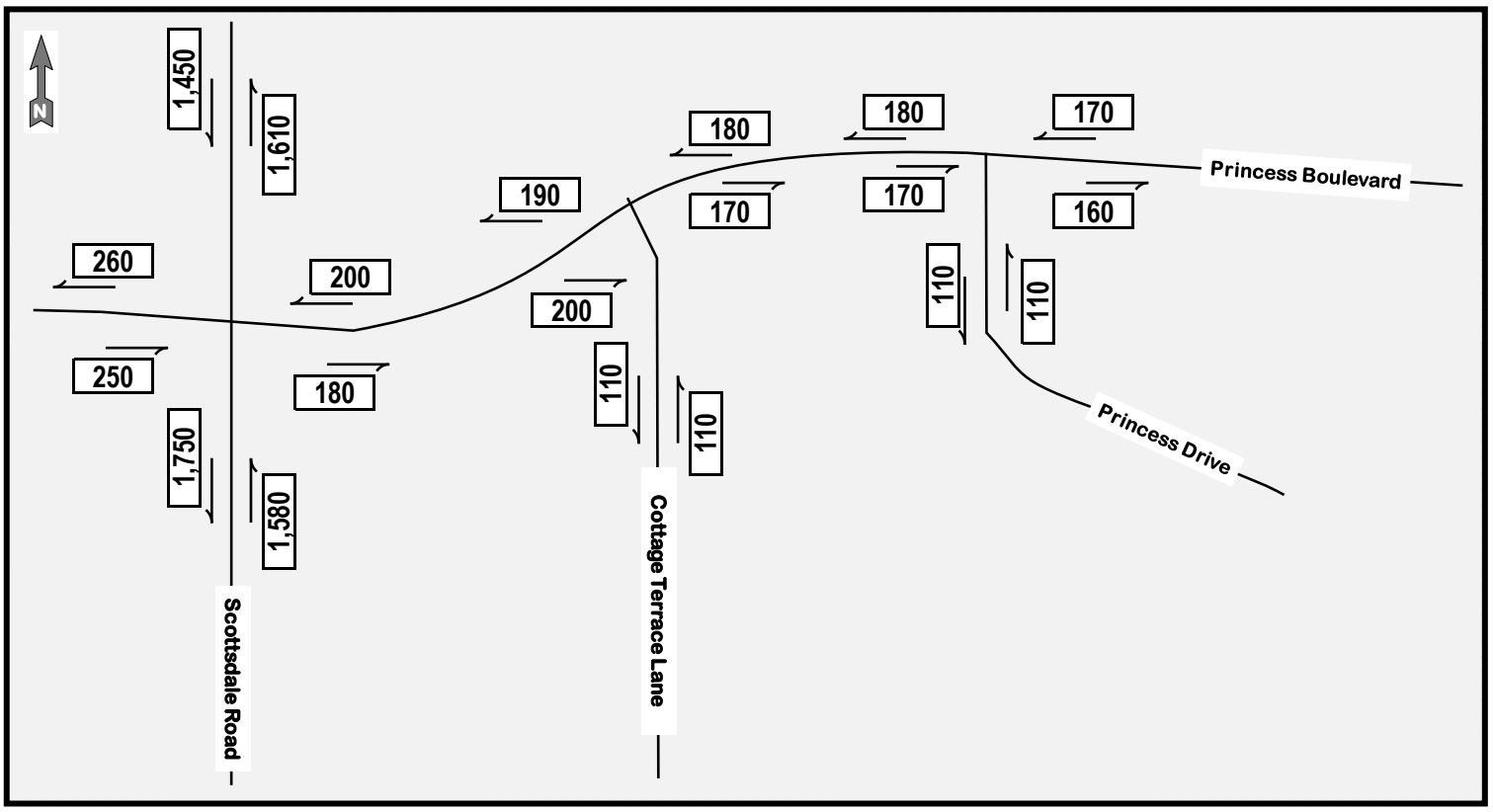



**Figure 14: 2025 MD Peak Hour Approach and Departure Volumes**

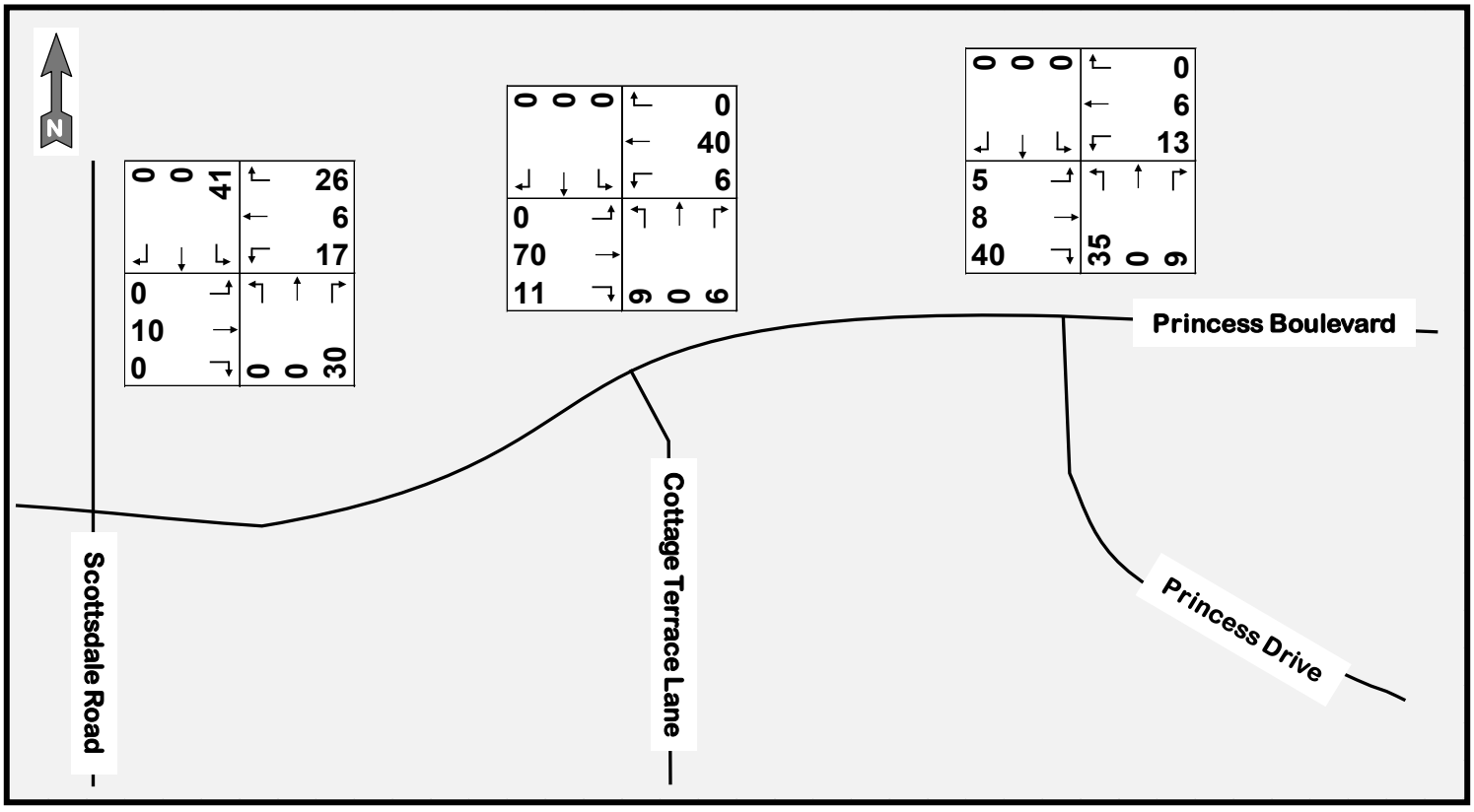



**Figure 15: Ambient 2025 MD Peak Hour Turning Movement Volumes**

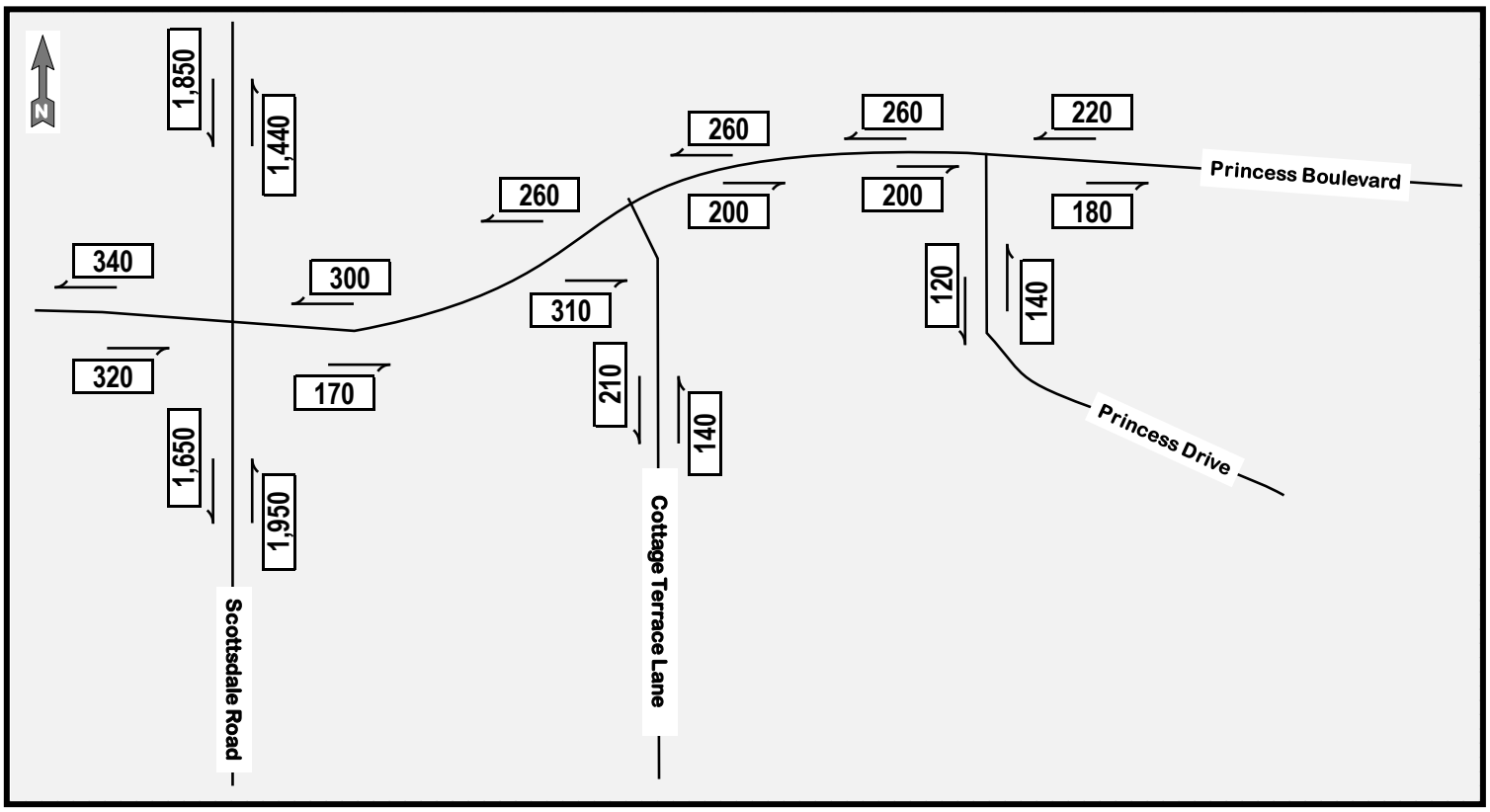



**Figure 16: 2025 PM Peak Hour Approach and Departure Volumes**

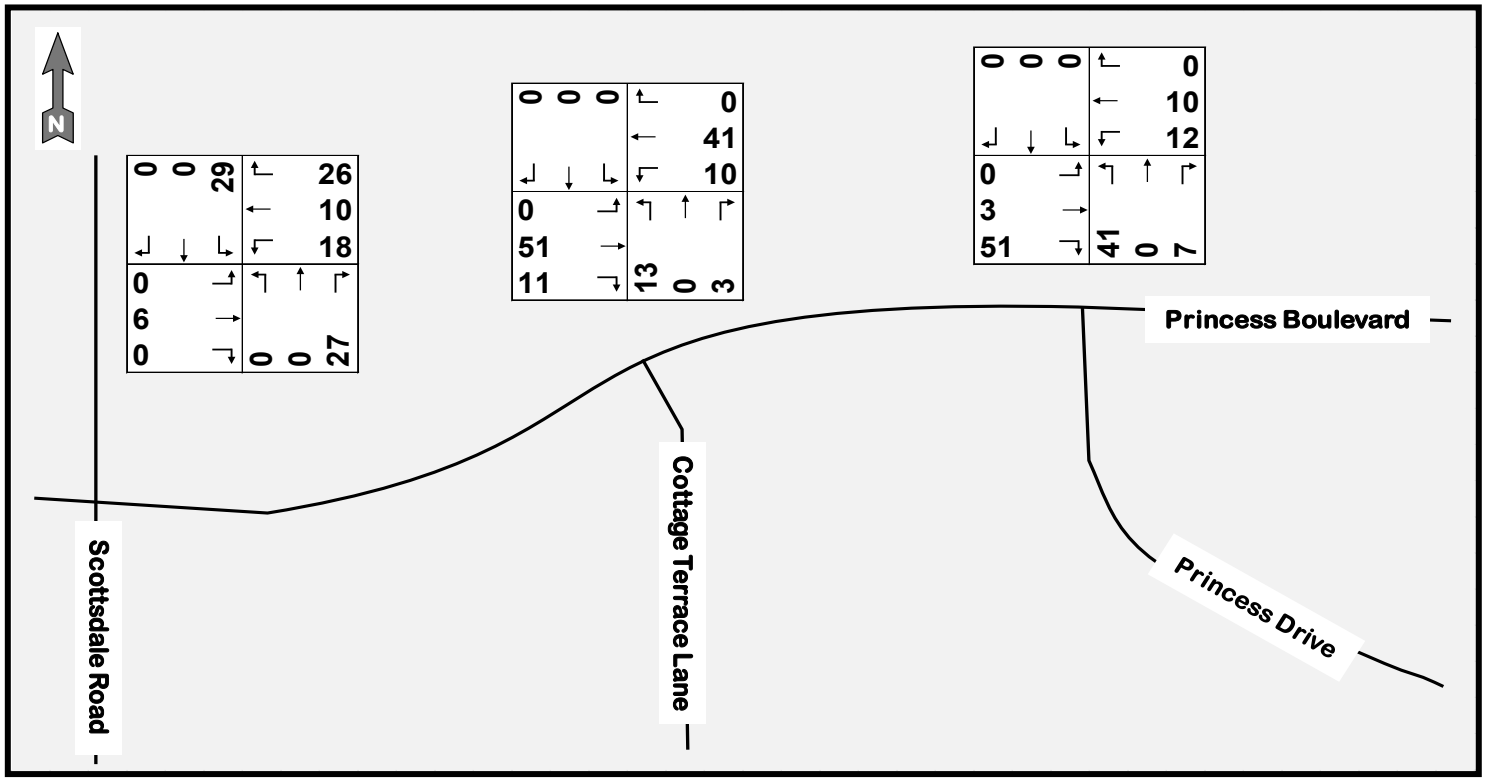



**Figure 17: 2025 PM Peak Hour Turning Movement Volumes**

## *Planned Maravilla Final Phase Traffic Volumes*

Immediately west of the proposed Fairmont Princess Expansion the third phase of the existing Maravilla independent living and congregate care facility has been approved. A memorandum of a trip generation and level-of-service analysis for this third phase was prepared and submitted dated 8 November 2021. The final phase and pertinent trip generation of this memorandum is provided in **Appendix C**. The trip generation from this analysis is summarized in **Table 14**.

**Table 14: Hourly Trip Generation Rates for Maravilla Final Phase**

| | FINAL PHASE OF 193 ADDITIONAL HOMES | | | | | |
|---|---|---|---|---|---|---|
| | Northbound | | Eastbound | | Westbound | |
| Time | Left | Right | Straight | Right | Straight | Left |
| 12:00 to 1:00 AM | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 to 2:00 AM | 1 | 0 | 0 | 0 | 0 | 0 |
| 2:00 to 3:00 AM | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 to 4:00 AM | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 to 5:00 AM | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 to 6:00 AM | 4 | 1 | 0 | 8 | 0 | 4 |
| 6:00 to 7:00 AM | 9 | 1 | 0 | 14 | 0 | 7 |
| 7:00 to 8:00 AM | 6 | 2 | 0 | 7 | 0 | 4 |
| 8:00 to 9:00 AM | 6 | 1 | 0 | 9 | 0 | 4 |
| 9:00 to 10:00 AM | 6 | 2 | 0 | 5 | 0 | 3 |
| 10:00 to 11:00 AM | 10 | 3 | 0 | 7 | 0 | 3 |
| 11:00 to 12:00 PM | 7 | 5 | 0 | 7 | 0 | 4 |
| 12:00 to 1:00 PM | 11 | 4 | 0 | 12 | 0 | 6 |
| 1:00 to 2:00 PM | 13 | 3 | 0 | 14 | 0 | 7 |
| 2:00 to 3:00 PM | 21 | 4 | 0 | 16 | 0 | 8 |
| 3:00 to 4:00 PM | 19 | 3 | 0 | 8 | 0 | 4 |
| 4:00 to 5:00 PM | 16 | 5 | 0 | 9 | 0 | 5 |
| 5:00 to 6:00 PM | 10 | 2 | 0 | 7 | 0 | 3 |
| 6:00 to 7:00 PM | 6 | 2 | 0 | 4 | 0 | 2 |
| 7:00 to 8:00 PM | 4 | 1 | 0 | 2 | 0 | 1 |
| 8:00 to 9:00 PM | 5 | 1 | 0 | 4 | 0 | 2 |
| 9:00 to 10:00 PM | 3 | 1 | 0 | 4 | 0 | 2 |
| 10:00 to 11:00 PM | 9 | 2 | 0 | 4 | 0 | 2 |
| 11:00 to 12:00 AM | 4 | 0 | 0 | 1 | 0 | 1 |
| TOTAL | 170 | 43 | 0 | 142 | 0 | 72 |

## *Proposed Fairmont Princess Expansion Estimated Trip Generation*

The estimated trip generation for the proposed Fairmont Princess Expansion was determined through the procedures and data contained within the Institute of Transportation Engineers *Trip Generation Manual*, *11th Edition*, published in 2021. This document provides traffic volume data from existing developments throughout the United States and Canada, from 1980 through 2021, that can be utilized to estimate trips from proposed developments. The traffic data are provided for 179 land use categories separated into 10 major land use categories. The estimated traffic volume is dependent upon independent variables defined by the characteristics and size of each land use category. Data are typically provided for five (5) weekday time periods and four (4) weekend time periods.

A primary purpose of the expansion is to increase the available conference and meeting room area to become commensurate with the existing and proposed hotel guest room number. The existing Fairmont Princess Resort includes 751 hotel guest rooms; and 61,577 square feet of ballroom, conference rooms, and meeting rooms. The planned expansion includes an additional 198 hotel guest rooms and 35,000 square feet of conference and meeting rooms. The expanded hotel will include 949 hotel guest rooms; and 96,577 square feet of ballroom, conference rooms, and meeting rooms. The ratio of existing conference and meeting room area to hotel guest room number is approximately 82 square feet-per-hotel-room. With the expansion, this ratio will become approximately 102 square feet-per-hotel-room.

The hotel land use category, code 310, was utilized for this analysis. Three (3) additional categories were considered: All Suites Hotel, code 311; Business Hotel, code 312; and Resort Hotel, code 330. The Scottsdale Fairmont Princess serves multiple functions including leisure, conferences, and events. Its reputation is as a resort hotel. However, the *Trip Generation Manual* description of resort hotel specifically excludes conference and meeting rooms. The Scottsdale Fairmont Princess Resort has conference and meeting rooms, the largest of which is also utilized as a ballroom. Recognizing that one of the primary purposes of the expansion is to provide additional conference and meeting room area to support both the existing hotel room number and the expanded room number, Hotel code 310 is appropriate. Additionally, of the four (4) categories, Hotel code 310, has the highest trip generation rates. **Appendix D** provides the complete hotel trip generation calculations. **Table 15** summarizes the hotel trip generation.

