

**Traffic Impact Study
for Walgreens**

2111 Ford Parkway
St. Paul, MN

Wenck File #2271-03

Prepared for:

SEMPER DEVELOPMENT

Prepared by:

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1.0 Executive Summary

The purpose of this Traffic Impact Study is to evaluate the impacts of the proposed Walgreens located in St. Paul, MN. The project site is located in the northeast quadrant of the Ford Parkway/Finn Street intersection.

This study examined traffic impacts of the proposed development on the following intersections:

- Ford Parkway/Finn Street
- Finn Street/Ramp Access
- Finn Street/Public Alley

The proposed project consists of removing the existing vacant gasoline station and adjacent retail building and constructing a new 12,983 square foot Walgreens building with on-site surface parking. The proposed building consists of 9,483 square feet of retail space and 3,500 square feet of storage in the basement level, for a total area of 12,983 square feet.

The property has a total of four existing access driveways, two full-access driveways to Ford Parkway and two full-access driveways to Finn Street. The proposed plan reduces the number of access driveways by two, with one to Ford Parkway and one to Finn Street. The proposed access to Ford Parkway is restricted to right-in/right-out movements only. The project is expected to be complete in 2010.

The conclusions drawn from the information and analyses presented in this report are as follows:

- The proposed development is expected to generate 42 trips during the weekday a.m. peak hour, 109 trips during the weekday p.m. peak hour, and 1,169 weekday daily trips.
- The intersections of Finn Street/Ramp Access and Finn Street/Public Alley have adequate capacity with existing geometrics and control to accommodate the proposed development while maintaining acceptable levels of service.
- Based on the level of service and queuing analysis results, we recommend that the southbound approach of Finn Street at Ford Parkway be widened and striped to create two approach lanes, with one lane for left turns/through movements and one lane for right turns only. The existing width of Finn Street in this area is 29 ½ feet face of curb to face of curb. The existing width would only allow for three 9'-10" lanes (including the gutters). We recommend a minimum width of 34 feet, face of curb to face of curb, to accommodate a 12 foot southbound right turn lane, a 10 foot southbound through-left turn lane, and a 12 foot northbound lane.
- The transit shelter and bus stop located in the northeast quadrant of the Ford Parkway/Finn Street intersection should be accommodated by the proposed site plan, or a new bus stop location should be coordinated with transit services.

- Consider a no parking restriction on the north side of Ford Parkway along the property frontage. This restriction would improve sight distance at the proposed right-in/right-out and allow westbound vehicles on Ford Parkway to access the site outside of the westbound through lane.
- The existing northbound approach lanes at the intersection of Ford Parkway/Finn Street consist of a left turn and right turn only designation. Modify the existing northbound pavement markings to correlate with the through-left turn lane and a right turn only usage.

2.0 Purpose and Background

The purpose of this Traffic Impact Study is to evaluate the impacts of the proposed Walgreens store located in St. Paul, MN. The project site is located in the northeast quadrant of the Ford Parkway/Finn Street intersection, as shown in **Figure 1**.

This study examined traffic impacts of the proposed development on the following intersections:

- Ford Parkway/Finn Street
- Finn Street/Ramp Access
- Finn Street/Public Alley

Proposed Development Characteristics

The proposed project consists of removing the existing vacant gasoline station and adjacent retail building and constructing a new 12,983 square foot Walgreens building with on-site surface parking. The proposed building consists of 9,483 square feet of retail space and 3,500 square feet of storage in the basement level, for a total area of 12,983 square feet.

