

# CITY OF BLOOMINGTON



November 18, 2021 @ 5:30 p.m.

<https://bloomington.zoom.us/j/96714976797?pwd=ZWVvZGo3dkJtaFowZGNYNE1uajhLZz09>

Meeting ID: 967 1497 6797  
Passcode: 317157

**CITY OF BLOOMINGTON  
BOARD OF ZONING APPEALS  
November 18, 2021 at 5:30 p.m.**

❖ **Virtual Meeting:**

<https://bloomington.zoom.us/j/96714976797?pwd=ZWVyZGo3dkJtaFowZGNYNE1uajhLZz09>

Meeting ID: 967 1497 6797

Passcode: 317157

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**ROLL CALL**

**APPROVAL OF MINUTES:** None at this time.

**REPORTS, RESOLUTIONS, AND COMMUNICATIONS:**

**PETITION CONTINUED TO:** December 23, 2021

AA-20-21      **Sheila and Chris Callaway**  
3310 E. Gosport Ct.  
Request: Administrative Appeal of the Notice of Violation (NOV) for over-occupancy of one dwelling in the Residential Medium Lot (R2) zoning district.  
*Case Manager: Gabriel Holbrow*

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**PETITIONS:**

V-21-21      **North Folk Holdings, LLC**  
1600 W. 3<sup>rd</sup> St.  
Request: Variance from the maximum parking allowance in order to allow for 27 parking spaces for a new restaurant.  
*Case Manager: Keegan Gulick*

**\*\*Next Meeting: December 23, 2021**

**Petition Map: <https://arcg.is/1199u1>**

*Auxiliary aids for people with disabilities are available upon request with adequate notice. Please call [812-349-3429](tel:812-349-3429) or e-mail [human.rights@bloomington.in.gov](mailto:human.rights@bloomington.in.gov).*

**BLOOMINGTON BOARD OF ZONING APPEALS**  
**STAFF REPORT**  
**Location: 1600 W 3<sup>rd</sup> Street**

**CASE #: V-21-21**  
**DATE: November 18, 2021**

**PETITIONER:** Rusty Doss, P.E., Overland Engineering, LLC  
 1598 Imperial Center, Suite 2001, West Plains MO

North Folk Holdings, LLC  
 1598 Imperial Center, Suite 2001, West Plains MO

**CONSULTANT:** Daniel Butler, Bynum Fanyo  
 528 N Walnut Street, Bloomington IN

**REQUEST:** A variance to allow vehicle parking in excess of the Maximum Vehicle Parking Allowance for a ‘restaurant’.

**REPORT:** This 1.05 acre property is located northwest of the intersection of W 3<sup>rd</sup> Street and S Patterson Drive. The property is currently zoned Mixed-Use Medium Scale (MM). The properties to the north and east are also zoned as MM. The properties to the west are zoned Mixed-Use Employment (ME) and MM. The properties to the south are zoned as a Planned Unit Development (PUD).

The petitioners are proposing to construct a ‘restaurant’ at this location, with a total of 27 parking spaces. The UDO limits “restaurant” uses to a maximum vehicle parking allowance of 10 spaces per 1,000 sq. ft. Gross Floor Area (GFA) of indoor seating, and 5 spaces per 1,000 sq. ft. GFA of outdoor seating. The proposed site design would allow for a maximum of 20 spaces. Because of the proposed use’s design, 13 of the spaces in the parking lot are utilized for dining drive-in spaces so customers can stay in their cars while their order is brought to them. 14 of the parking spaces are for standard vehicle parking. The petitioners are requesting a variance to allow 7 parking spaces over their maximum vehicle parking allowance.

**CRITERIA AND FINDINGS FOR DEVELOPMENT STANDARDS VARIANCE**

**20.06.080(b)(3)(E)(i)(1) Standards for Granting Variances from Development Standards:** Pursuant to Indiana Code 36-7-4-918.5, the Board of Zoning Appeals or Hearing Officer may grant a variance from the development standards of this UDO if, after a public hearing, it makes findings of fact in writing, that:

- (1) *The approval will not be injurious to the public health, safety, morals, and general welfare of the community; and*

**PROPOSED FINDING:** No injury is found with the allowance of additional parking spaces.

- (2) *The use and value of the area adjacent to the property included in the development standards variance will not be affected in a substantially adverse manner; and*

**PROPOSED FINDING:** No adverse impacts to the use and value of the surrounding area associated with the proposed variance are found. The variance is not expected to have off-site negative consequences.