**Table 15: Trip Generation Rates for Fairmont Princess Resort Hotel Guest Rooms**

| | AVERAGE RATE | | | FITTED EQUATION | | | MAXIMUM | | |
|---|---|---|---|---|---|---|---|---|---|
| TIME PERIOD | IN | OUT | TOTAL | IN | OUT | TOTAL | IN | OUT | TOTAL |
| WEEKDAY | 1,211 | 1,211 | 2,422 | 327 | 327 | 654 | 1,211 | 1,211 | 2,422 |
| AM PEAK HOUR STREET | 69 | 54 | 123 | 18 | 15 | 33 | 69 | 54 | 123 |
| AM PEAK HOUR GENERATOR | 70 | 59 | 129 | 30 | 25 | 55 | 70 | 59 | 129 |
| PM PEAK HOUR STREET | 71 | 74 | 145 | 36 | 37 | 73 | 71 | 74 | 145 |
| PM PEAK HOUR GENERATOR | 83 | 62 | 145 | 46 | 34 | 80 | 83 | 62 | 145 |
| SATURDAY | 995 | 995 | 1,990 | 28 | 27 | 55 | 995 | 995 | 1,990 |
| PEAK HOUR GENERATOR | 80 | 86 | 166 | 31 | 30 | 61 | 80 | 86 | 166 |
| SUNDAY | 775 | 775 | 1,550 | 28 | 27 | 55 | 775 | 775 | 1,550 |
| PEAK HOUR GENERATOR | 74 | 65 | 139 | 29 | 29 | 58 | 74 | 65 | 139 |

The Fine Dining restaurant land use category, code 931, was utilized for the restaurant, as this is the most appropriate restaurant category. To remain conservative, the entire restaurant area – including the indoor dining area, the outdoor dining area, the kitchen, and all ancillary areas were included. As the restaurant will be part of the Scottsdale Fairmont Princess resort, the clientele was assumed to be 50% guests on other parts of the property, and 50% from off-property. **Appendix D** provides the complete restaurant trip generation calculations. **Table 16** summarizes the restaurant trip generation. For purposes of trip generation determination, the restaurant area was assumed to be 8,250 square feet – equal to one-half the total 16,500 square feet.

**Table 16: Trip Generation Rates for Fairmont Princess Restaurant**

| | ENTERING | EXITING | TOTAL |
|---|---|---|---|
| ***WEEKDAY*** DAILY | 346 | 346 | 692 |
| AM PEAK HOUR STREET | 5 | 1 | 6 |
| AM PEAK HOUR GENERATOR | 30 | 7 | 37 |
| PM PEAK HOUR STREET | 43 | 21 | 64 |
| PM PEAK HOUR GENERATOR | 41 | 27 | 68 |
| ***SATURDAY*** *DAILY* | 372 | 371 | 743 |
| PEAK HOUR GENERATOR | 52 | 36 | 88 |
| ***SUNDAY*** *DAILY* | 297 | 297 | 594 |
| PEAK HOUR GENERATOR | 40 | 24 | 64 |

**Table 17** provides the sum of the hotel and restaurant trip generation.

**Table 17: Trip Generation Rates for Fairmont Princess Hotel Rooms and Restaurant Expansion**

| | ENTERING | EXITING | TOTAL |
|---|---|---|---|
| ***WEEKDAY*** DAILY | 1,557 | 1,557 | 3,114 |
| AM PEAK HOUR STREET | 74 | 55 | 129 |
| AM PEAK HOUR GENERATOR | 100 | 66 | 166 |
| PM PEAK HOUR STREET | 114 | 95 | 209 |
| ***SATURDAY*** *DAILY* | 1,367 | 1,366 | 2,733 |
| ***SUNDAY*** *DAILY* | 1,072 | 1,072 | 2,144 |

The peak hour of adjacent street was utilized for both the morning and the evening peak hours. These are common time periods for the two uses of hotel and restaurant as well as the street system. The peak hours of generator are different for hotels compared to restaurants. For the mid-day peak hour, the morning peak hour of generator was utilized for both the hotel and the restaurant, as the morning peak 60-minutes of the Scottsdale / Princess and Cottage / Princess intersections was late morning.

All of the coffee shop (Roasterie) traffic is assumed to be guests of other functions on the Scottsdale Fairmont Princess property or residents within walking distance. As stated previously and indicated in **Figure 2**, the Roasterie is deep within the resort, behind other buildings, and generally difficult to access from a road. **Figure 18** provides an aerial photograph of the Roasterie location, indicating the absence of parking spaces in the vicinity. Therefore, only guests otherwise on the Scottsdale Fairmont Princess Resort property, or nearby residents will frequent the Roasterie. The Roasterie will not generate additional vehicle traffic.


**Figure 18: Fairmont Princess Expansion Coffee Shop (Roasterie)**

## *Proposed Fairmont Princess Expansion Estimated Traffic Assignment*

The expansion will include a reconfiguration of the parking area immediately south of Princess Boulevard, between Cottage Terrace Lane and Princess Drive. The modified parking area will include access to both Cottage Terrace Lane and Princess Drive. Because the new parking structure will be east of Princess Drive, and the Princess Drive intersection with Princess Boulevard is an efficient roundabout, 75% of the new hotel traffic was assigned to Princess Drive and 25% of the new hotel traffic was assigned to Cottage Terrace Lane.

For the new restaurant traffic, a new right-turn-in-right-turn-out access is provided with Princess Boulevard approximately 300 feet east of the Cottage Terrace Lane intersection with Princess Boulevard. All the entering restaurant traffic and all the exiting restaurant traffic was assumed to utilize this access. Of the exiting restaurant traffic, 70% was assumed to travel east to the Princess / Princess roundabout and accomplish an eastbound-to-westbound U-turn to travel westbound on Princess Boulevard to the Scottsdale / Princess intersection. The remaining 30% of the restaurant traffic was assumed to continue eastbound through the Princess / Princess roundabout to either hotels and multi-family homes or to Hayden Road.