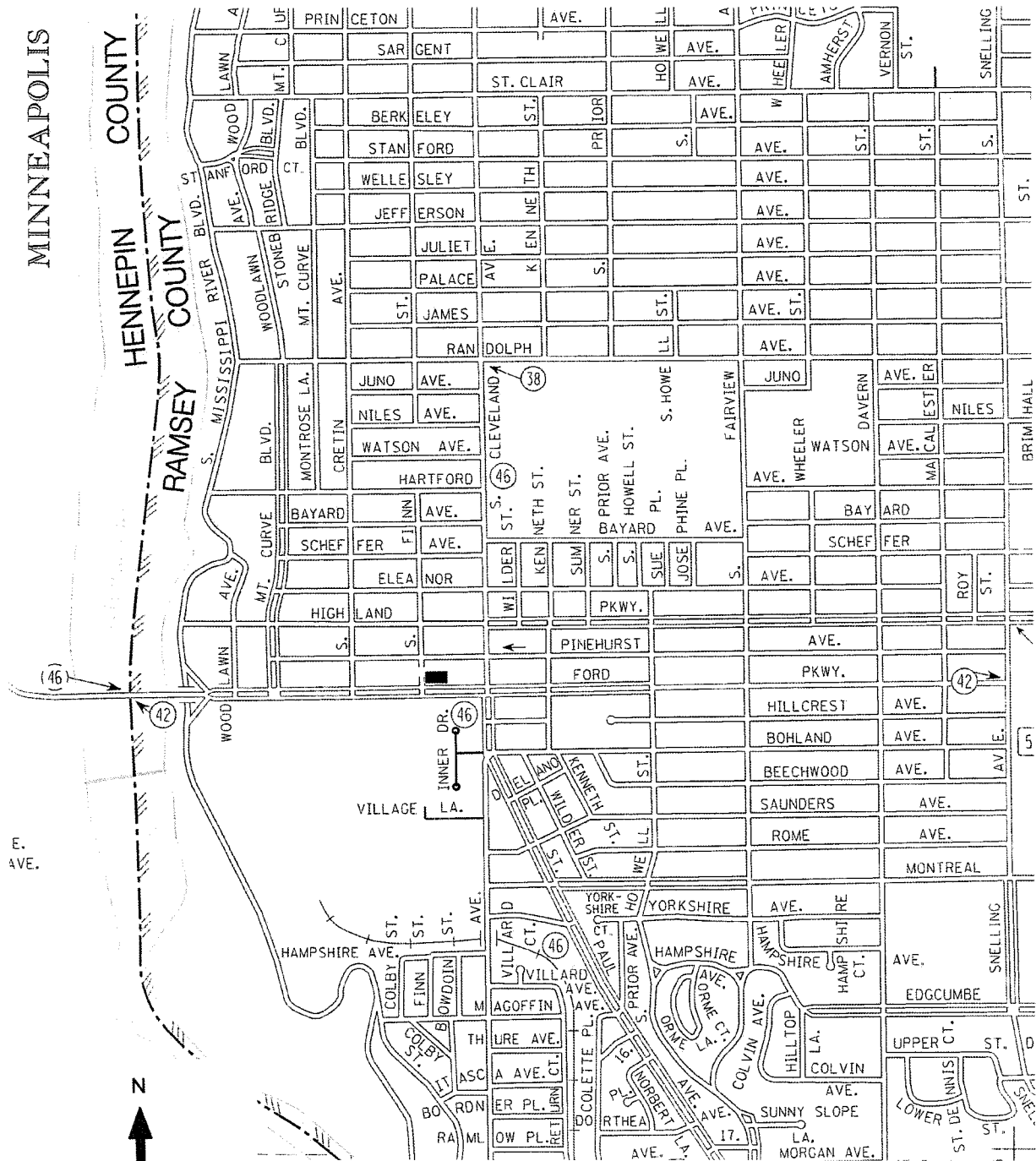
The property has a total of four existing access driveways, two full-access driveways to Ford Parkway and two full-access driveways to Finn Street. The proposed plan reduces the number of access driveways by two, with one to Ford Parkway and one to Finn Street. The proposed access to Ford Parkway is restricted to right-in/right-out movements only.

The current site plan is shown in **Figure 2**. The project is expected to be complete in 2010.

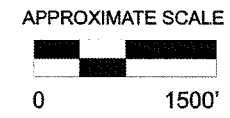
MINNEAPOLIS

HENNEPIN COUNTY

RAMSEY COUNTY



■ PROJECT LOCATION



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FIGURE 1
PROJECT LOCATION

3.0 Existing Conditions

The proposed site currently consists of a gasoline service station (no longer operating) and a commercial building. The project site is bounded by Ford Parkway on the south, Finn Street on the west, a one-way public alley on the north, and commercial land uses on the east. Ford Parkway along the property frontage is an undivided five-lane section. Raised medians on Ford Parkway are introduced both east and west of the site. Finn Street along the property frontage is a two-way street that dead ends at the public alley adjacent to the site. The public alley is a narrow one-way alley that accommodates westbound vehicles east of Finn Street and eastbound vehicles west of Finn Street.

Along the property frontage, transit shelters and designated bus stops exist on the westbound approach both on the north and south sides of Ford Parkway. On-street parking is currently allowed along the property frontage except in the vicinity of the bus stop.

Existing conditions are shown in **Figure 3**.

Ford Parkway/Finn Street

The signalized intersection of Ford Parkway/Finn Street provides one dedicated left turn lane, one through lane, and one through-right turn lane on both the eastbound and westbound approaches. The southbound approach consists of one lane for all movements. The northbound approach consists of one through-left turn lane and one right turn lane. A site visit revealed that pavement markings for the northbound approach lack designation for the northbound through movement (only a left arrow and right arrow are shown).