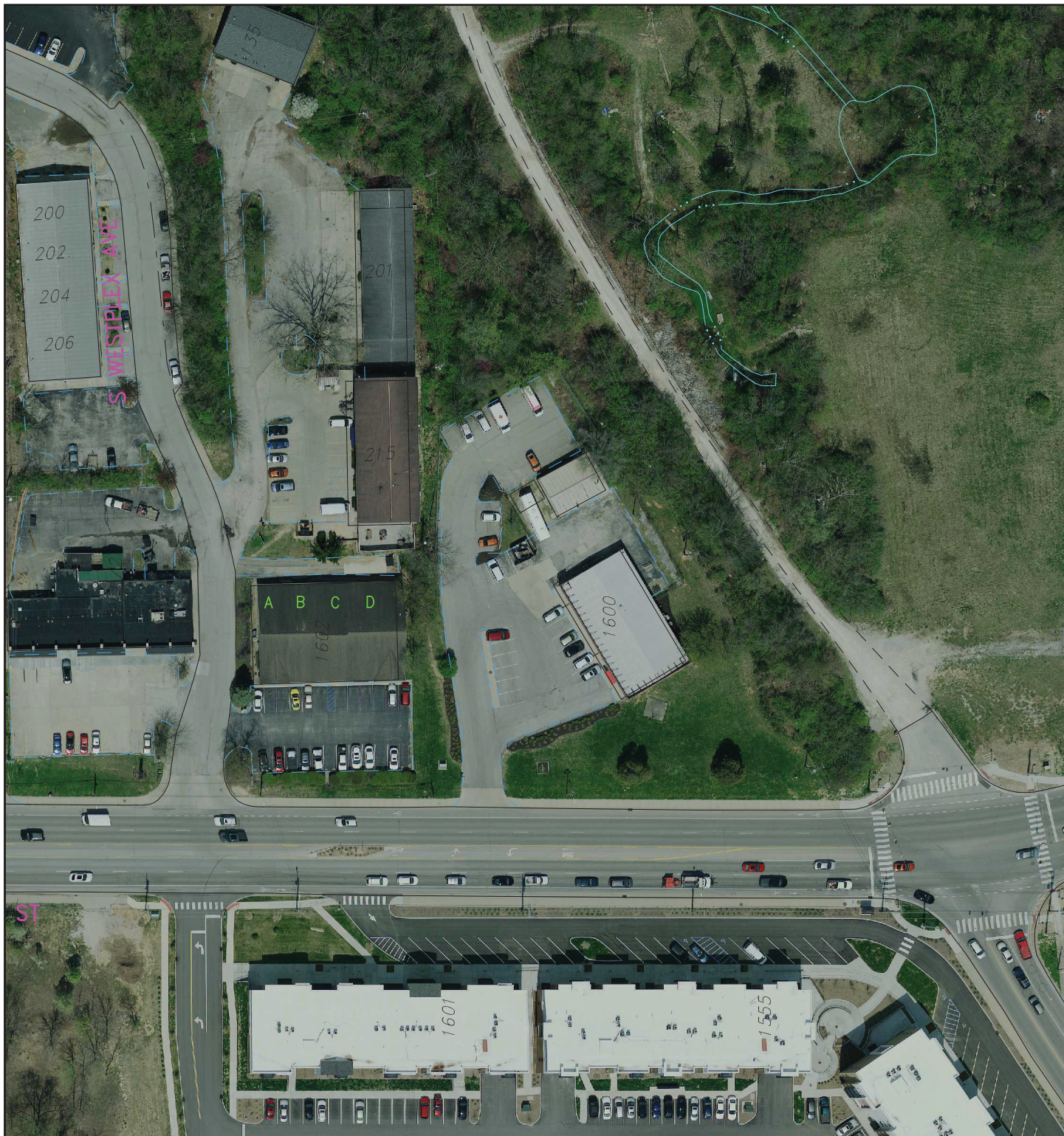
*(3) The strict application of the terms of the Unified Development Ordinance will result in practical difficulties in the use of the property; that the practical difficulties are peculiar to the property in questions; that the development standards variance will relieve the practical difficulties; and*

**PROPOSED FINDING:** No practical difficulties are found in the use of the property. A compliant parking lot with the required maximum number of spaces could be constructed on this site. The petitioner has not supplied sufficient data or reasoning indicating that there are practical difficulties in the use of the site and that a variance is necessary for relief.

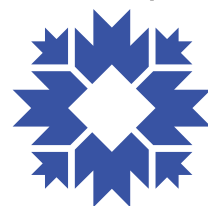
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**RECOMMENDATION:** Based upon the written report and findings of fact above, the Department recommends that the Board of Zoning Appeals adopts the proposed findings and denies V-21-21.