The Princess Expansion turning movements at each of the three (3) study intersections during the three (3) peak hours was assumed to be equal to the existing turning movement percentages at each of the study intersections. The new hotel and conference room traffic volumes were assumed to travel only through eastbound and westbound at the Cottage Terrace / Princess intersection.

**Figure 19** through **Figure 25** provide the Scottsdale Fairmont Princess Expansion traffic volumes respectively for the day approach and departure, morning peak hour approach and departure, morning peak hour turning movements, mid-day peak hour approach and departure, mid-day peak hour turning movements, evening peak hour approach and departure, and evening peak hour turning movements.

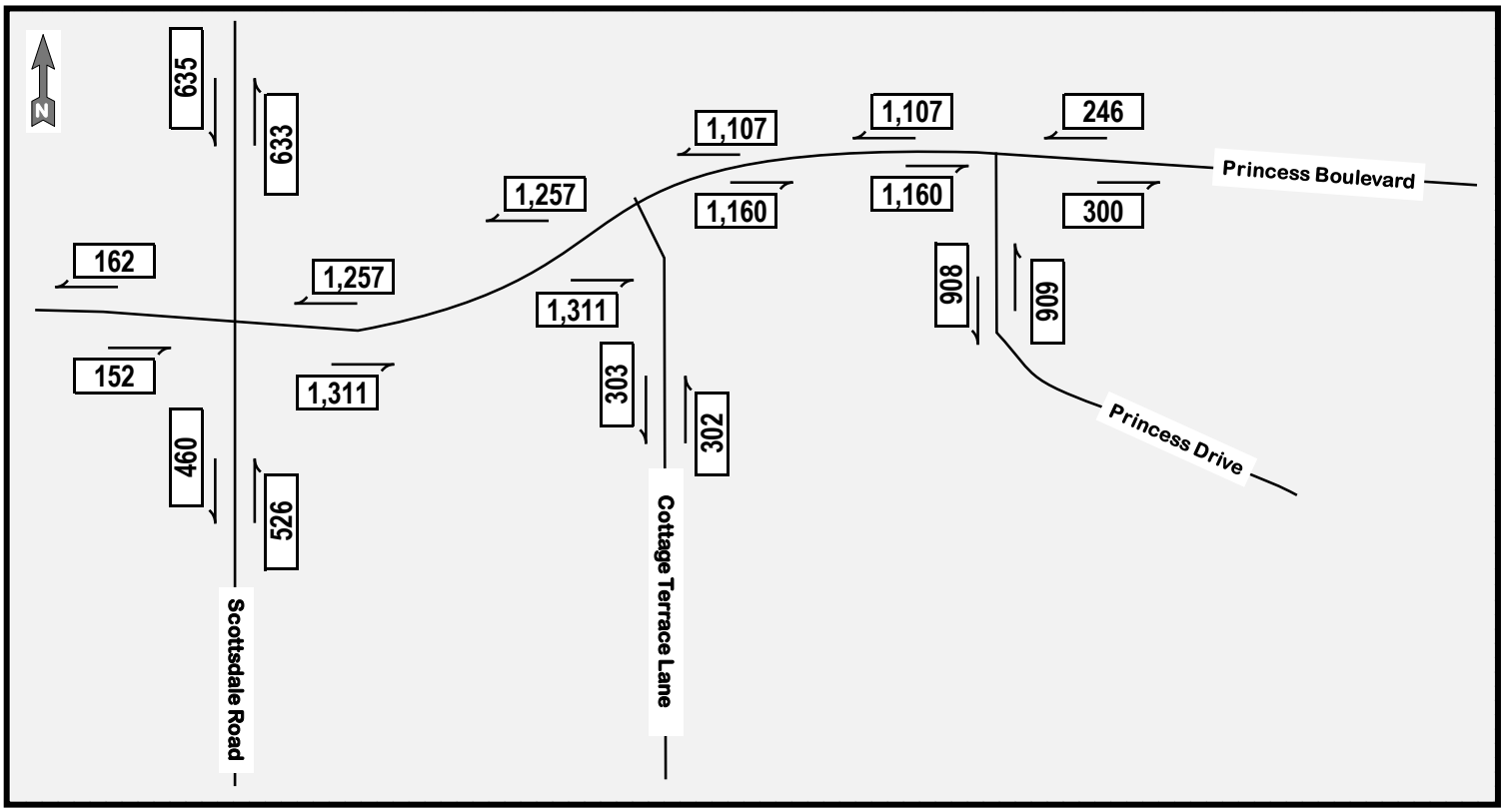



**Figure 19: Fairmont Princess Expansion Approach and Departure Volumes Day**

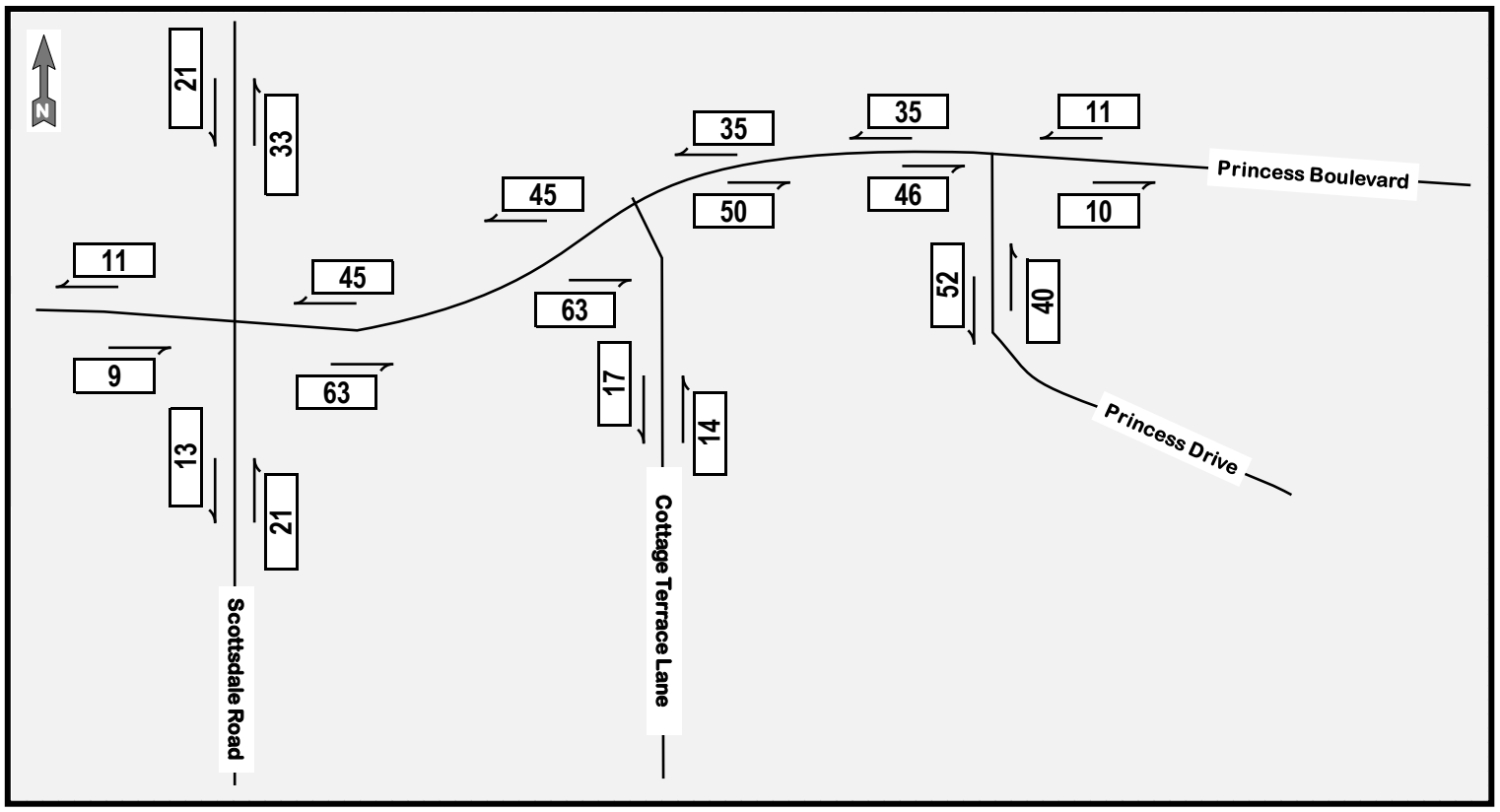



**Figure 20: Fairmont Princess Expansion Approach and Departure Volumes Morning Peak Hour**

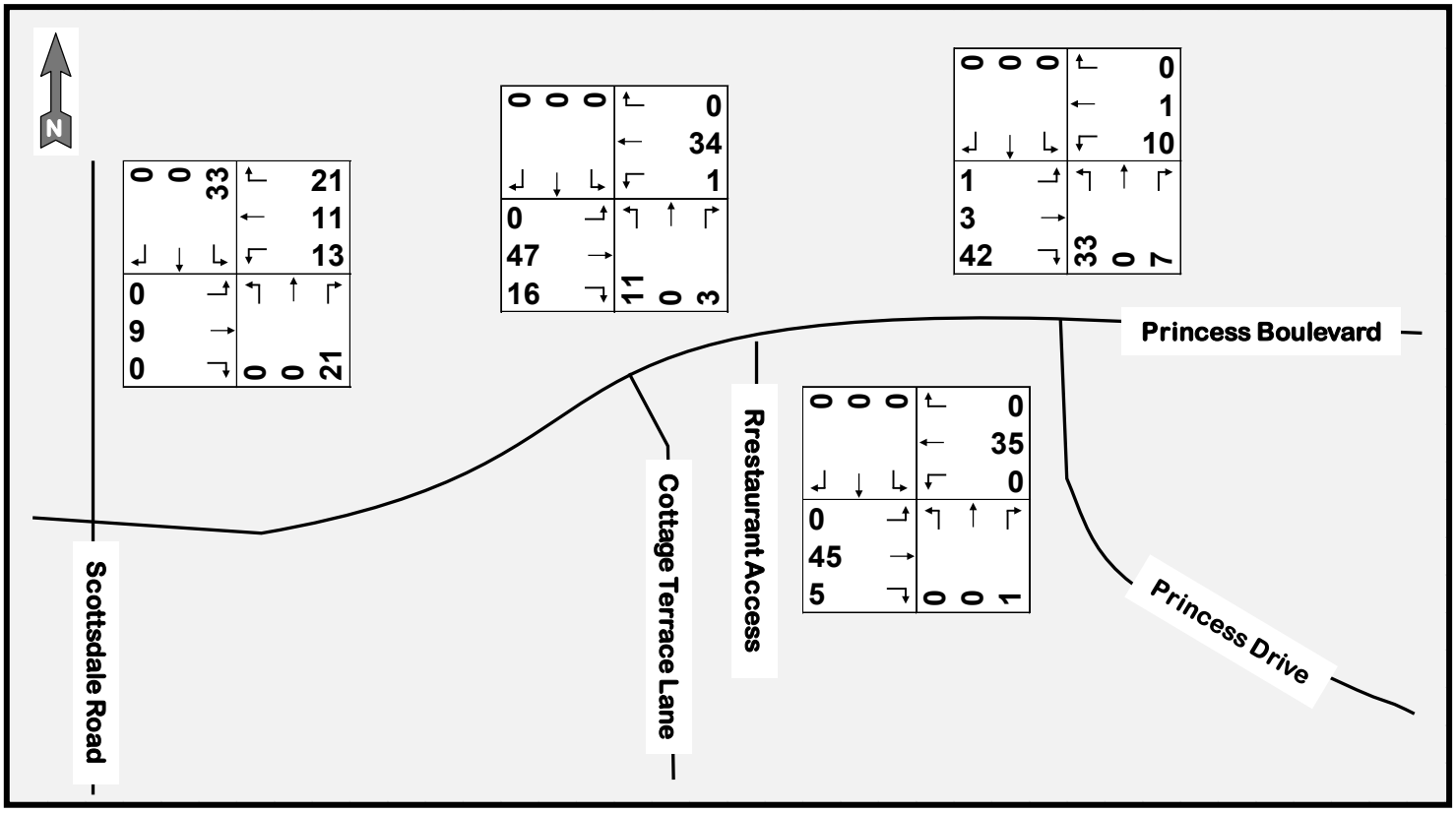



**Figure 21: Fairmont Princess Expansion Turning Volumes Morning Peak Hour**

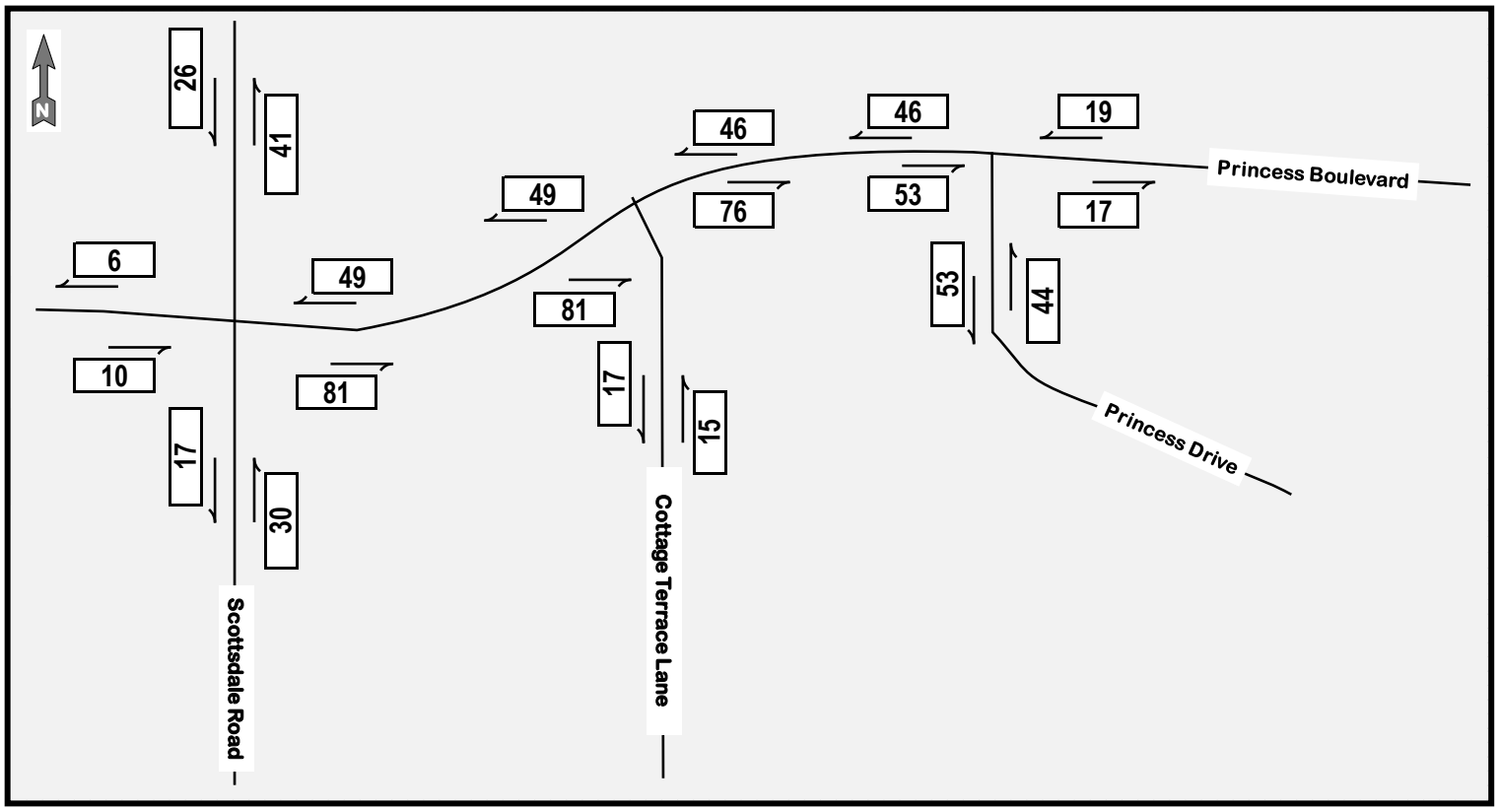