Finn Street/Ramp Access

Although not signed, both eastbound and westbound driveways cross sidewalks along Finn Street and are required to stop by state statute. The northbound and southbound approaches are uncontrolled. This intersection designates the northern limit of two-way operation for this segment of Finn Street. One traffic lane accommodates all legal movements for each approach.

Finn Street/Public Alley

This “tee” intersection is uncontrolled and consists of eastbound one-way travel west of Finn Street and westbound one-way travel east of Finn Street. Although the pavement width exists, there are no northbound lanes approaching this intersection.

Turn movement data was collected at the intersections during the weekday a.m. and p.m. peak periods in June, 2009.



FIGURE 3
EXISTING CONDITIONS

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4.0 Traffic Forecasts

Traffic Forecast Scenarios

To adequately address the impacts of the proposed project, forecasts and analyses were completed for the year 2011. Specifically, weekday a.m. and p.m. peak hour traffic forecasts were completed for the following scenarios:

- *Existing (2009)*. Existing volumes were determined through traffic counts at the subject intersections.
- *2011 No-Build*. Existing volumes at the subject intersections were increased by two percent per year to determine 2011 No-Build volumes. Due to the developed nature of the area, the two percent per year growth rate provides a conservative analysis.
- *2011 Build*. Trips generated by the proposed Walgreens were added to the 2011 No-Build volumes to determine 2011 Build volumes.

Trip Generation of Proposed Use

Weekday a.m. and p.m. peak hour trip generation for the proposed development were calculated based on data presented in the eighth edition of Trip Generation, published by the Institute of Transportation Engineers (ITE). The resultant trip generation is shown in **Table 1** and **Table 2** for a.m. and p.m. respectively.

Table 1
Typical Weekday AM Peak Hour Trip Generation for Walgreens

Land Use	Size	Unit	New Vehicle Trips		Pass-By Vehicle Trips		Total Weekday Trips
			IN	OUT	IN	OUT	
Walgreens	12,983	GFA	17	12	8	5	1169

1. GFA = Gross Floor Area

Table 2
Typical Weekday PM Peak Hour Trip Generation for Walgreens

Land Use	Size	Unit	New Vehicle Trips		Pass-By Vehicle Trips		Total Weekday Trips
			IN	OUT	IN	OUT	
Walgreens	12,983	GFA	38	38	17	16	1169

1. GFA = Gross Floor Area

The trips shown in **Table 1** and **Table 2** are classified into two categories:

- New Vehicle Trips – Trips solely to and from the proposed development

- Pass-By Vehicle Trips – Trips made as intermediate stops “on the way” from an origin to a primary destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site. Pass-by trips for this study include “through” trips on Ford Parkway.

The percentage of trips assigned to each trip type described above was based on data provided in the ITE Trip Generation Handbook, Second Edition. Based on this data, 70 percent of the total trips are new trips and 30 percent are pass-by trips.