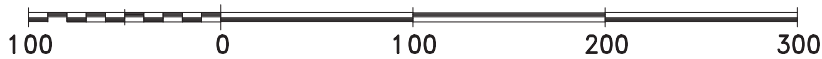
City of Bloomington  
Planning



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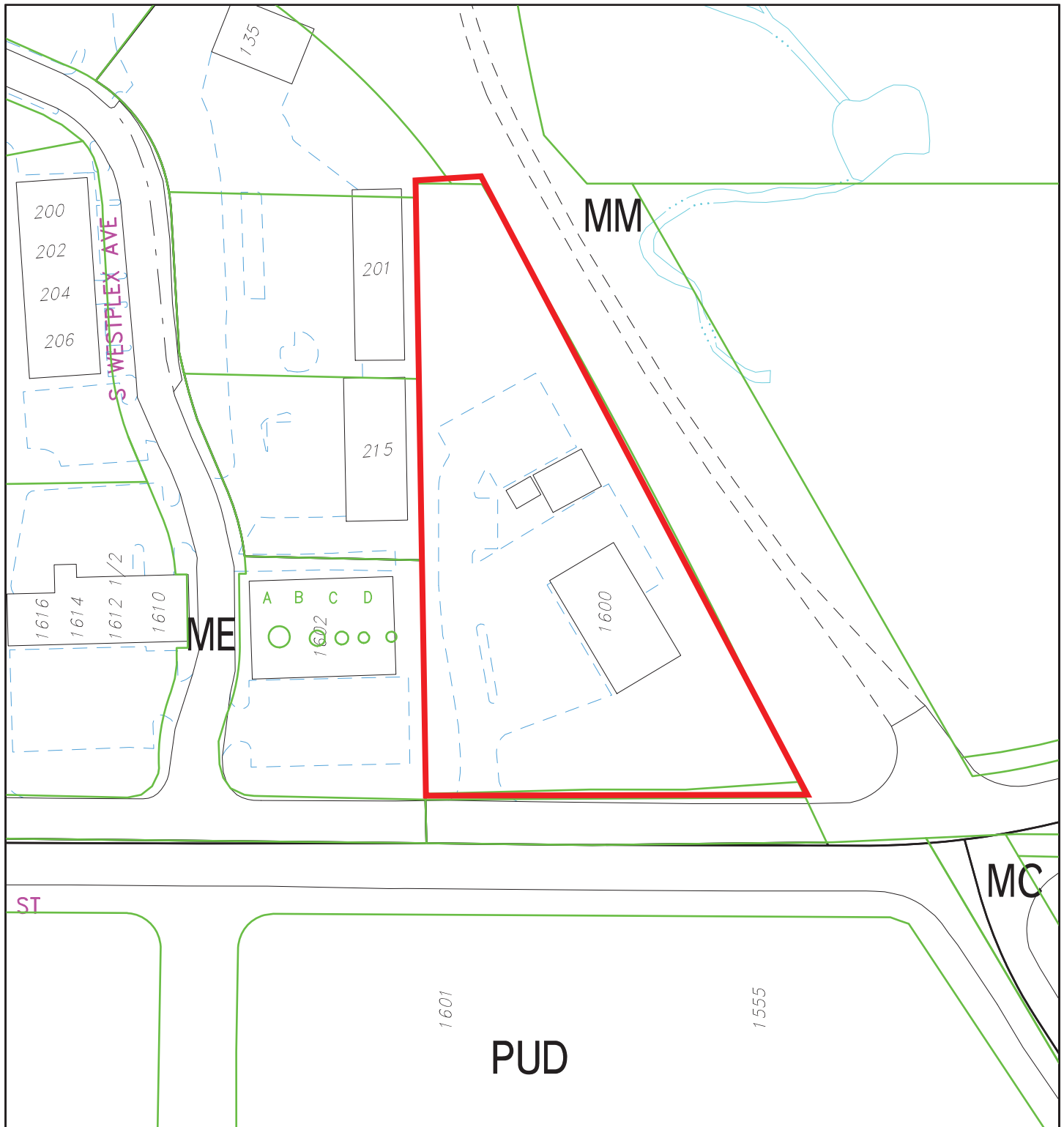
By: keegan.gulick

12 Nov 21

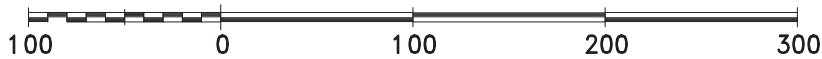


For reference only; map information NOT warranted.



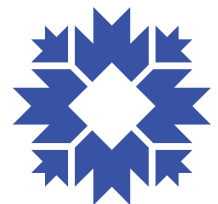


By: keegan.gulick  
 12 Nov 21



For reference only; map information NOT warranted.

City of Bloomington  
 Planning



Scale: 1" = 100'



BYNUM FANYO & ASSOCIATES, INC.

ARCHITECTURE  
CIVIL ENGINEERING  
PLANNING

October 21, 2021

City of Bloomington Board of Zoning Appeals &  
City of Bloomington Planning Department  
401 N. Morton Street  
Bloomington, Indiana 47404

RE: New Sonic Restaurant  
Parking Count Variance Petitioner's Statement

BZA members or To Whom It May Concern:

Our client, North Fork Holdings, LLC, respectfully request one variance from the development standards listed in the UDO. The variance request is allowing 27 total parking spaces (2 ADA spaces included in that number) on this site as a part of the new restaurant development. The UDO only allows 16 parking spaces.

**Project Narrative:**

The proposed development at 1600 West 3<sup>rd</sup> Street consists of developing 1 new structure for purposes of commercial restaurant development. The commercial restaurant application is a Sonic Drive-In and is unique in that a large percentage of patrons order and eat in vehicles rather than dine inside, as would be typical of a traditional restaurant. For a Sonic Drive-In, dining space is provided outside the building in the form of drive-in spaces with menu/order boards, instead of inside the building. Specifically, 13 drive-in spaces at this site will be dedicated for this purpose. Only 14 spaces will be dedicated to standard parking spaces, which would be below the max. 16 UDO standard. Of the 14 standard parking spaces, it should be noted that 10 spaces will be needed for employees during the daily peak shift. 4 standard parking spaces are allotted for patrons who choose to dine in the patio area. The entire site is within the City's 'MM' zoning boundary.

After you have had a chance to review our petition, please feel free to contact us at anytime questions regarding our submission.

Sincerely,  
Bynum Fanyo & Associates, Inc.

Daniel Butler, P.E., Project Engineer

Copy: BFA File #402128

528 NORTH WALNUT STREET  
812-332-8030

BLOOMINGTON, INDIANA 47404  
FAX 812-339-2990





**Parking Variance Narrative**  
**Sonic Drive-In**  
**1600 West 3<sup>rd</sup> Street**  
**Bloomington, Indiana**

As currently configured, the proposed Sonic Drive-In site plan includes 14 standard parking spaces and 13 drive-in spaces with menu/order boards, for a total of 27 spaces. Per City of Bloomington parking code, the proposed project is limited to 16 spaces. A parking variance is required to address the difference.

Sonic Drive-In is somewhat unique in that a large percentage of patrons order and eat in vehicles rather than dine inside, as would be typical of a traditional restaurant. For a Sonic Drive-In, dining space is provided outside the building in the form of drive-in spaces with menu/order boards, instead of inside the building. Specifically, 13 drive-in spaces at this site will be dedicated for this purpose.

Of the 14 standard parking spaces, it should be noted that 10 spaces will be needed for employees during the daily peak shift. Four standard parking spaces are allotted for patrons who choose to dine in the patio area.

**Parking Analysis**

Per the Sonic Master Traffic Manual, the peak hour traffic for a typical Sonic Drive-In is 148 vehicles. Approximately half of the vehicles will enter and half will exit, for a total of 74 new vehicles per hour. Assuming an average of 2.5 people in each vehicle, 185 customers will dine at Sonic Drive-In during the peak hour.