**Figure 22: Fairmont Princess Expansion Approach and Departure Volumes Mid-day Peak Hour**

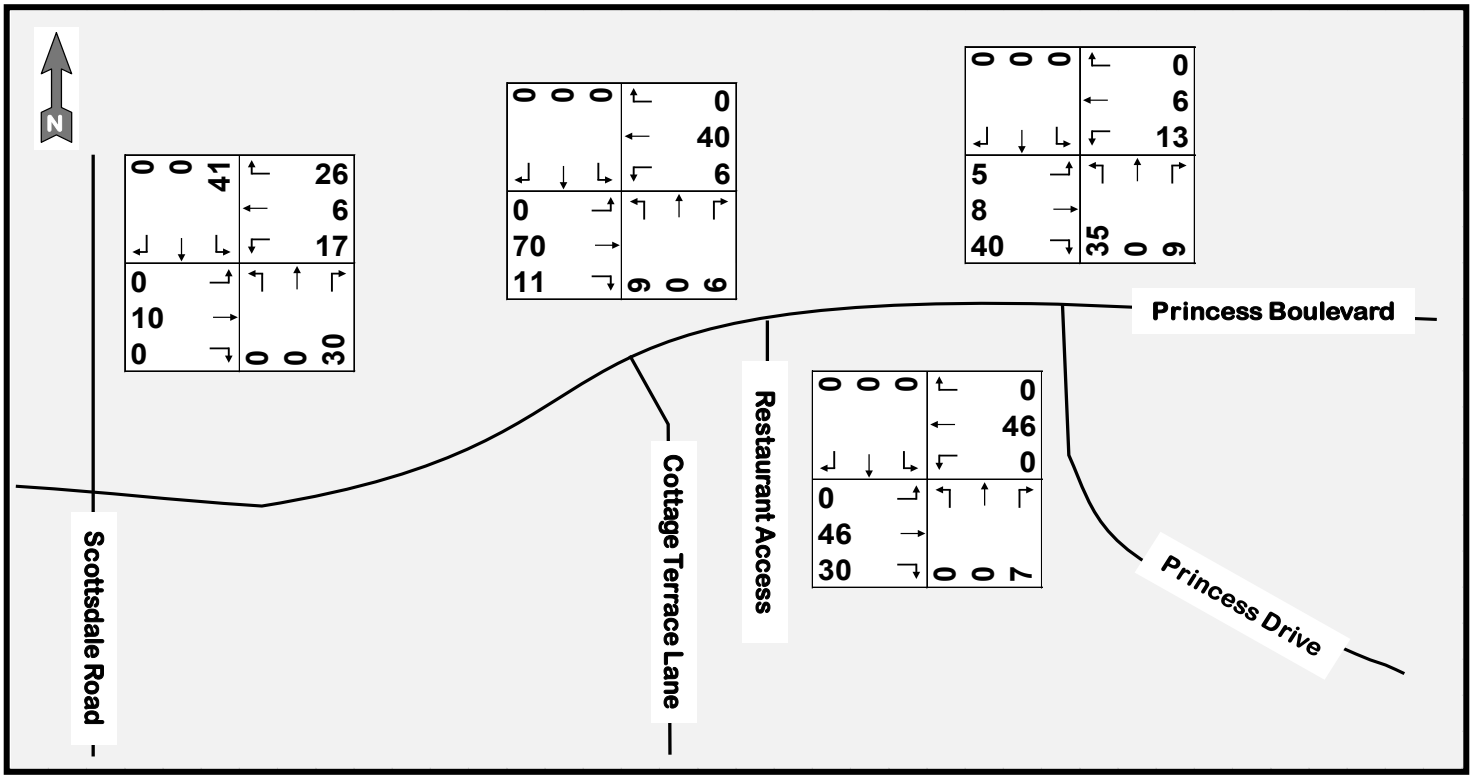



**Figure 23: Fairmont Princess Expansion Turning Volumes Mid-day Peak Hour**

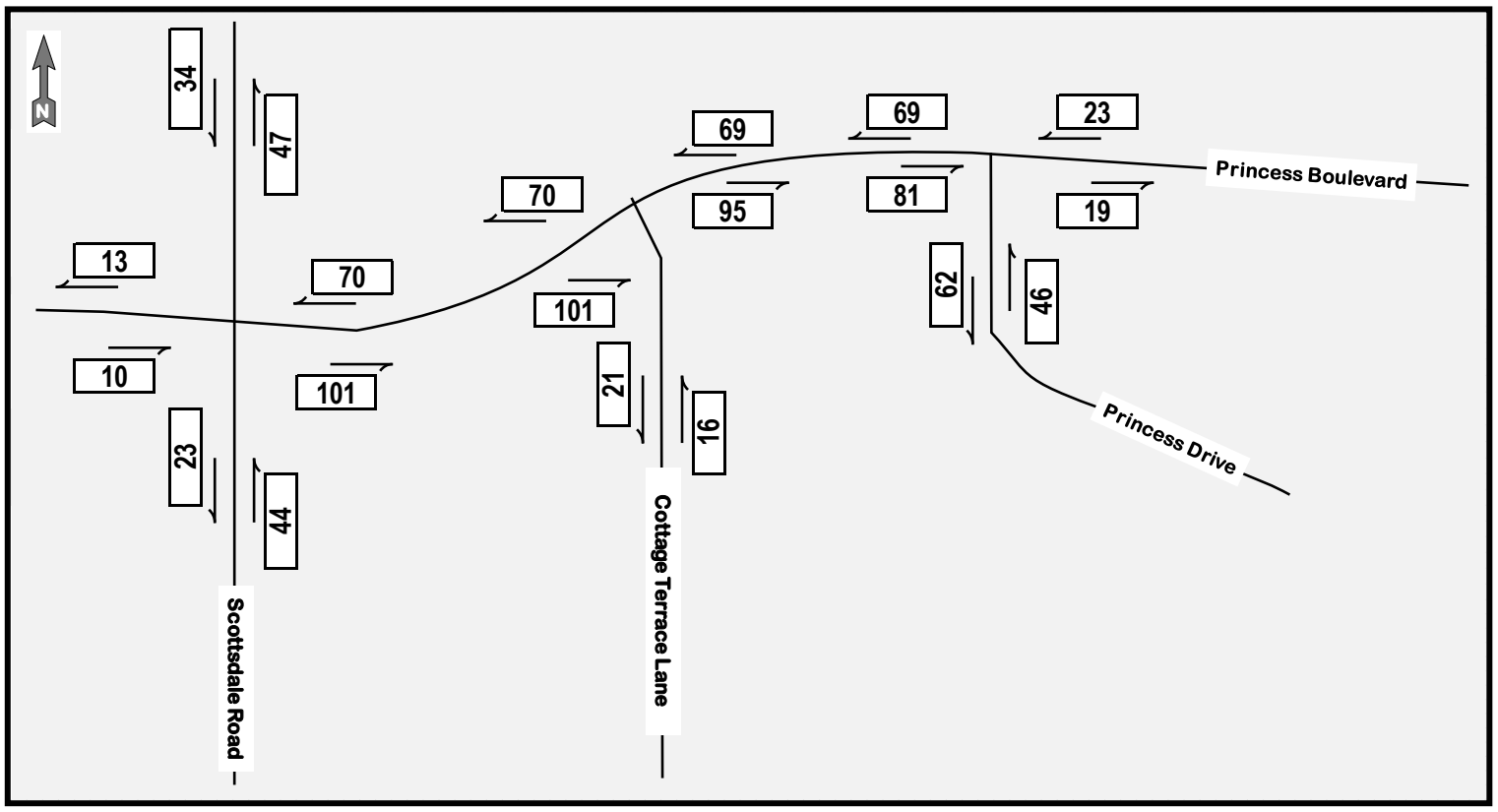



**Figure 24: Fairmont Princess Expansion Approach and Departure Volumes Evening Peak Hour**

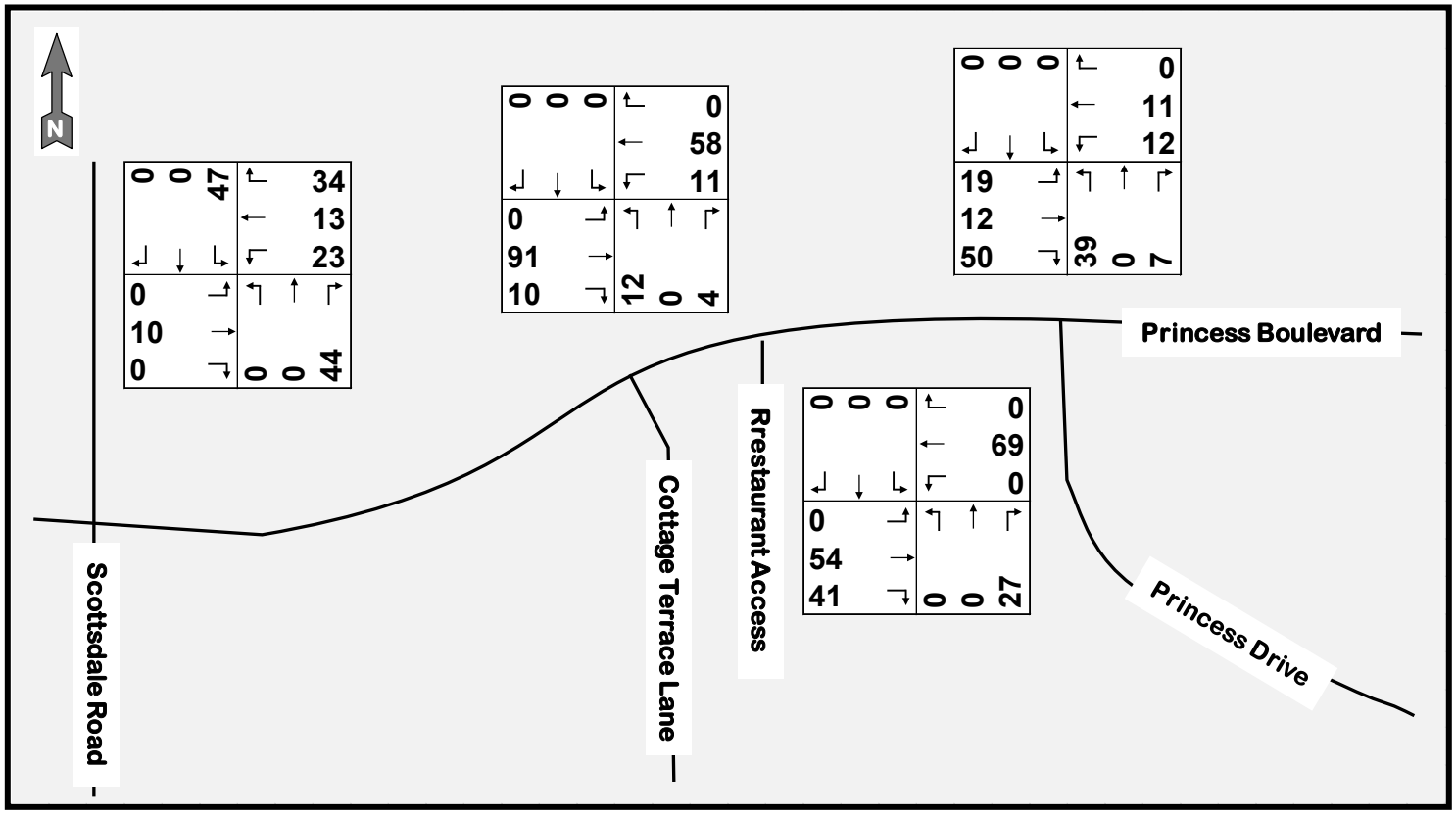



**Figure 25: Fairmont Princess Expansion Turning Volumes Evening Peak Hour**

The ambient 2025 traffic volumes plus Maravilla Final phase traffic volumes plus the Scottsdale Fairmont Princess Expansion traffic volumes are provided in **Figure 26** through **Figure 32** for the day approach and departure, morning peak hour approach and departure, morning peak hour turning movements, mid-day peak hour approach and departure, mid-day peak hour turning movements, evening peak hour approach and departure, and evening peak hour turning movements.

The peak hour volumes for the Maravilla final phase were determined from the trip generation in **Table 14**. The highest morning peak hour of 6:00 to 7:00 AM, the highest mid-day peak hour of noon to 1:00 PM, and the highest evening peak hour of 4:00 to 5:00 PM were utilized.