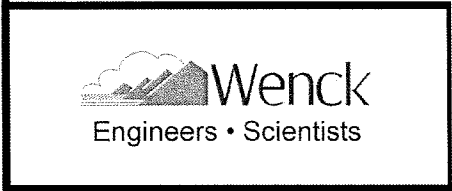
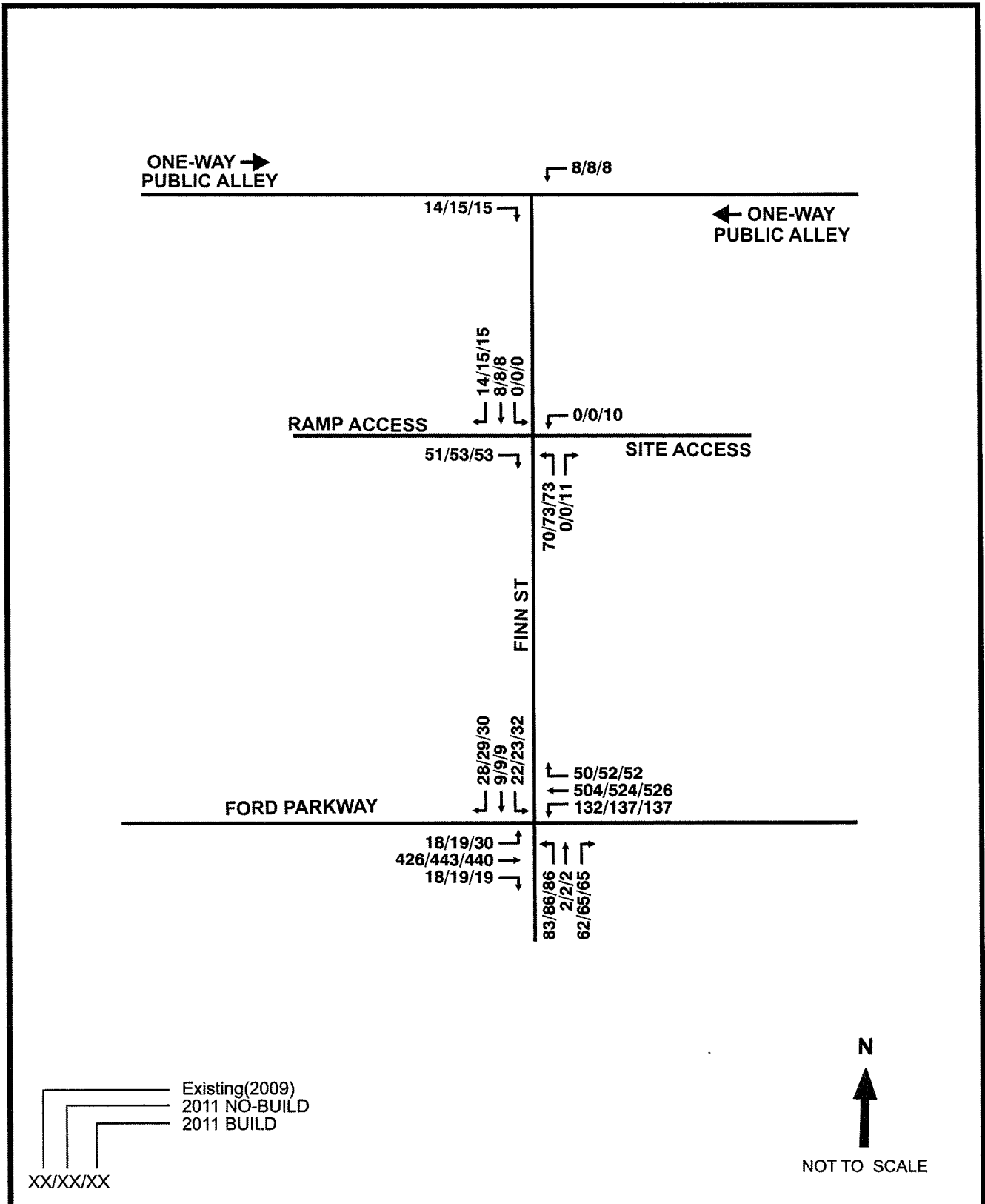
Trip Distribution Percentages

Trip distribution percentages for the subject development trips were established based on the nearby roadway network, existing and expected future traffic patterns, and location of the subject development in relation to major attractions and population concentrations. The distribution percentages for new trips generated by the proposed development are as follows:

- 55% to/from the east on Ford Parkway
- 45% to/from the west on Ford Parkway

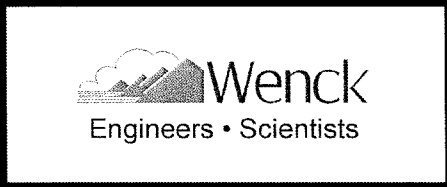
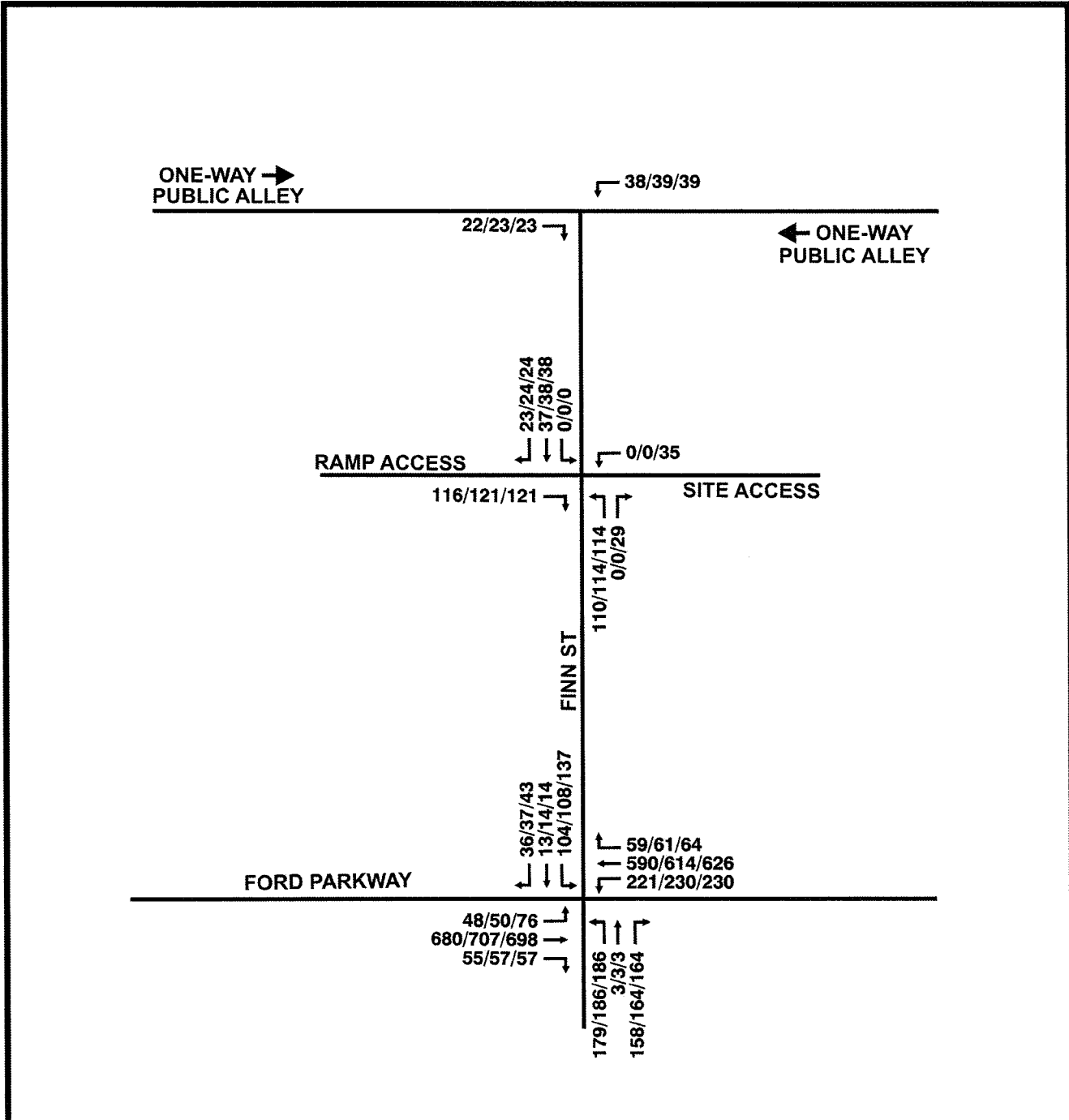
Traffic Volumes

Development trips were assigned to the surrounding roadway network using the preceding trip distribution percentages. Traffic volumes were established for all the forecasting scenarios described earlier during both the weekday a.m. and p.m. peak hours. The resultant traffic volumes are presented in **Figures 4 and 5**.



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FIGURE 4
WEEKDAY AM PEAK HOUR
TRAFFIC VOLUMES



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FIGURE 5
WEEKDAY PM PEAK HOUR
TRAFFIC VOLUMES

5.0 Traffic Analysis

Intersection Level of Service Analysis

Traffic analyses were completed for the subject intersections for all scenarios described earlier during both the weekday a.m. and p.m. peak hours using Synchro software. Initial analysis was completed using existing geometrics, control, and signal timing. Capacity analysis results are presented in terms of level of service (LOS), which range from A to F. LOS A represents the best intersection operation, with very little delay for each vehicle using the intersection. LOS F represents the worst intersection operation, with excessive delay for each vehicle using the intersection. Level of service results are shown in **Figures 6 and 7**. Discussion for each individual intersection is provided below.

Ford Parkway/Finn Street (signalized) - During the a.m. peak hour under all scenarios, all movements operate at LOS D or better and the overall intersection operates at LOS A. No improvements are necessary at this intersection during the a.m. peak hour to accommodate the proposed development.

During the p.m. peak hour under all scenarios, all movements except the southbound movements operate at LOS D or better and the overall intersection operates at LOS C. The southbound movements operate at LOS D under 2009 and 2011 No Build conditions and LOS E under 2011 Build conditions.

During the 2011 Build condition, the addition of an exclusive southbound right turn lane improves the LOS of the southbound movement to LOS D for the through-left movements and LOS A for the right turn movements. The overall intersection operates at LOS C.