A typical dine-in restaurant accommodating 185 customers for the peak hour would require a dining area roughly 2,800 s.f. (15 s.f./customer). Therefore, the equivalent dining area for a typical Sonic Drive-In is 2,800 s.f. Table 4-10 of the City of Bloomington UFO, specifies the maximum parking for a dine-in restaurant is 10 per 1,000 s.f. Using this ratio for the equivalent dine-in area of a Sonic Drive-In yields a maximum of 28 spaces.

**MASTER TRAFFIC  
MANUAL  
FOR  
SONIC<sup>®</sup>  
AMERICA'S DRIVE-IN<sup>®</sup>**

**Prepared for:  
SONIC INDUSTRIES**



**Prepared By:**

PROFESSIONAL  
ENGINEERING  
ASSOCIATES



[www.peainc.com](http://www.peainc.com)

**November, 2010**

## PREFACE

On behalf of Sonic Industries, Professional Engineering Associates, Inc. (PEA) has completed this Master Traffic Manual for Sonic – America’s Drive-In® Restaurants. The purpose of this Manual is to provide franchise owners, engineering consultants, and public agencies with reliable data and information related to traffic volume generation for Sonic Restaurants.

In accordance with standard traffic engineering practice and the Ordinance requirements of many municipalities, the traffic volumes that will be generated by new developments are typically forecast based on data published by the Institute of Transportation Engineers (ITE) in their latest edition of *Trip Generation, currently in its 8<sup>th</sup> Edition*. In the case of Sonic Restaurants, the typical building size and operations do not, however, match any of the land use descriptions published by ITE.

As ITE does not provide trip generation data for land uses similar to Sonic Restaurants, many traffic studies that have been completed to date for new Sonic sites have been scrutinized. This scrutiny has delayed viable projects and cost unnecessary dollars. In order to provide reliable traffic data for reviewing agency staff, franchise owners, planners and engineers, PEA has collected trip generation data according to the guidelines ITE has set forth in the *Trip Generation Handbook, 2<sup>nd</sup> Edition* and has analyzed these data to identify the appropriate trip generation forecasts for a new Sonic Restaurant. The trip generation forecasts presented in this Manual should be used by traffic engineering professionals from local agencies to identify the impacts

of new Sonic developments on the adjacent road network, when required.

In addition to trip generation data that should be used by traffic engineers and planners to evaluate traffic-related impacts for typical Sonic operations, this Manual also provides data related to Sonic Grand Opening operations. In markets without an existing Sonic Restaurant, new Sonic locations may experience higher vehicular traffic volumes during the Grand Opening period as compared to normal operations. Recognizing this, the Sonic Corporation deploys opening operations field teams to assist the Franchisees in these markets. These field teams work with the Franchise owners in the development of vehicle staging and traffic management plans.

Utilizing this Traffic Manual these plans can be improved to more accurately predict the traffic demand that can be expected. Based on this information additional staffing may also be needed to accommodate the peak traffic volumes that will likely be generated during the Grand Opening period. This Manual will help to improve the current planning work that goes into the completion of a new Sonic development. It will help the team to gain approval from local road agencies sooner, and capture the potential lost revenues being experienced from long delays related to the current lack of understanding regarding the traffic generation from a new Sonic.

The information and data that are included in this Manual should be reviewed by franchise owners and shared with traffic engineering and planning professionals from the local municipalities associated with each new Sonic site. The trip generation rates for Sonic Restaurants

presented in this Manual were calculated according to ITE recommended practice, and should be acceptable to calculate the number of trips that will be generated by a new Sonic Restaurant. If after review of this Manual it is determined by local agency staff that a Traffic Impact Assessment (TIA) or Study (TIS) required for a new Sonic Restaurant site, this information is appropriate for such study.



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Professional Engineering Associates, Inc. (PEA) has successfully participated in a number of Sonic site Traffic Impact Assessments and approvals. If any franchise owner, planner, or engineer has questions about the contents of this Manual, please contact Michael J. Labadie, PE via email at [mlabadie@peainc.com](mailto:mlabadie@peainc.com) or call 248-698-9090, extension 112.

## SUMMARY OF RESULTS

The traffic generation information and data presented in this Manual were collected and analyzed consistent with the practices of the Institute of Transportation Engineers (ITE). The results of the study are shown in the following table. Review of this information indicates the following:

- A new Sonic will generate a low number of total trips (24) during the typical weekday morning peak hour.
- During the mid-day (lunch time) and evening peak hours the trip generation is nearly the same. A 1,728 square foot (SF) Sonic will generate 111 mid-day and 103 evening peak hour trips. On a typical weekday, a Sonic will generate 1,222 total trips. On a typical Saturday, 148 evening peak hour trips and 1,671 total daily trips will be generated.
- Based on data published by ITE for other fast-food land uses, approximately 50% of the trips generated by a Sonic can be assumed to be “pass-by” trips that are already present on the adjacent road network.
- The numbers of expected trips for a new Sonic Restaurant are below the typical thresholds most public agencies use to require a traffic impact study. If a study is required the information in this Manual should be used for the required traffic analyses.
- In markets with no existing Sonic restaurants, a new Sonic restaurant can expect a greater than typical trip generation for a short period of time. The Grand Opening trip generation should be planned for and the traffic volumes can be expected to be double those of a typical weekday evening peak hour. This traffic demand should be expected to last for a 12 hour period.