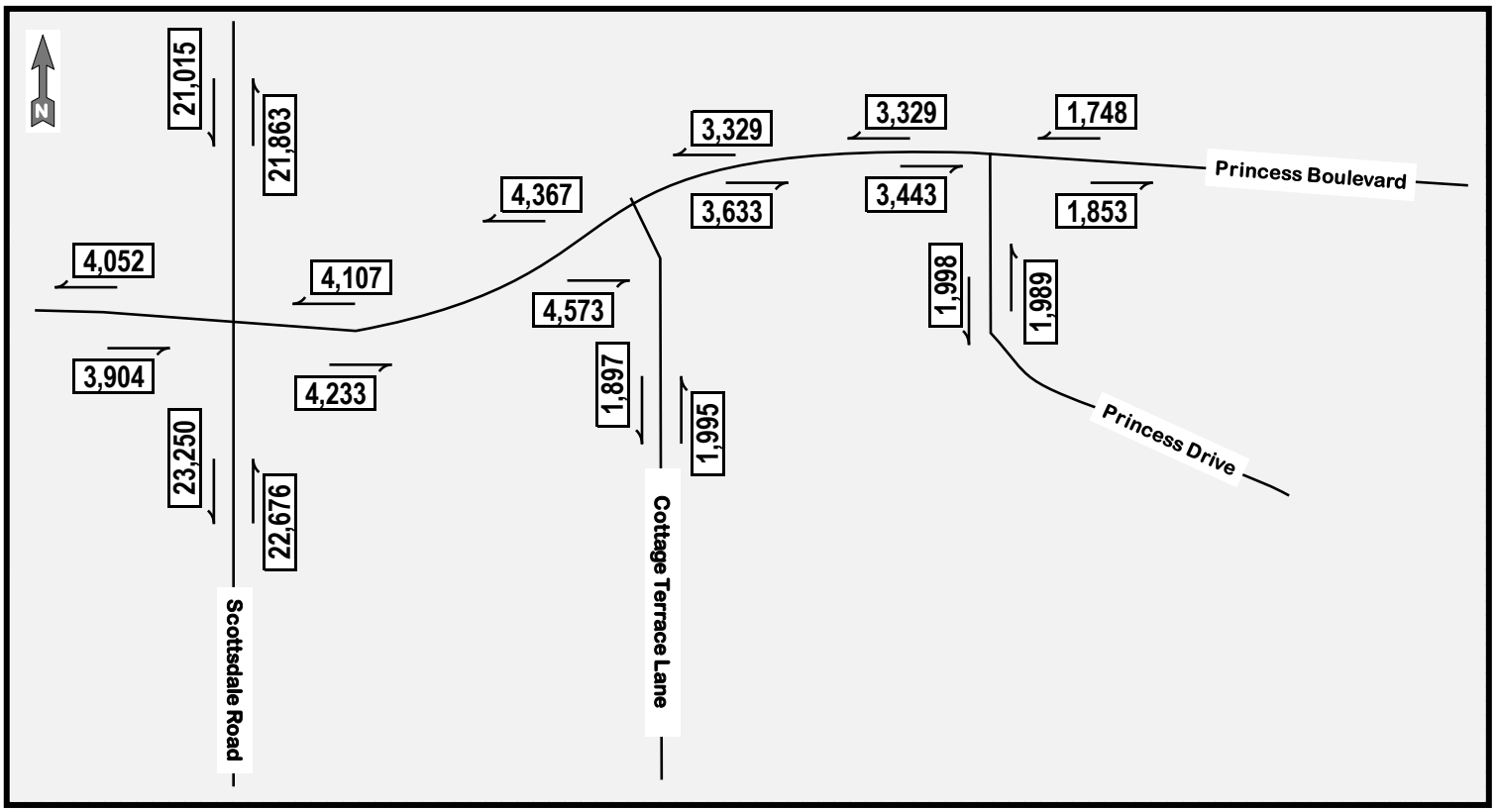



**Figure 26: 2025 with Fairmont Princess Expansion Approach and Departure Volumes Day**

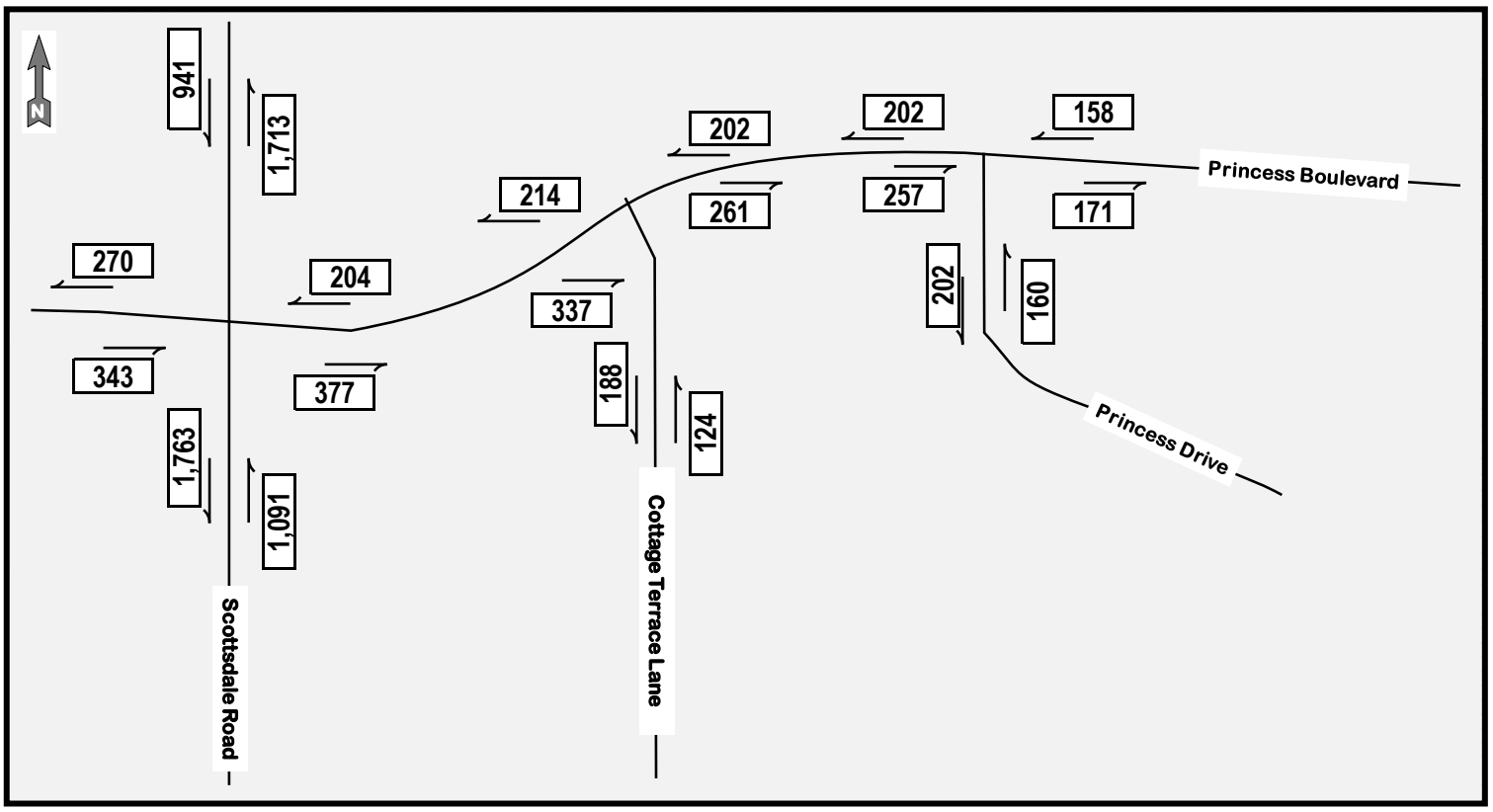



**Figure 27: 2025 with Princess Expansion Approach and Departure Volumes Morning Peak Hour**

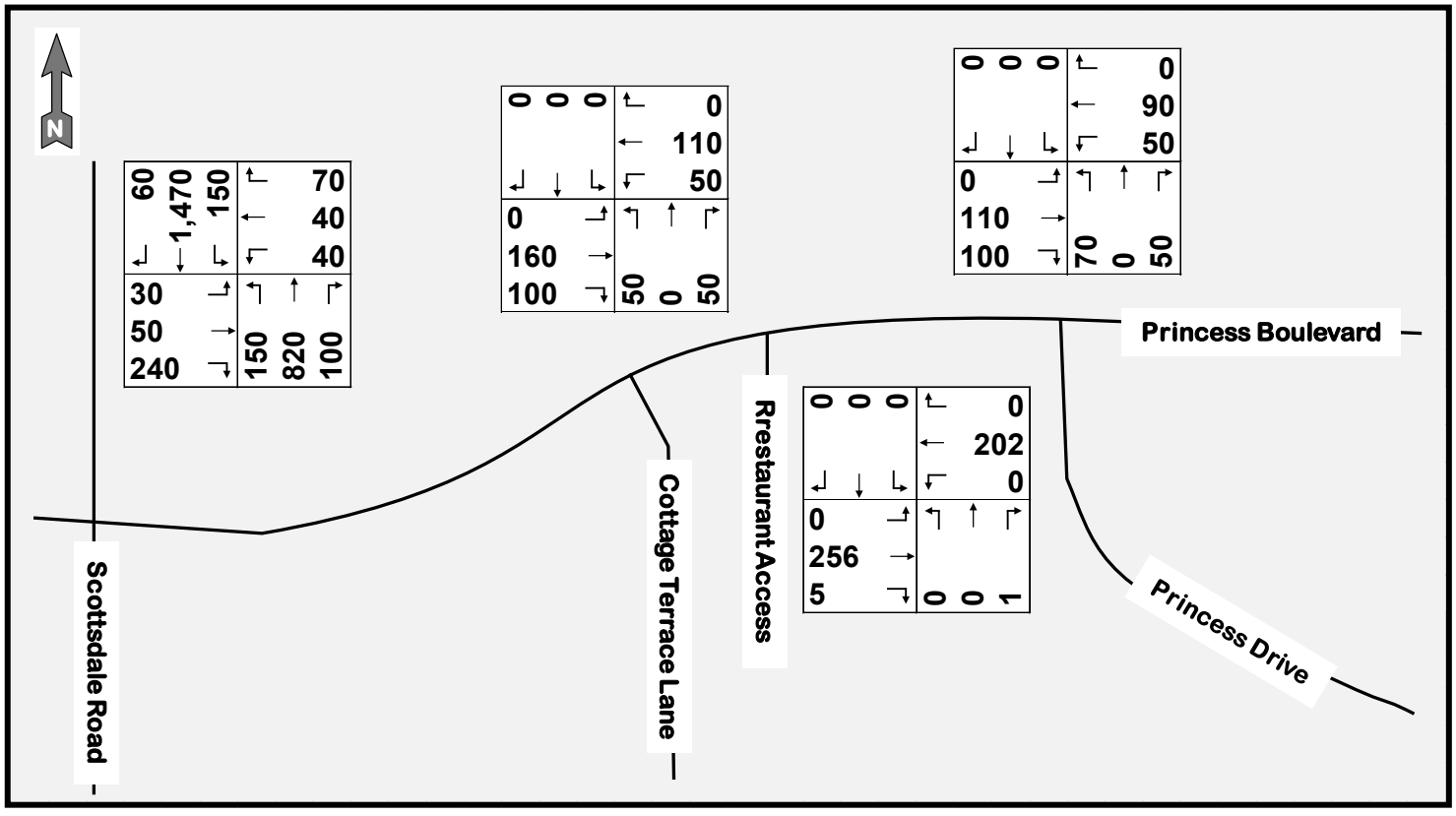



**Figure 28: 2025 with Fairmont Princess Expansion Turning Volumes Morning Peak Hour**

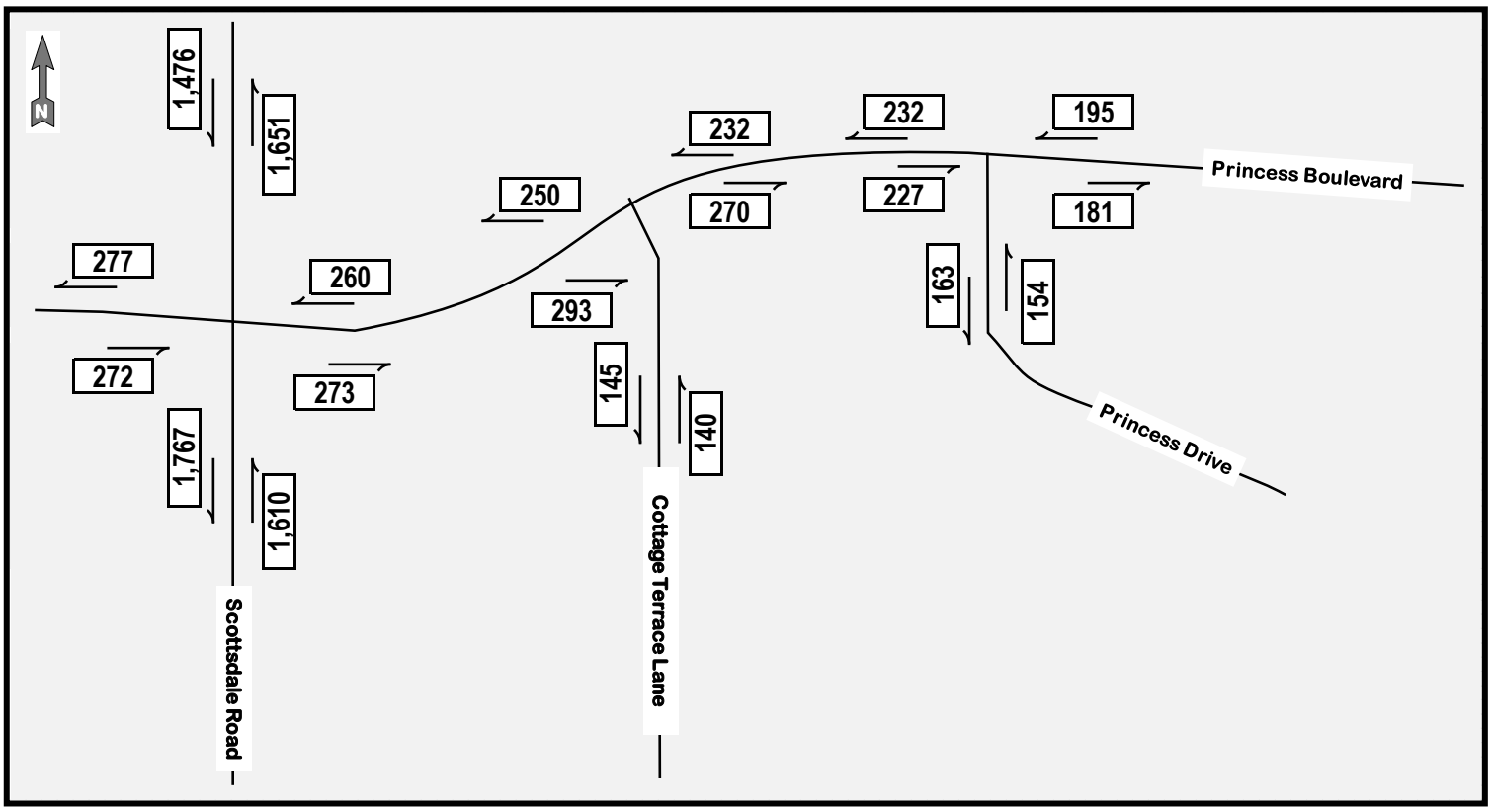



**Figure 29: 2025 with Fairmont Princess Expansion Approach and Departure Mid-day Peak Hour**

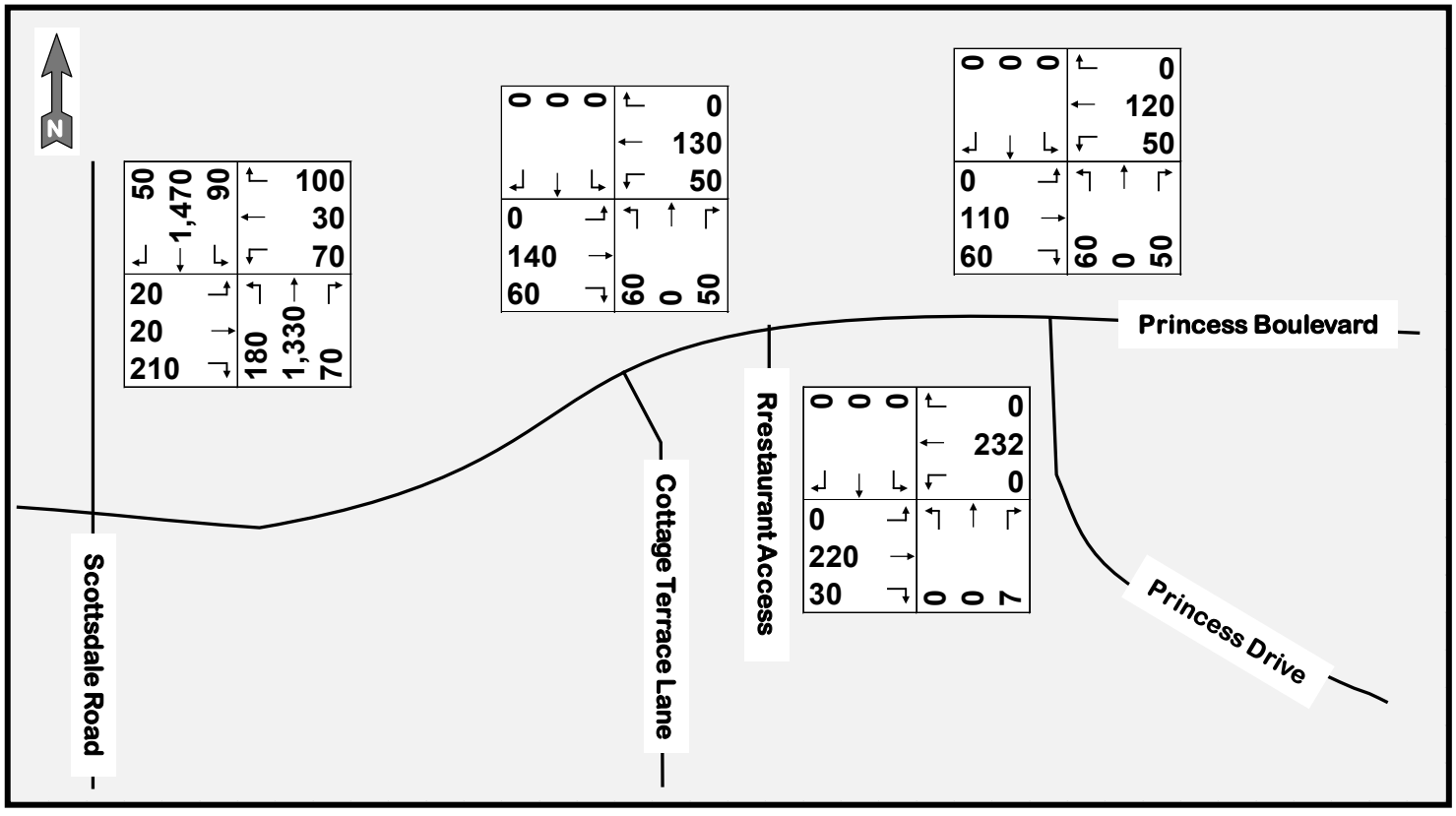



**Figure 30: 2025 with Fairmont Princess Expansion Turning Volumes Mid-day Peak Hour**

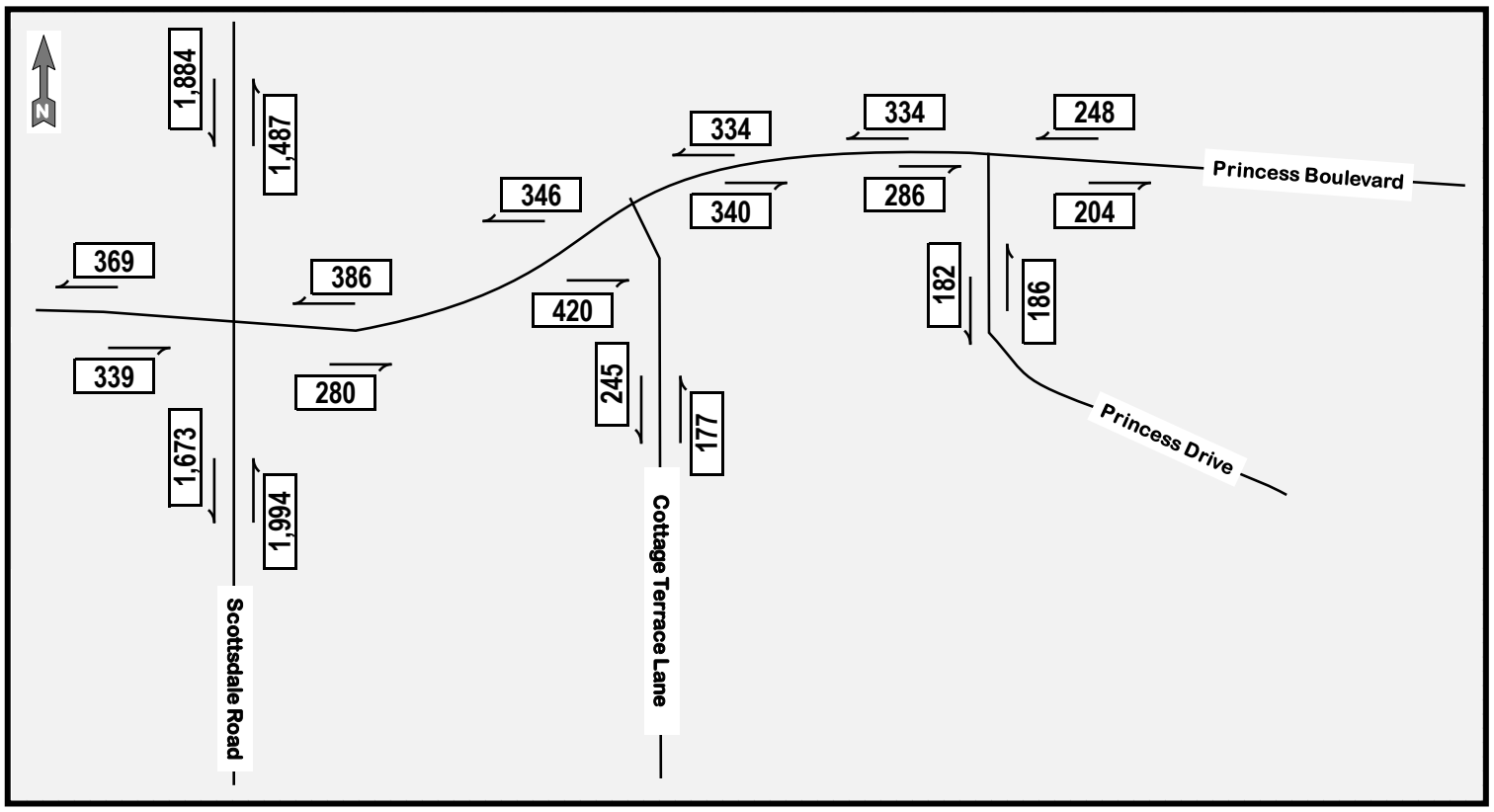



**Figure 31: 2025 with Fairmont Princess Expansion Approach and Departure Evening Peak Hour**

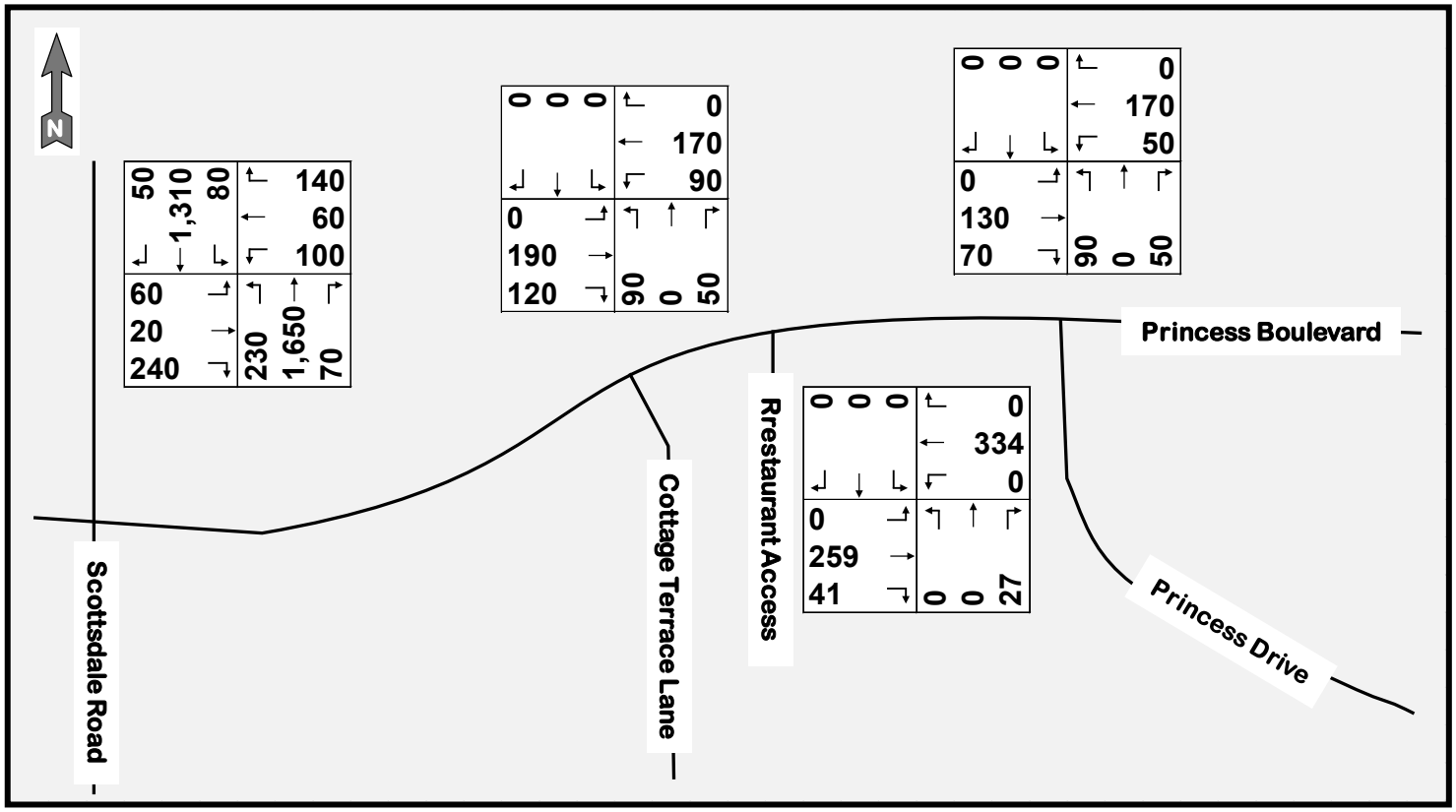
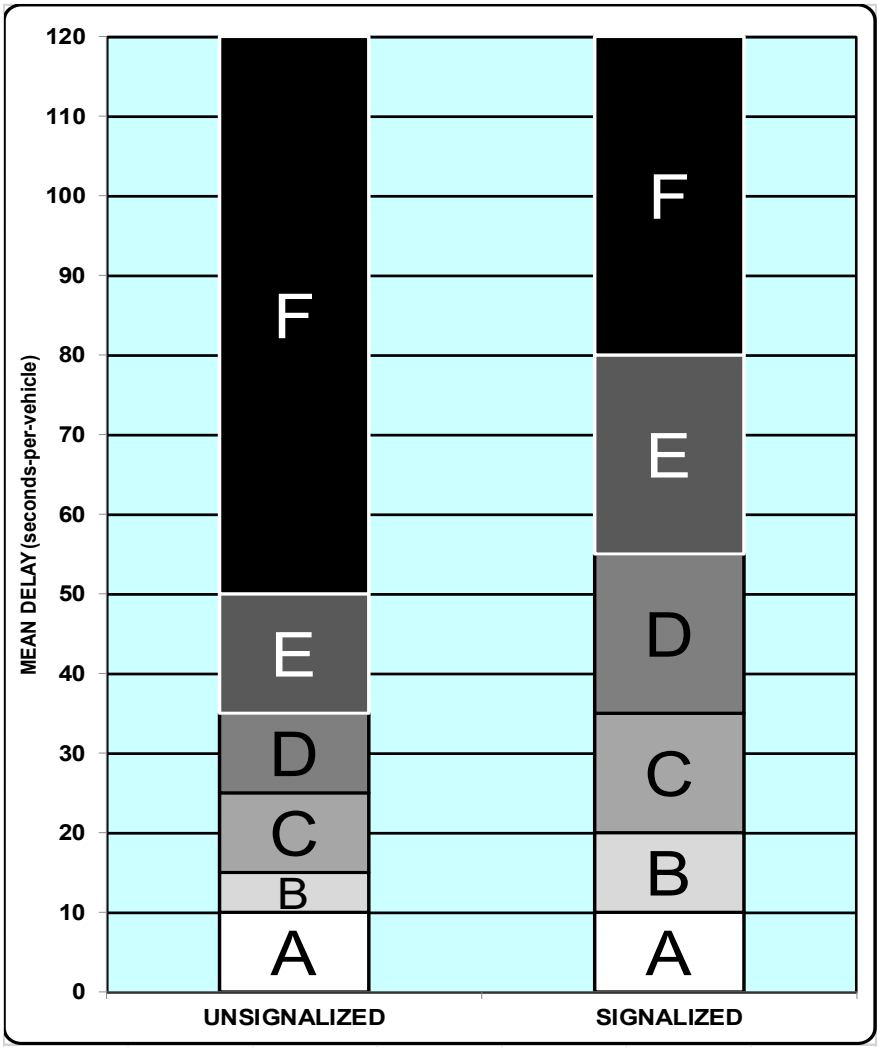



**Figure 32: 2025 with Fairmont Princess Expansion Turning Volumes Evening Peak Hour**

## *Level-of-Service Analysis*

**Table 18: Intersection Level-of-Service Criteria**




The ability of a transportation system to transmit the transportation demand is characterized as its level-of-service (LOS). Level-of-service is a rating system from "A" representing the least delay to "F" representing the most delay. Typically, levels-of-service "C" and "D" provide an optimal balance between traffic operation and street system expenditures.

The appropriate reference for level-of-service analysis and calculation is the *Highway Capacity Manual*, published by the Transportation Research Board. This manual considers average delay as the measure to determine level-of-service at intersections. For signalized intersections and multi-way stop intersections, the delay and level-of-service are calculated for the entire intersection, each approach, and each turning movement. For two-way stop-controlled intersections, the delay and level-of-service are determined only for each stopped approach and for left-turns from the uncontrolled approach. For roundabout intersections, levels-of service are calculated for all movements and approaches. **Table 18**: provides a diagram depicting level-of-service and delay criteria for intersections.