Finn Street/Ramp Access (driveways are stop controlled) - During the a.m. peak hour under all scenarios, all movements operate at LOS B or better. No improvements are necessary at this intersection during the a.m. peak hour to accommodate the proposed development.

During the p.m. peak hour under all scenarios, all movements operate at LOS B or better. No improvements are necessary at this intersection during the p.m. peak hour to accommodate the proposed development.

Finn Street/Public Alley (uncontrolled) - During the a.m. peak hour under all scenarios, all movements operate at LOS A. No improvements are necessary at this intersection during the a.m. peak hour to accommodate the proposed development.

During the p.m. peak hour under all scenarios, all movements operate at LOS A. No improvements are necessary at this intersection during the p.m. peak hour to accommodate the proposed development.

Southbound Vehicle Queue Lengths at Ford Parkway

The 95th percentile maximum queue lengths were estimated using the Synchro software. Initial analysis was completed using existing geometrics, control, and signal timing. Mitigation analysis was completed with an additional southbound approach lane. The available storage for this movement is approximately 80 feet. The resultant queue lengths are shown in **Table 3**.

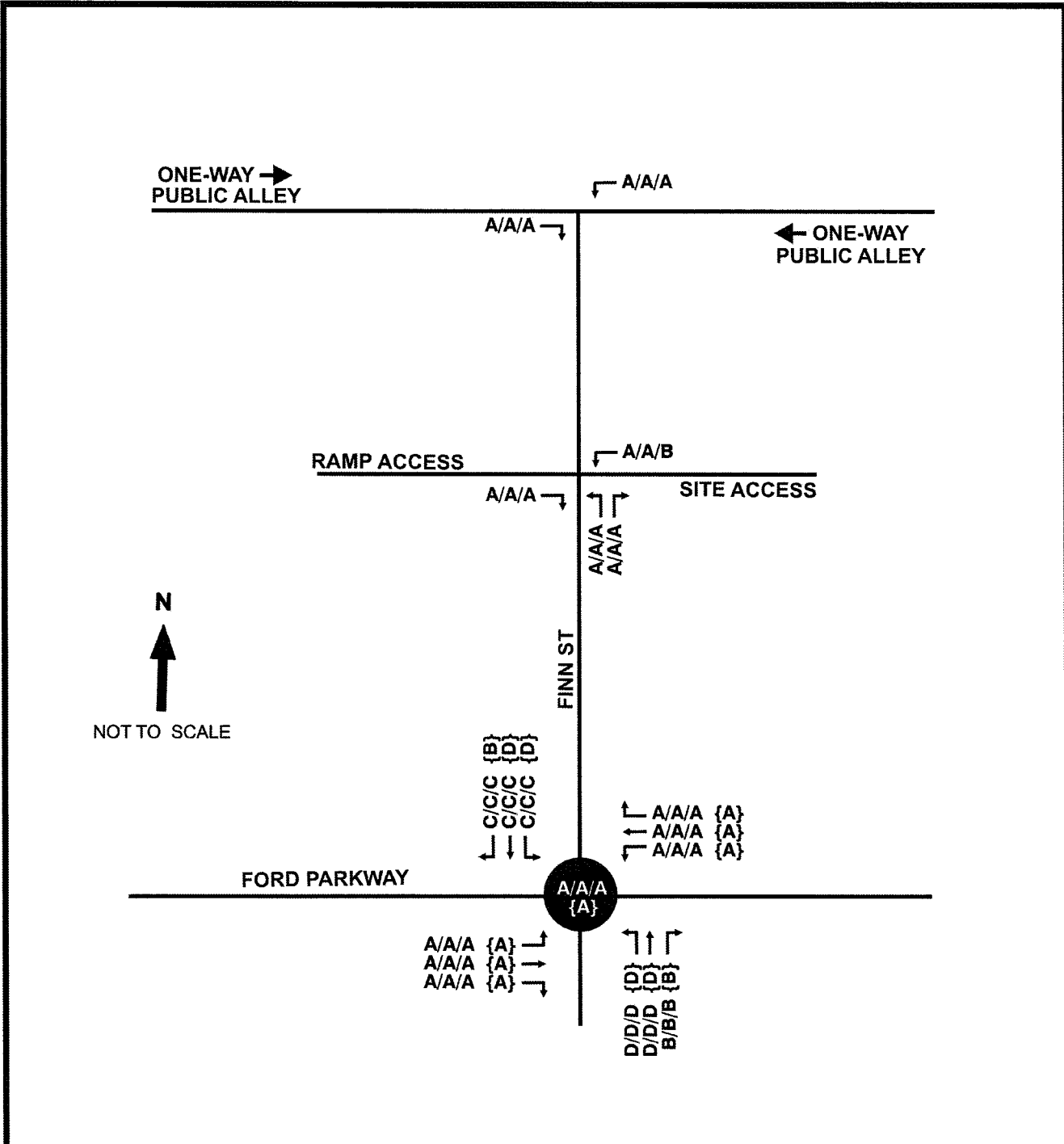
Table 3
Weekday A.M. and P.M. Peak Hour
95th Percentile Vehicle Queue Lengths For Southbound Finn Street (in feet)