<b>SONIC TRIP GENERATION</b>			
<b>Total Trips - 1,728 SF</b>			
<b>TIME</b>	<b>IN</b>	<b>OUT</b>	<b>TOTAL</b>
<b>TYPICAL WEEKDAY</b>			
AM	12	12	24
MD	58	53	111
PM	52	51	103
DAILY			1,222
<b>TYPICAL SATURDAY</b>			
AM	11	11	22
MD	73	68	141
PM	74	74	148
DAILY			1,671

## INTRODUCTION

If it is necessary to determine the traffic-related impacts of a new development, property owners, engineers, and public agencies must forecast the number of vehicle trips that will be generated by the proposed land uses. The Institute of Traffic Engineers (ITE) publishes two reference materials that are used by traffic and transportation engineers to forecast future vehicle trips based on the size and type of land use. These future traffic volume forecasts are often used to determine the requirements for development traffic study. When local agencies require the completion of a traffic study, the trip generation forecasts are used to analyze site access, needs for off-site roadway improvements, and potential zoning modifications. ITE's *Trip Generation, 8<sup>th</sup> Edition* contains statistical data, trip generation rates, and equations for a variety of land uses and sizes. The purpose of *Trip Generation* is to provide information for engineers to forecast the number of daily and peak hour vehicle trips that will be generated by a particular land use. Additionally, ITE has published the *Trip Generation Handbook, 2<sup>nd</sup> Edition*. The purpose of this handbook is to promote the proper use of *Trip Generation*, and to provide guidelines for supplemental issues such as the collection and use of new trip generation data.

The building size and service operations of a Sonic Restaurant are not accurately reflected in the data contained in ITE's *Trip Generation*. Therefore, the use of data published by ITE is not appropriate to forecast the number of vehicle trips that will be generated by a Sonic site. Professional Engineering Associates, Inc. (PEA) has conducted a trip generation study specific to Sonic Restaurants in accordance with Chapter 4 of ITE's *Trip Generation Handbook*. The data and trip generation rates documented in this Manual should be used to accurately forecast the number of daily and peak hour trips that will be generated by a Sonic Restaurant. Additionally, this Manual contains information related Grand Opening traffic volume generation (for use in markets with no existing Sonic Restaurants), based on historical Sonic transaction data.

## PURPOSE OF THIS STUDY

According to ITE, "The general purpose of a trip generation study is to collect and analyze data on the relationship between [vehicle] trip ends and site characteristics for a particular land use." Furthermore, ITE indicates that a trip generation study should be conducted when a land use is not covered by *Trip Generation* or the size of the land use is outside the range of *Trip Generation* data points. The purpose of this Manual, therefore, is to document the trip generation study conducted specifically for Sonic Restaurants, which is not adequately reflected in the data published by ITE.

## TRIP GENERATION STUDY DESIGN

Trip Generation Study design for a particular land use should include the number of survey sites, selection of appropriate sites, survey period, and independent variable data. This section of the Manual outlines the methodologies of the trip generation study, in accordance with ITE guidelines.

### ***Sample Size Determination***

The ITE *Trip Generation Handbook* indicates that in order to establish a trip generation rate, at least three (3) and preferably five (5) sites should be surveyed. In order to identify a reliable trip generation rate for Sonic Restaurants in accordance with ITE recommended practice, seven (7) candidate survey sites were identified for this study.

### ***Site Selection***

Each of the candidate survey sites were evaluated prior to data collection to ensure that the ITE guidelines for site selection were satisfied. These criteria include:

- No shared parking (unless the driveways for the site are easily distinguishable),
- No shared driveways,
- Limited ability for pedestrians to walk into the site from nearby parcels,
- Limited transit availability or use, and
- No through-traffic.

Based on these criteria, one (1) candidate site was discarded due to the interconnectivity with adjacent land uses. The other six (6) subject sites were identified as meeting the ITE criteria for site selection and trip generation data collection. The subject sites for this study are located in Ohio, Illinois, California, Oregon, Pennsylvania, and New Jersey.

### ***Independent Variable Selection and Data Collection Requirements***

According to the methodologies published by ITE for a new land use, one or more appropriate independent variables need to be identified, measured, and analyzed. These independent variable data must be readily available and accurately measured. Furthermore, the number of trips generated by a particular land use should be “influenced in a logical way by the independent variable.” For example, the square footage of a land use may be logically and statistically correlated to the number of vehicle trips the site will generate. However, if the number of blades of grass on the site is statistically correlated to vehicle trip generation, this correlation is not logical, and should not be applied for future site traffic forecasts.

For this Manual, the following independent variables were measured and analyzed for each subject site:

- Building size, in square feet (SF),
- Number of parking stalls with speaker box ordering,
- Number of total parking stalls for the site, and
- Number of seats in the patio seating area.



### ***Survey Periods***

Traffic volume data in and out of each study site were collected on a typical weekday during the AM (7:00 to 9:00) and PM (4:00 to 6:00) peak periods of adjacent road traffic. These time periods are typically analyzed in standard traffic engineering practice to identify the critical impacts of a new development on the adjacent road network. According to this practice, these time periods are reflected in the trip generation data for the land uses published in ITE's *Trip Generation*. Additionally, traffic volume data were collected during the Mid-Day (MD, 12:00 PM to 1:00 PM) peak hour, as identified as the peak hour of operations by Sonic. Care was taken to avoid collecting data during special events, holidays, construction periods, bad weather, and other times when typical traffic generation may be influenced.

### ***Conducting the Trip Generation Study***

Directional traffic volumes were manually counted in 15-minute increments during the weekday (Tuesday, Wednesday, Thursday) AM, MD, and PM study periods. Additionally, traffic volumes using the drive-through, speaker box, and patio ordering stations were identified. When employee shift changes occurred during the traffic data collection periods, employee vehicle trips were identified. Based on the observations of this data collection process, heavy vehicle trips did not occur during the peak periods of data collection, and pedestrian customer volumes were insignificant.

