



G R E S H A M
S M I T H A N D
P A R T N E R S

December 21, 2015

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**Subject: Proposed Development Trip Generation
 Baxter Broadway Apartments
 Intersection Baxter Ave and East Broadway, Louisville KY
 GS&P Project No. 41213.00**

During preliminary discussions of the Detailed District Development Plan, city staff requested a trip generation calculation of the proposed development. Based on the Institute of Transportation Engineers (ITE) methodology and reference tables in the ITE Trip Generation manual, the proposed development is expected to generate 344 total trips in the AM peak hour and 306 total trips in the PM peak. Detailed calculations as well as reference charts can be found attached.

The proposed development will be served by a single parking deck wrapped with both residential and commercial spaces. The current design has two full movement access points to the deck: Baxter Ave, East Broadway, as well as an "emergency access only" connection to the deck via the southern alley. It is assumed that 50% of trips will enter / exit from Baxter and 50% of trips will enter / exit from East Broadway.

Proposed Development:

- 4-Story Mixed Use Development Building
 - 281 Apartment Units (ITE Code 223)
 - 17,500 SF Commercial space at corner of Baxter / East Broadway (Small Shops – ITE Code 814)
 - 16,000 SF Commercial space along Baxter Ave (Small Shops – ITE Code 814)

It should be noted that approximately 60% of these trips are based on preliminary assumptions of the commercial portion of the project. Due to the lack of defined programming and tenants, it was assumed that the peak trip generation of these uses would coincide with the peak of the adjacent roadways. While this is unlikely to occur, a

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worst case scenario is presented in these calculations. For the purposes of this analysis, it was assumed that both commercial areas of the proposed plan would be small inline shops / specialty retail. Please refer to the bottom of the calculations attached to this summary for total trips entering and exiting each access point.

No background traffic was analyzed in this study.

Should you have any further questions, please do not hesitate to contact me.

A handwritten signature in black ink, appearing to read "MAT", with a long horizontal flourish extending to the right.

Matthew A. McLaren, PE
Senior Engineer, Gresham Smith and Partners

Attachments:

- Calculations
- ITE Trip Generation Charts

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BAXTER BROADWAY APARTMENTS - TRIP GENERATION

AM Peak Hour		PM Peak Hour	
Generation		Generation	
Mid-Rise Apartments (ITE Code 223)		Mid-Rise Apartments (ITE Code 223)	
Trip Generation (T) = 0.46 (x) – 14.01		Trip Generation (T) = 0.53 (x) – 11.27	
Trip Distribution: 29% Entering, 71% Exiting		Trip Distribution: 59% Entering, 41% Exiting	
X = 281 Units		X = 281 Units	
Total Trips	115	Total Trips	138
Trips Exiting:	82	Trips Exiting:	57
Trips Entering:	33	Trips Entering:	81
Retail 1 (ITE Code 814)		Retail 1 (ITE Code 814)	
Trip Generation (T) = Avg Rate = 6.84 / 1,000 sf		Trip Generation (T) = Avg Rate = 5.02 / 1,000 sf	
Trip Distribution: 48% Entering, 52% Exiting		Trip Distribution: 56% Entering, 44% Exiting	
X = 16,000 / 1,000 sf		X = 16,000 / 1,000 sf	
Total Trips	109	Total Trips	80
Trips Exiting:	57	Trips Exiting:	35
Trips Entering:	52	Trips Entering:	45
Retail 2 (ITE Code 814)		Retail 2 (ITE Code 814)	
Trip Generation (T) = Avg Rate = 6.84 / 1,000 sf		Trip Generation (T) = Avg Rate = 5.02 / 1,000 sf	
Trip Distribution: 48% Entering, 52% Exiting		Trip Distribution: 56% Entering, 44% Exiting	
X = 17,500 / 1,000 sf		X = 17,500 / 1,000 sf	
Total Trips	120	Total Trips	88
Trips Exiting:	62	Trips Exiting:	39
Trips Entering:	58	Trips Entering:	49
Roadway Totals		Roadway Totals	
Baxter Ave Driveway		Baxter Ave Driveway	
Trips Exiting:	101	Trips Exiting:	66
Trips Entering:	72	Trips Entering:	88
East Broadway Driveway		East Broadway Driveway	
Trips Exiting:	101	Trips Exiting:	66
Trips Entering:	72	Trips Entering:	88
Rogers Street Driveway		Rogers Street Driveway	
Trips Exiting:	0	Trips Exiting:	0
Trips Entering:	0	Trips Entering:	0

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Land Use: 223 Mid-Rise Apartment

Description

Mid-rise apartments are apartments (rental dwelling units) in rental buildings that have between three and 10 levels (floors). Apartment (Land Use 220), low-rise apartment (Land Use 221) and high-rise apartment (Land Use 222) are related uses.