AM	Existing Geometry (single southbound lane for Finn Street)	Mitigation Geometry (two southbound lanes for Finn Street)	
	↕	←	↕
2009 Existing	55		
2011 No Build	56		
2011 Build	66	26	56
PM	Existing Geometry (single southbound lane for Finn Street)	Mitigation Geometry (two southbound lanes for Finn Street)	
	↕	←	↕
2009 Existing	159		
2011 No Build	165		
2011 Build	206	26	164

As presented in **Table 3**, during the a.m. peak hour the 95th percentile queue with the existing lane geometry is less than the available storage for all scenarios (i.e. less than 80 feet). The a.m. peak hour queue lengths for the build scenario are reduced further under the mitigation geometry. During the p.m. peak hour, the 95th percentile queue with the existing lane geometry is greater than the available storage for all scenarios (i.e. greater than 80 feet). The p.m. peak hour queue lengths for the build scenario are reduced slightly below the 2011 No-Build queue length under the mitigation geometry; however, the queue length for the through-left turn lane remains greater than the available storage. For the build scenario, operations under the proposed mitigation result in queue lengths very close to those currently experienced for this movement.

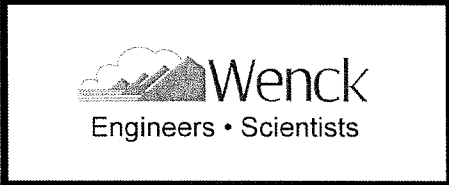
Recommended Street Configuration for Finn Street

Based on the level of service and queuing analysis results, we recommend that a southbound through-left turn lane and a southbound exclusive right turn lane be provided on Finn Street for the entire length between Ford Parkway and the ramp/development access. The existing roadway width of this segment is 29.5 feet face of curb to face of curb. We recommend this segment be widened to a minimum of 34 feet face of curb to face of curb. This width would accommodate a southbound 12 foot right turn lane, a 10 foot southbound through-left turn lane, and a 12 foot northbound lane.