Synchro was utilized for these level-of-service analyses. The Scottsdale / Princess cycle length and phase lengths were provided by the City of Scottsdale for the existing year, and are provided as **Appendix E.1**.

**Table 19** through **Table 24** provide the levels-of-service for the three (3) study intersections for the three (3) peak hours for the existing 2022, ambient 2025, and 2025 with the Scottsdale Fairmont Princess Expansion conditions. For the 2025 with the Scottsdale Fairmont Princess Expansion condition, the existing cycle lengths and phases were utilized, though the phase timing was optimized.

The complete results are provided in **Appendix E**. The existing 2022 level-of-service analyses results are provided in **Appendix E.2**, and the ambient 2025 level-of-service analyses results are provided in **Appendix E.3**. The 2025 with the Maravilla Final Phase and the Scottsdale Fairmont Princess Expansion level-of-service analyses results are provided in **Appendix E.4**.

**Table 19: LOS – without and with Fairmont Princess Expansion – Signalized – AM Peak Hour**

| PHASING AND TIMING | EXISTING | | | | OPTIMIZED TIMING | |
|---|---|---|---|---|---|---|
| | EXISTING | | 2025 | | 2025 WITH SITE | |
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Scottsdale & Princess | 27.5 | C | 24 | C | 24.1 | C |
| Northbound | 17.8 | B | 15.1 | B | 17.3 | B |
| Left | 38.1 | D | 18.4 | B | 18.4 | B |
| Through | 14.6 | B | 14.7 | B | 17.3 | B |
| Right | 13.3 | B | 13.1 | B | 15.7 | B |
| Southbound | 20.1 | C | 16.8 | B | 18.6 | B |
| Left | 11.5 | B | 11.7 | B | 13.3 | B |
| Through | 21.0 | C | 17.6 | B | 19.5 | B |
| Right | 12.1 | B | 12.2 | B | 13.4 | B |
| Eastbound | 94.4 | F | 83.3 | F | 65.3 | E |
| Left | 39.0 | D | 39.0 | D | 35.5 | D |
| Through | 43.0 | D | 42.4 | D | 39.4 | D |
| Right | 114.2 | F | 97.4 | F | 76.9 | E |
| Westbound | 42.7 | D | 42.2 | D | 38.5 | D |
| Left | 42.3 | D | 42.0 | D | 38.2 | D |
| Through | 40.8 | D | 41.0 | D | 37.2 | D |