Additional Data

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed in the late 1980s in Montgomery County, Maryland.

Source Number

321

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Mid-Rise Apartment (223)

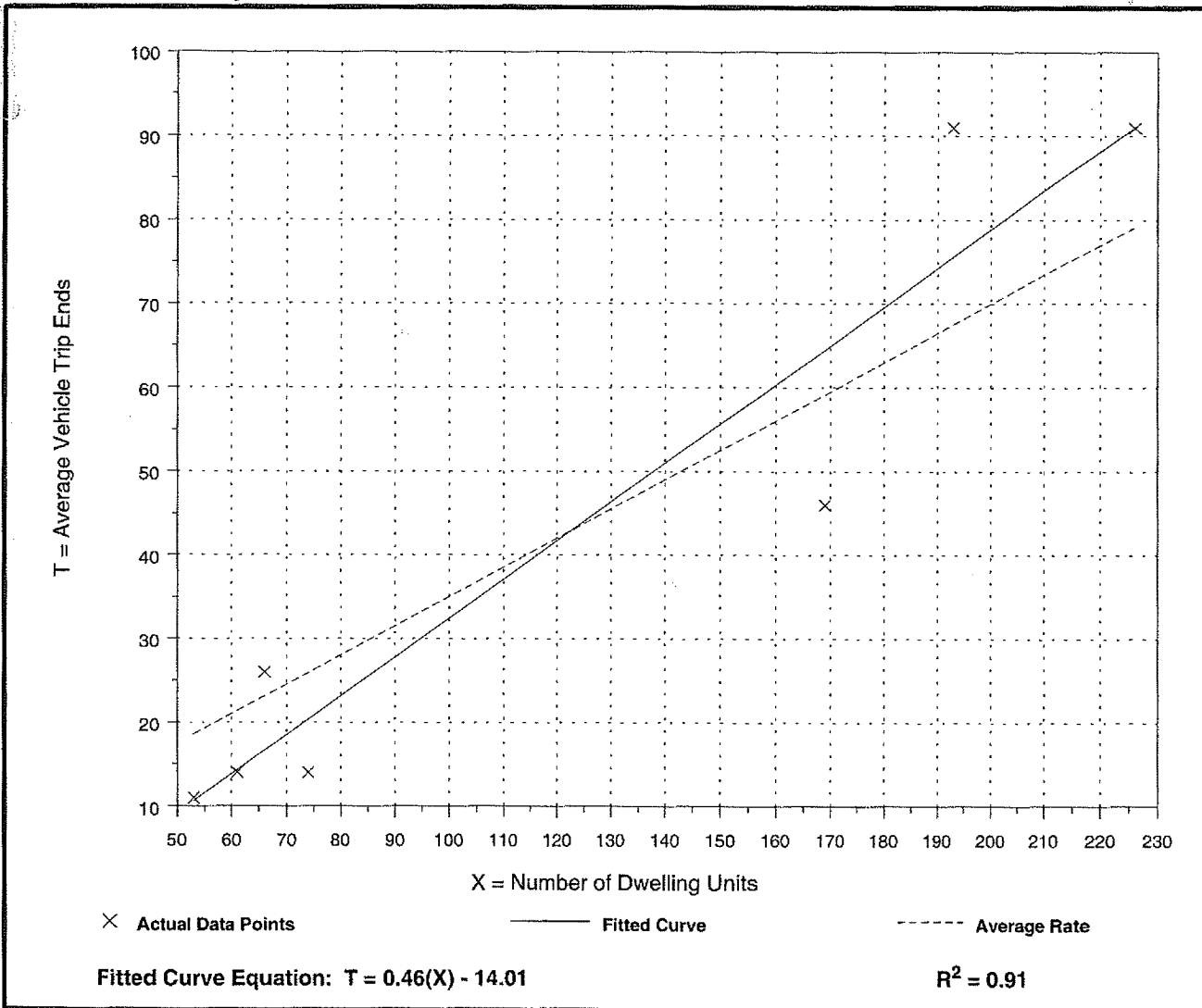
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
A.M. Peak Hour of Generator

Number of Studies: 7
 Avg. Number of Dwelling Units: 120
 Directional Distribution: 29% entering, 71% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.35	0.19 - 0.47	0.60

Data Plot and Equation



Mid-Rise Apartment (223)