### ***Establishment of Trip Generation Rate***

The rates and equations for a "Fast Food Restaurant with Drive-Through Service" published by ITE are not applicable for a Sonic Restaurant for the following reasons:

- The building size (SF) of a typical Sonic Restaurant is not commensurate with the typical building size for other comparable fast-food land uses, and
- Other fast-food land uses do not provide parking stall speaker "Car-Hop" services.

Sonic Restaurants have a standard building size, outdoor patio seating area, and site layout. For this reason, it is appropriate to derive a trip generation rate which is specific to all Sonic Restaurants. This rates established in this Manual are based on the survey of six (6) national Sonic locations and statistical analysis of the relationship between site characteristics and trip generation. The calculation of trip generation rates in this Manual are based on the recommended practices of ITE as outlined in the *Trip Generation Handbook, 2<sup>nd</sup> Edition*.

### ***Pass-By and Diverted Link Trips***

Although the relationship between building size and trip generation differs between a Sonic Restaurant and other fast-food land uses, engineers and planners should recognize that a portion of the trips generated by a Sonic Restaurant are already present on the adjacent road network, and are interrupted to visit the site. The proportion of pass-by trips for a Sonic (not

specifically measured for this Manual), can be assumed to be equal to the proportion of pass-by trips for typical fast-food restaurant with drive-through service. Therefore, the proportion of Sonic vehicle trips that are pass-by should be assumed to be 49% during the AM peak hour, and 50% during the PM peak hour. Pass-by trips during the MD and Saturday peak hours can be reasonably assumed to be 50% of the total trip generation based on this information.

## STUDY RESULTS

The data collected for this trip generation study indicate that most Sonic Restaurants have similar site characteristics in terms of building size, number of parking stalls, and number of speaker boxes. However, a variation in the number of peak hour vehicle trips between each site was observed. Statistically, the variation in site trip generation rates is not strongly correlated to any of the candidate independent variables. In accordance with the data published by ITE for most other land uses, the trip generation rate for Sonic Restaurants was therefore calculated based on building size in SF.

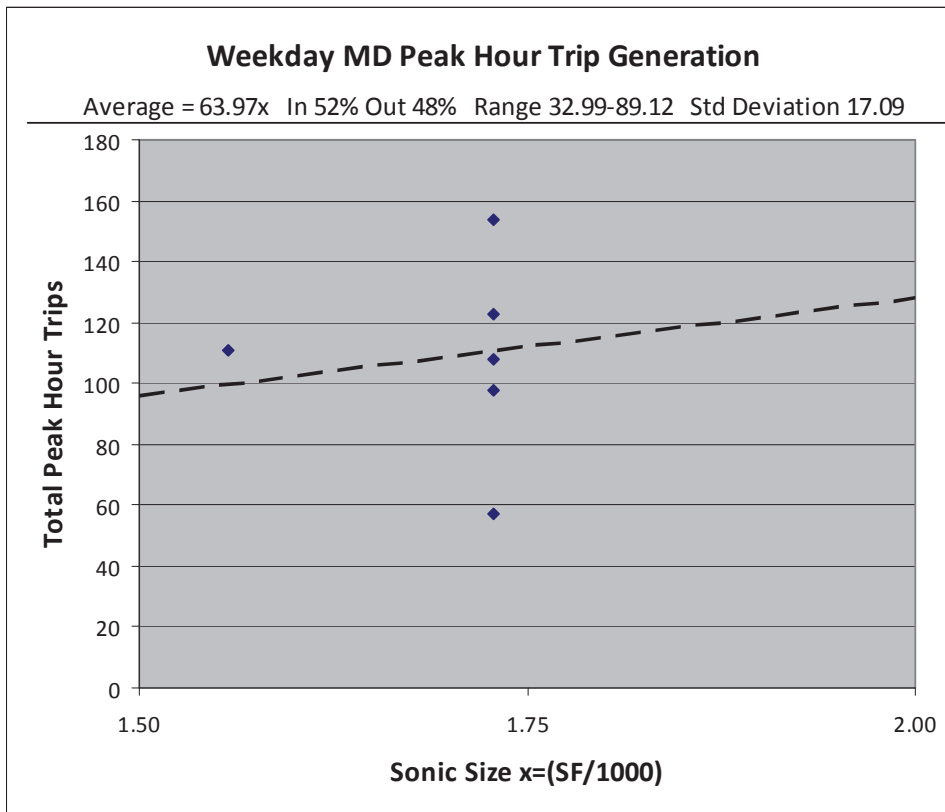
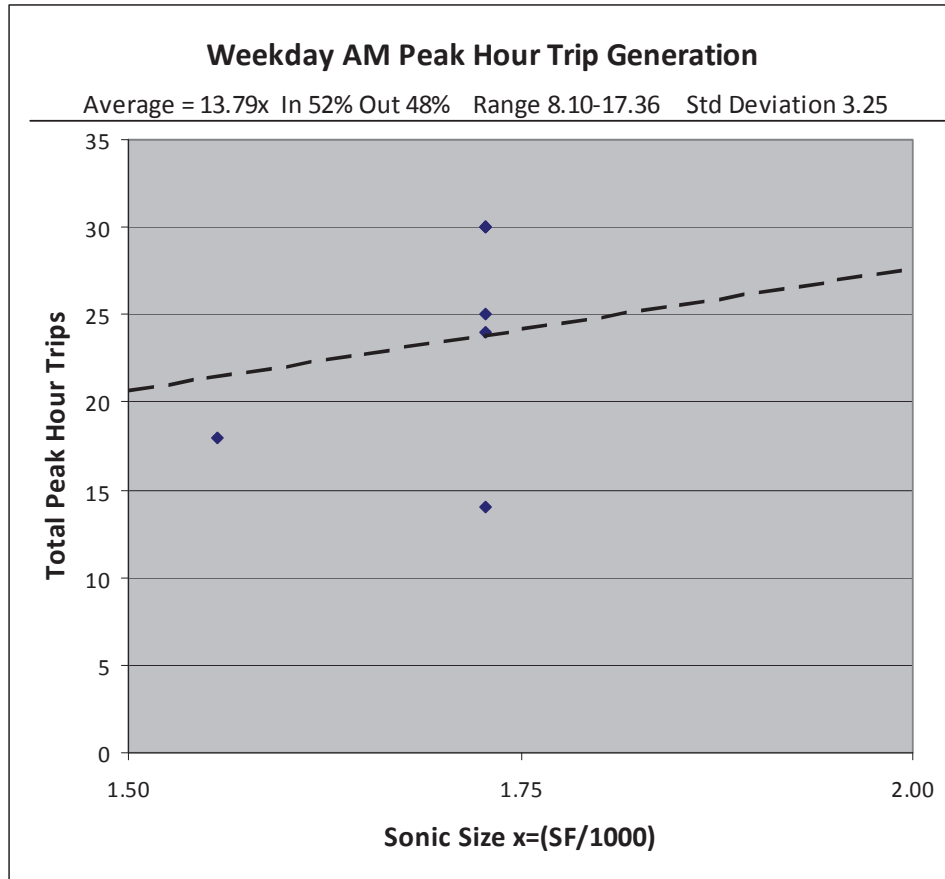
### *Typical Sonic Trip Generation*