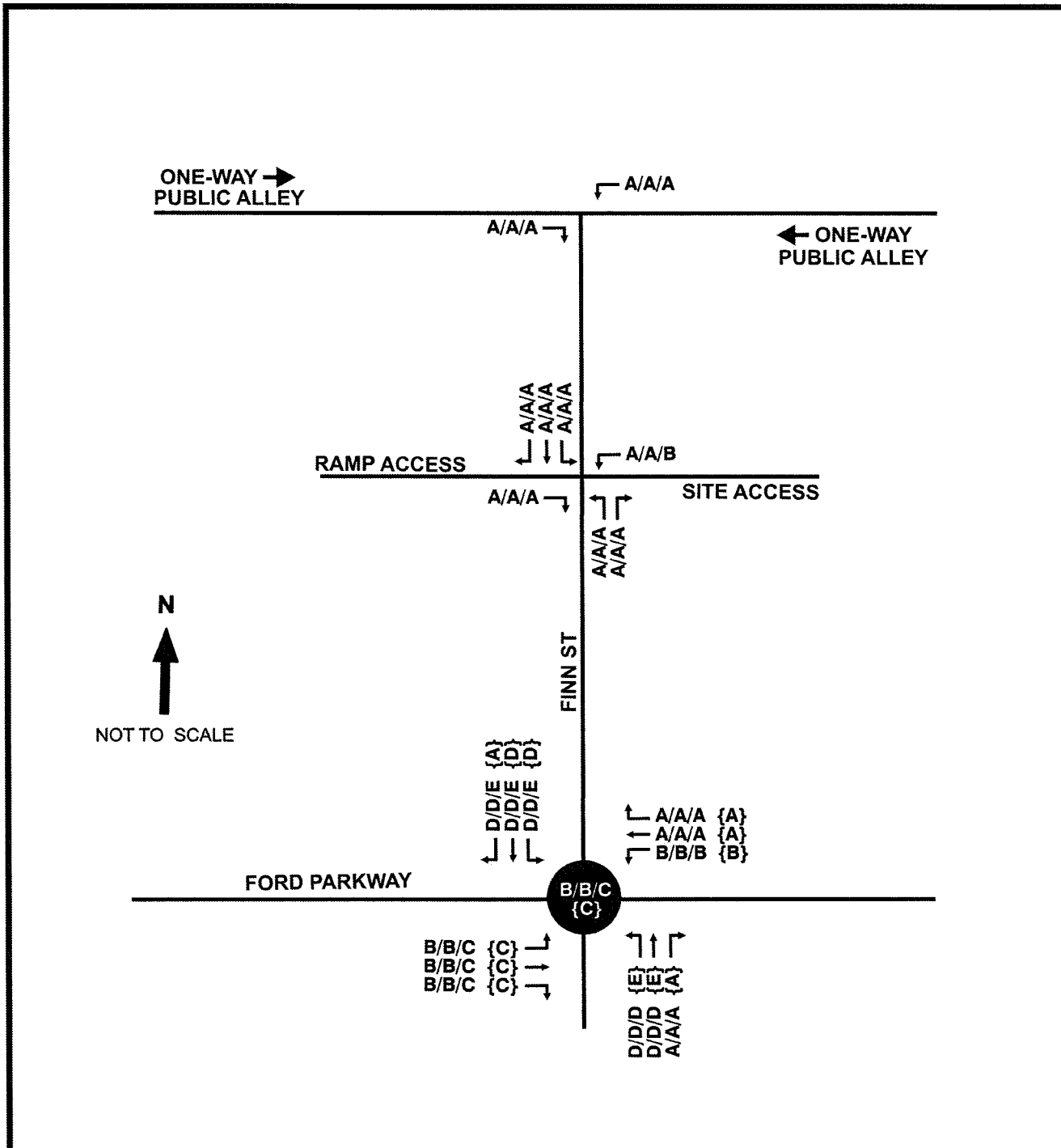
Note:
Mitigation at the Ford Parkway/Finn Street intersection consists of adding an additional southbound approach lane to provide two lanes on this approach, one functioning as exclusive right turn lane, the other as a through-left turn lane.

XX/XX/XX {BUILD LOS WITH MITIGATION}



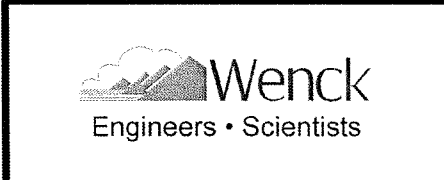
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FIGURE 6
WEEKDAY AM PEAK HOUR
LEVEL OF SERVICE



Note:
 Mitigation at the Ford Parkway/Finn Street intersection consists of adding an additional southbound approach lane to provide two lanes on this approach, one functioning as exclusive right turn lane, the other as a through-left turn lane.

XX/XX/XX {BUILD LOS WITH MITIGATION}



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FIGURE 7
WEEKDAY PM PEAK HOUR
LEVEL OF SERVICE

6.0 Conclusions and Recommendations

The conclusions drawn from the information and analyses presented in this report are as follows:

- The proposed development is expected to generate 42 trips during the weekday AM peak hour, 109 trips during the weekday p.m. peak hour, and 1,169 weekday daily trips.
- The intersections of Finn Street/Ramp Access and Finn Street/Public Alley have adequate capacity with existing geometrics and control to accommodate the proposed development while maintaining acceptable levels of service.
- Based on the level of service and queuing analysis results, we recommend that the southbound approach of Finn Street at Ford Parkway be widened and striped to create two approach lanes, with one lane for left turns/through movements and one lane for right turns only. The existing width of Finn Street in this area is 29 ½ feet face of curb to face of curb. The existing width would only allow for three 9'-10" lanes (including the gutters). We recommend a minimum width of 34 feet face of curb to face of curb to accommodate a 12 foot southbound right turn lane, a 10 foot southbound through-left turn lane, and a 12 foot northbound lane.
- The transit shelter and bus stop located in the northeast quadrant of the Ford Parkway/Finn Street intersection should be accommodated by the proposed site plan, or a new bus stop location should be coordinated with transit services.
- Consider a no parking restriction on the north side of Ford Parkway along the property frontage. This restriction would improve sight distance at the proposed right-in/right-out and allow westbound vehicles on Ford Parkway to access the site outside of the westbound through lane.
- The existing northbound approach lanes at the intersection of Ford Parkway/Finn Street consist of a left turn and right turn only designation. Modify the existing northbound pavement markings to correlate with the through-left turn lane and a right turn only usage.

7.0 Appendix

Trip Generation Worksheet