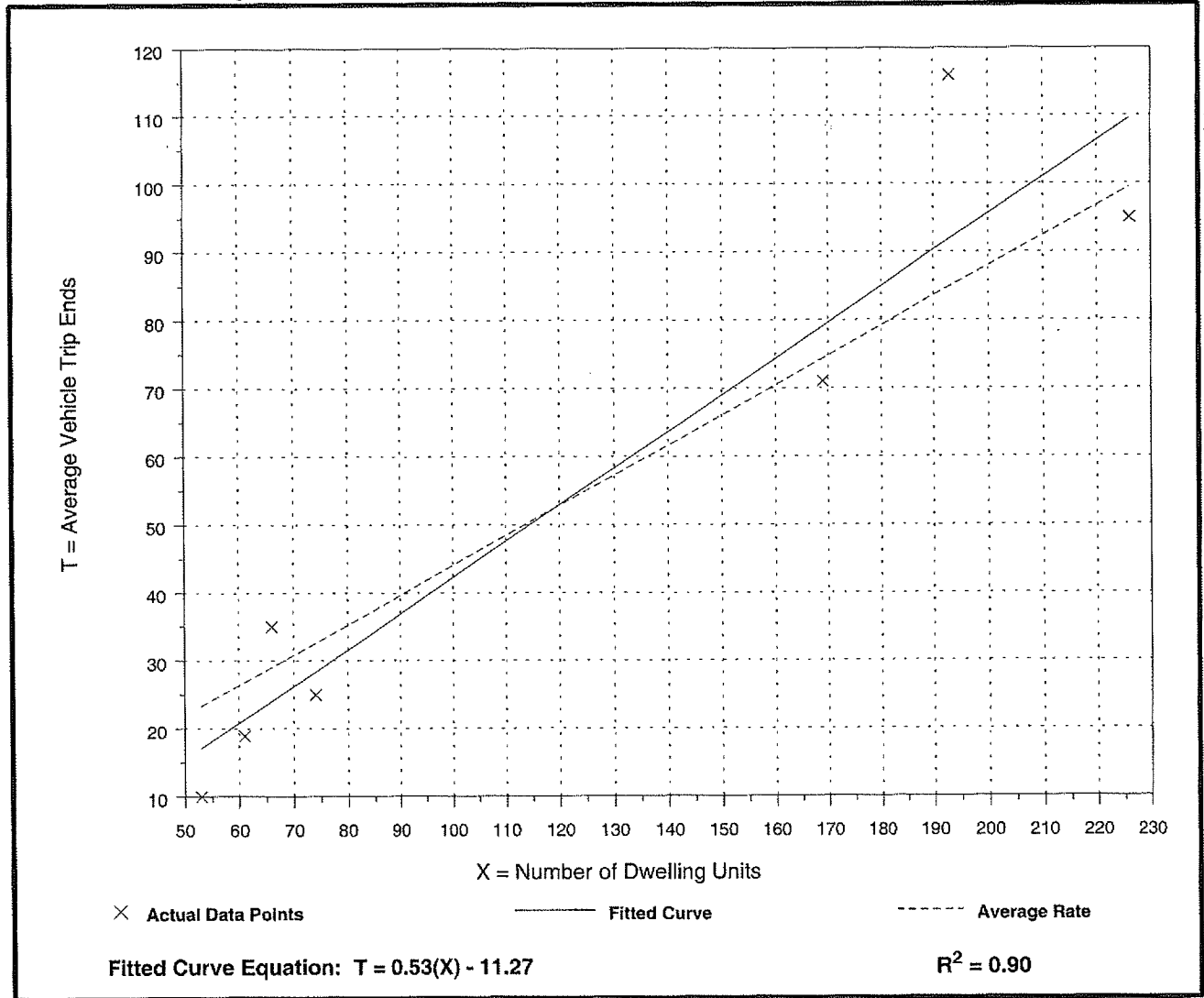
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
P.M. Peak Hour of Generator

Number of Studies: 7
 Avg. Number of Dwelling Units: 120
 Directional Distribution: 59% entering, 41% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.19 - 0.60	0.67

Data Plot and Equation



Land Use: 814 Specialty Retail Center

Description

Specialty retail centers are generally small strip shopping centers that contain a variety of retail shops and specialize in quality apparel, hard goods and services, such as real estate offices, dance studios, florists and small restaurants. Shopping center (Land Use 820) is a related use.

Additional Data

The sites were surveyed between the late 1970s and the 2000s in California, Florida, Georgia, New York and Pennsylvania.