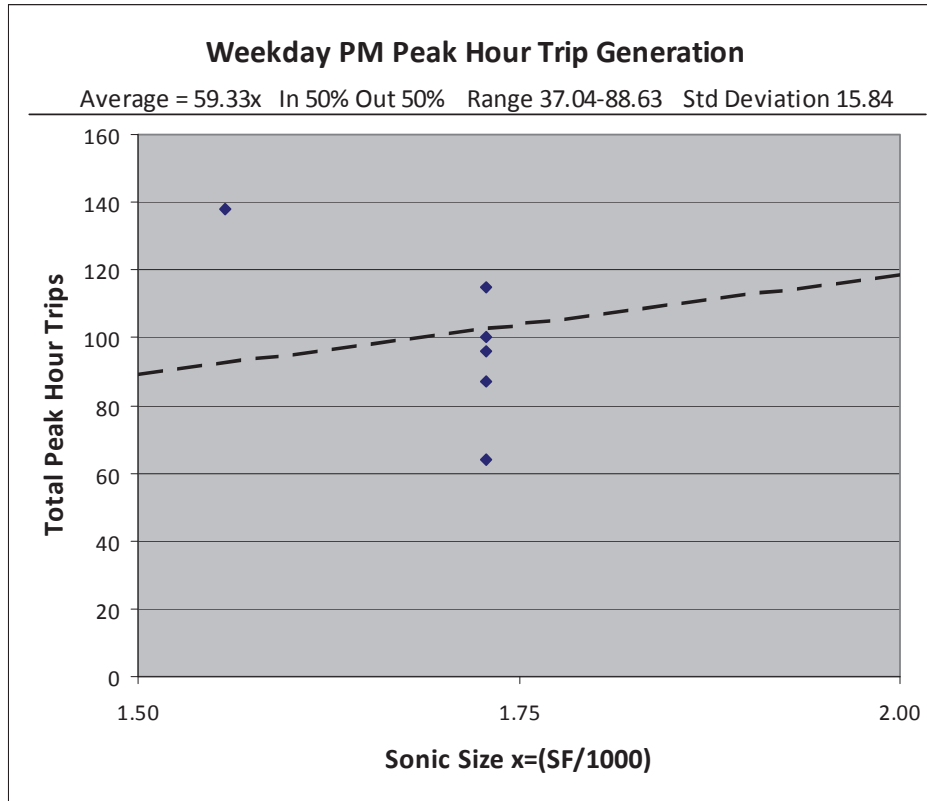
The number of AM and PM weekday peak hour vehicle trips that are generated by a particular land use are typically critical for the design of site access and any required adjacent roadway improvements. For fast-food land uses, some public agencies require the analysis of mid-day (MD) traffic operations. Therefore, the AM, MD, and PM trip generation rates were calculated for this Manual.

As stated above, none of the candidate independent variables are strongly correlated to the number of peak hour vehicle trips that are generated by a Sonic Restaurant. Therefore, the following graphs provide information related to the average, minimum, and maximum trip generation rates based on the size in SF of the Sonic Restaurants surveyed. Furthermore, the standard deviation in the trip generation rate is provided. The average percentage of total vehicle trips in and out of a Sonic Restaurant is also shown.

Most Sonic Restaurants have a building size of between 1,650 SF and 1,728 SF. Based on the trip generation data shown in the following plots, all new Sonic sites with a size of 1,728 SF should be forecast to generate **24 total AM peak hour (12 inbound and 12 outbound), 111 MD peak hour (58 inbound and 53 outbound) and 103 PM peak hour (52 inbound and 51 outbound) trips**, in accordance with ITE recommended practice for trip generation.

The number of weekday and Saturday peak hour trips was determined based on the proportion of weekday peak hour versus daily and Saturday peak hour transactions for each study site. The results of this comparison indicate that a 1,728 SF Sonic Restaurant should be forecast to generate **1,222 daily trips** on a typical weekday. On a typical Saturday, a Sonic should be forecast to generate **22 AM peak hour, 141 MD peak hour, 148 PM peak hour, and 1,671 daily trips**. In many locations, the Saturday peak hour will not be critical, but some jurisdictions may require analysis of Saturday peak hour traffic operations for new restaurant land uses.