| Right | 43.7 | D | 43.0 | D | 39.5 | D |

**Table 20: LOS – without and with Fairmont Princess Expansion – Unsignalized – AM Peak Hour**

| | EXISTING | | 2025 | | 2025 WITH SITE | |
|---|---|---|---|---|---|---|
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Cottage Terrace & Princess | 1.5 | A | 2.8 | A | 3.2 | A |
| Northbound | 10.2 | B | 10.8 | B | 13.0 | B |
| Left | 10.6 | B | 12.2 | B | 13.0 | B |
| Right | 9.0 | A | 9.4 | A | 13.0 | B |
| Westbound | 0.8 | A | 2.5 | A | 2.4 | A |
| Left | 7.8 | A | 7.9 | A | 8.2 | A |
| Restaurant Access & Princess | | | | A | 0.0 | A |
| Northbound Right | | | | A | 9.1 | A |
| Eastbound Right | | | | A | 0.0 | A |
| Princess & Princess | 3.2 | A | 3.3 | A | 3.7 | A |
| Northbound | 3.1 | A | 3.3 | A | 3.5 | A |
| Left | 3.2 | A | 3.4 | A | 3.6 | A |
| Right | 2.9 | A | 3.2 | A | 3.3 | A |
| Eastbound | 3.1 | A | 3.4 | A | 3.6 | A |
| Left | 3.0 | A | 3.4 | A | 3.5 | A |
| Right | 3.2 | A | 3.4 | A | 3.6 | A |
| Westbound | 3.3 | A | 3.3 | A | 4.0 | A |
| Left | 3.3 | A | 3.1 | A | 4.0 | A |

**Table 21: LOS – without and with Fairmont Princess Expansion – Signalized – MD Peak Hour**

| PHASING AND TIMING | EXISTING | | | | OPTIMIZED TIMING | |
|---|---|---|---|---|---|---|
| | EXISTING | | 2025 | | 2025 WITH SITE | |
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Scottsdale & Princess | 34.6 | C | 33.1 | C | 23.7 | C |
| Northbound | 13.7 | B | 13.2 | B | 19.4 | B |
| Left | 23.3 | C | 17.1 | B | 20.9 | C |
| Through | 12.4 | B | 12.9 | B | 19.5 | B |
| Right | 9.3 | A | 9.5 | A | 14.6 | B |
| Southbound | 13.6 | B | 13.5 | B | 20.3 | C |
| Left | 9.7 | A | 10.1 | B | 16.5 | B |
| Through | 14.0 | B | 13.8 | B | 20.9 | C |
| Right | 9.5 | A | 9.5 | A | 14.1 | B |
| Eastbound | 277.1 | F | 275.7 | F | 58.8 | E |
| Left | 42.1 | D | 42.0 | D | 33.9 | C |
| Through | 44.8 | D | 44.4 | D | 36.5 | D |
| Right | 331.7 | F | 320.6 | F | 65.8 | E |
| Westbound | 49.1 | D | 45.0 | D | 35.1 | D |
| Left | 43.5 | D | 43.1 | D | 34.8 | C |
| Through | 42.1 | D | 41.2 | D | 32.8 | C |
| Right | 53.9 | D | 47.5 | D | 36.3 | D |