Source Numbers

100, 304, 305, 367, 423, 507, 577

Specialty Retail Center (814)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday,
A.M. Peak Hour of Generator

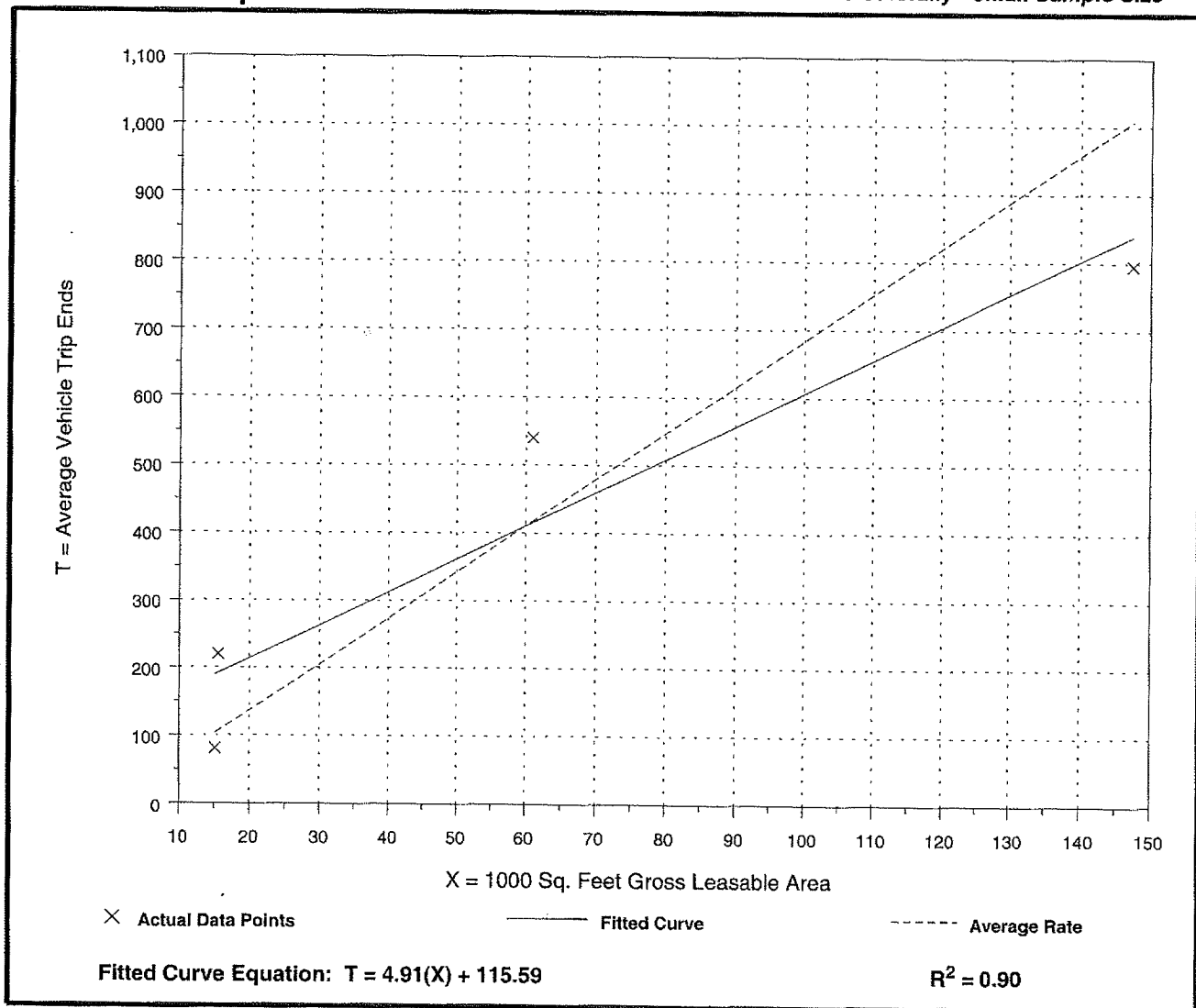
Number of Studies: 4
 Average 1000 Sq. Feet GLA: 60
 Directional Distribution: 48% entering, 52% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
6.84	5.33 - 14.08	3.55

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Specialty Retail Center (814)

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday,
P.M. Peak Hour of Generator

Number of Studies: 3
 Average 1000 Sq. Feet GLA: 75
 Directional Distribution: 56% entering, 44% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
5.02	4.59 - 6.18	2.31

Data Plot and Equation

Caution - Use Carefully - Small Sample Size