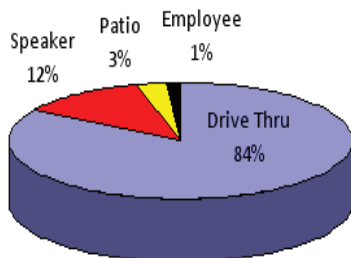




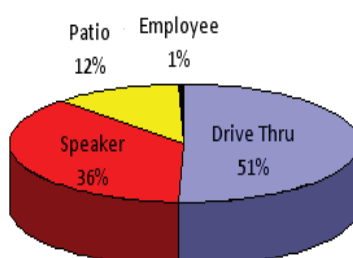
**Drive-Through and Speaker Customers**

The proportion of drive-through versus speaker box customers may be important for the design and approval of Sonic Restaurants in certain jurisdictions. Local agencies will typically require adequate design of drive-through stacking space for fast-food restaurants. Based on data provided by Sonic Industries, the average service rate for customer service is approximately 3 minutes. A queuing analysis of vehicle demands versus this service rate indicates that a drive-through stacking area for at least 6 vehicles should be provided. This stacking area is provided in most typical Sonic site designs, but this design consideration should not be overlooked. The proportions of drive-through versus speaker box, patio, and employee trip generation are shown in the following pie charts.

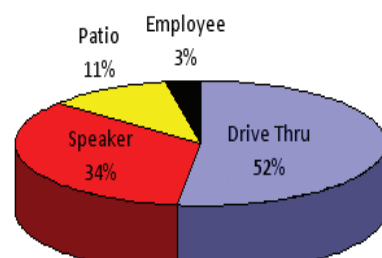
AM Peak Hour Customer Distribution



MD Peak Hour Customer Distribution



PM Peak Hour Customer Distribution



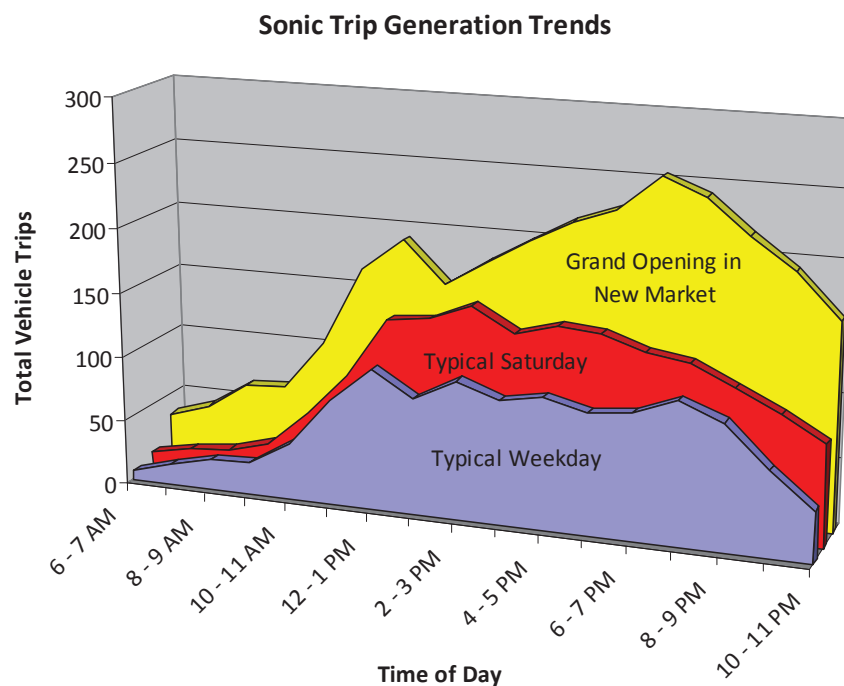


### **Grand Opening Trip Generation**

In markets with no existing Sonic Restaurants, new Sonic locations may experience higher vehicular traffic volumes during the Grand Opening period as compared to normal operations. All of the sites studied for this Manual were in new markets, where according to corporate information, volumes can be 20 to 30 percent higher than chain-wide average. In markets with a significant Sonic presence, the duration and the magnitude of the Grand Opening traffic is not as great for a new development. Accepted traffic engineering practice does not require that site access and adjacent road improvements be designed for these short term, non-typical peak periods of traffic; however on-site facilities and Grand Opening staging areas are an important consideration for new Sonic Sites.

During the Grand opening period, heightened peak hour traffic volumes and peak periods of demand that last longer than during typical Sonic operations can be expected. The peak hour trip generation data collected by PEA were adjusted based on Sonic Grand Opening versus typical transaction data to forecast the number of hourly vehicle trips that would be generated by a Sonic Restaurant in a new market during the Grand Opening period. The results of this analysis indicate that between 11:00 AM and close, new Sonic Restaurants could (depending on the market conditions) experience vehicle demands which exceed the single peak hour vehicle demands during typical operations.

The Grand Opening demand that will likely be generated by a new Sonic development could last for a 12 hour period. The transaction data indicates that traffic demands during the Grand Opening period may double as compared to typical weekday peak hour operations.



**For Additional  
Services, Please  
Contact:**

**PROFESSIONAL  
ENGINEERING  
ASSOCIATES**



**CORPORATE OFFICE**

**2430 Rochester Court, Suite 100**

**Troy, Michigan**

**248-689-9090**

**[www.peainc.com](http://www.peainc.com)**

**Michael J. Labadie, PE**

**[mlabadie@peainc.com](mailto:mlabadie@peainc.com)**