**Table 22: LOS – without and with Fairmont Princess Expansion – Unsignalized – MD Peak Hour**

| | EXISTING | | 2025 | | 2025 WITH SITE | |
|---|---|---|---|---|---|---|
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Cottage Terrace & Princess | 2.3 | A | 3.2 | A | 3.6 | A |
| Northbound | 10.1 | B | 10.6 | B | 13.3 | B |
| Left | 10.9 | B | 11.9 | B | 13.3 | B |
| Right | 9.0 | A | 9.1 | A | 13.3 | B |
| Westbound | 1.2 | A | 2.2 | A | 2.2 | A |
| Left | 7.7 | A | 7.8 | A | 8.1 | A |
| Restaurant Access & Princess | | | | A | 0.1 | A |
| Northbound Right | | | | A | 9.1 | A |
| Eastbound Right | | | | A | 0.0 | A |
| Princess & Princess | 3.1 | A | 3.3 | A | 4.0 | A |
| Northbound | 3.1 | A | 3.3 | A | 3.9 | A |
| Left | 3.2 | A | 3.3 | A | 4.1 | A |
| Right | 3.0 | A | 3.2 | A | 3.4 | A |
| Eastbound | 3.0 | A | 3.3 | A | 3.5 | A |
| Left | 3.1 | A | 3.4 | A | 3.6 | A |
| Right | 2.9 | A | 3.1 | A | 3.4 | A |
| Westbound | 3.3 | A | 3.4 | A | 4.6 | A |
| Left | 2.8 | A | 3.1 | A | 4.6 | A |

**Table 23: LOS – without and with Fairmont Princess Expansion – Signalized – PM Peak Hour**

| PHASING AND TIMING | EXISTING | | | | OPTIMIZED TIMING | |
|---|---|---|---|---|---|---|
| | EXISTING | | 2025 | | 2025 WITH SITE | |
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Scottsdale & Princess | 61.9 | E | 48 | D | 30 | C |
| Northbound | 13.7 | B | 13.6 | B | 23.1 | C |
| Left | 14.8 | B | 15.4 | B | 22.7 | C |
| Through | 13.7 | B | 13.6 | B | 23.7 | C |
| Right | 8.9 | A | 8.9 | A | 15.9 | B |
| Southbound | 13.0 | B | 13.1 | B | 22.6 | C |
| Left | 11.9 | B | 11.9 | B | 24.2 | C |
| Through | 13.2 | B | 13.3 | B | 22.7 | C |
| Right | 9.7 | A | 9.7 | A | 16.3 | B |
| Eastbound | 456.7 | F | 372.5 | F | 89.4 | F |
| Left | 45.5 | D | 45.4 | D | 37.5 | D |
| Through | 48.6 | D | 48.5 | D | 40.9 | D |
| Right | 604.5 | F | 481.2 | F | 110.1 | F |
| Westbound | 115.9 | F | 93.0 | F | 41.8 | D |
| Left | 70.8 | E | 61.4 | E | 41.7 | D |
| Through | 48.7 | D | 48.1 | D | 37.4 | D |
| Right | 178.3 | F | 134.9 | F | 44.2 | D |

**Table 24: LOS – without and with Fairmont Princess Expansion – Unsignalized – PM Peak Hour**

| | EXISTING | | 2025 | | 2025 WITH SITE | |
|---|---|---|---|---|---|---|
| | DELAY | LOS | DELAY | LOS | DELAY | LOS |
| Cottage Terrace & Princess | 4.0 | A | 3.7 | A | 5.2 | A |
| Northbound | 16.2 | B | 13.8 | B | 22.4 | C |
| Left | 18.3 | B | 16.1 | B | 22.4 | C |
| Right | 9.4 | A | 9.6 | A | 22.4 | C |
| Westbound | 3.0 | A | 2.8 | A | 2.7 | A |
| Left | 8.2 | A | 8.2 | A | 8.7 | A |
| Restaurant Access & Princess | | | | A | 0.4 | A |
| Northbound Right | | | | A | 9.4 | A |
| Eastbound Right | | | | A | 0.0 | A |
| Princess & Princess | 3.3 | A | 3.6 | A | 4.2 | A |
| Northbound | 3.4 | A | 3.5 | A | 3.9 | A |
| Left | 3.5 | A | 3.6 | A | 4.1 | A |
| Right | 2.9 | A | 3.3 | A | 3.5 | A |
| Eastbound | 3.1 | A | 3.4 | A | 3.7 | A |
| Left | 3.2 | A | 3.6 | A | 3.9 | A |
| Right | 3.0 | A | 3.2 | A | 3.6 | A |
| Westbound | 3.4 | A | 3.8 | A | 5.0 | A |
| Left | 2.9 | A | 3.2 | A | 5.0 | A |

Additional analyses were provided considering an eastbound exclusive right-turn lane. The existing level-of-service for the Scottsdale / Princess eastbound approach is provided in **Table 25**.

**Table 25: Existing Delay and Level-of-Service Scottsdale / Princess Eastbound**

| PERIOD | RIGHT-TURN | | APPROACH | | INTERSECTION | |
|---|---|---|---|---|---|---|
| Morning Peak Hour | 114 | F | 94 | F | 28 | C |
| Mid-day Peak Hour | 332 | F | 277 | F | 35 | C |
| Evening Peak Hour | 605 | F | 457 | F | 62 | E |

A delay of 10 minutes is very likely an inaccurate exaggeration, though the analysis indicates that excessive delay exists at this intersection. In each of the three (3) peak periods, the eastbound right-turn volume is 5 to 14 times larger than the eastbound through movement. This dominance is clearly depicted in **Appendix B**; the 5th, 6th, 10th, and 11th pages; which provide the eastbound turning movements in 15-intervals for 24 hours.

The southernmost through lane could be converted to a right-turn only lane, and could have a right-turn arrow timed with the northbound left-turn arrow. The complete results of this modification are provided in **Appendix E.5** and summarized for the eastbound right-turn, eastbound approach, and intersection in **Table 26**.

**Table 26: IMPROVED Delay and Level-of-Service Scottsdale / Princess Eastbound**

| PERIOD | RIGHT-TURN | | APPROACH | | INTERSECTION | |
|---|---|---|---|---|---|---|
| Morning Peak Hour | 53 | D | 50 | D | 23 | C |
| Mid-day Peak Hour | 73 | E | 67 | E | 19 | B |
| Evening Peak Hour | 162 | F | 132 | F | 32 | C |

The 2025 with the Scottsdale Fairmont Princess Resort Expansion level-of-service for the Scottsdale / Princess eastbound approach is provided in **Table 27,** with the complete results provided in **Appendix E.5**. The cycle length remained at 120 seconds for the morning and evening peak hours, and at 108 seconds for the mid-day peak hour, and the phasing was optimized.

**Table 27: 2025 with Expansion Delay and LOS Scottsdale / Princess EB – EXISTING PHASING**

| PERIOD | RIGHT-TURN | | APPROACH | | INTERSECTION | |
|---|---|---|---|---|---|---|
| Morning Peak Hour | 77 | E | 65 | E | 24 | C |
| Mid-day Peak Hour | 66 | E | 59 | E | 24 | C |
| Evening Peak Hour | 110 | F | 89 | F | 30 | C |

**Table 28** summarizes the eastbound right-turn, eastbound approach, and intersection with an eastbound right-turn only lane, and exclusive northbound and southbound left-turn arrows, with the cycle lengths remaining at 120 and 108 seconds, and optimized phasing. The complete results of this modification are provided in **Appendix E.5**.

**Table 28: 2025 with Expansion Delay and LOS Scottsdale / Princess EB – IMPROVED PHASING**

| PERIOD | RIGHT-TURN | | APPROACH | | INTERSECTION | |
|---|---|---|---|---|---|---|
| Morning Peak Hour | 35 | D | 36 | D | 27 | C |
| Mid-day Peak Hour | 31 | C | 32 | C | 26 | C |
| Evening Peak Hour | 30 | C | 31 | C | 31 | C |

## *Proposed Fairmont Princess New Access Sight Distance Analysis*

An additional intersection is indicated with Princess Boulevard, approximately 300 feet east of Cottage Terrace Lane. This intersection is the exclusive access for the proposed restaurant and is a right-turn-in-right-turn-out access. Because the access is located on the inside of a curve, a thorough intersection sight distance analysis is necessary. This analysis resulted in a defined sight line easement that should be included in the design drawings.

**Figure 33** provides the results of the intersection sight distance analysis for the proposed restaurant access with Princess Boulevard.

The City of Scottsdale requires a distance of 14.5 feet from the back of curb to the exiting driver eye. The driver eye was located at 14.5 feet south of the southernmost bicycle lane edge. The vehicle was located with the driver eye five (5) feet east of the centerline of the proposed access.

The posted speed limit on Princess Boulevard is 30 miles-per-hour. The City of Scottsdale requires that the design speed be 5 miles-per-hour greater than the posted speed limit if the posted speed limit is less than 35 miles-per-hour. Therefore, the required design speed is 35 miles-per-hour; and the intersection sight distance is 390.00 feet, as indicated by the solid red line in **Figure 33**.

The dotted gold line is the sight line from the northbound vehicle driver eye to an approaching eastbound vehicle. The area north of the dotted gold line must be free of all objects taller than 30 inches above the Princess Boulevard pavement, with the exception of necessary traffic control signs.

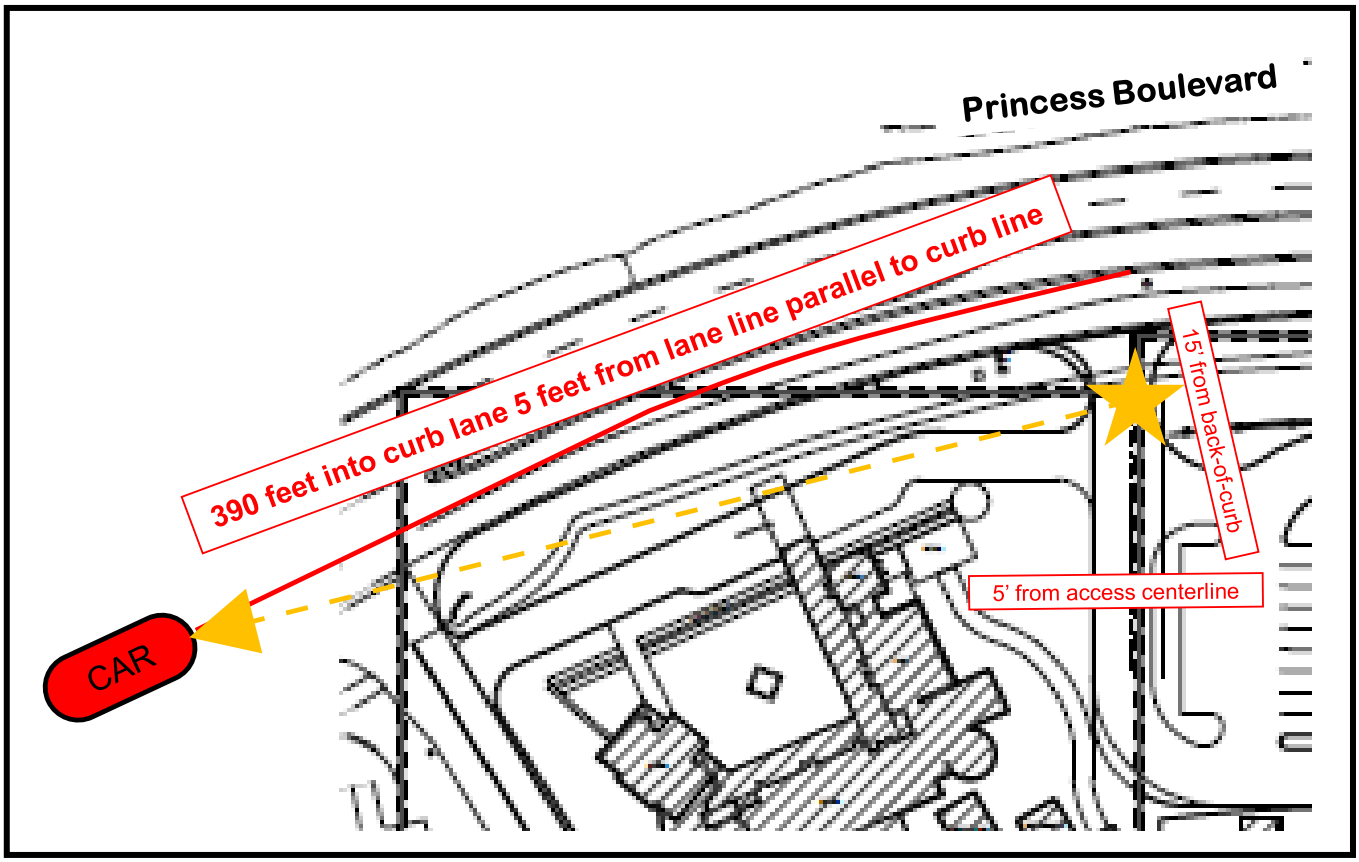



**Figure 33: Intersection Sight Distance Analysis for Restaurant Access**