WELLS + ASSOCIATES

MEMORANDUM

To: Jason Widstrom
Falls Church Department of Public Works

From: William F. Johnson, P.E.
Andrew C. Buntua, P.E.

Re: Founders Row

Subject: Signal Warrant Analysis
North West Street/Park Avenue/Mason Avenue

Date: February 20, 2018

INTRODUCTION

This report presents the results of a traffic signal warrant analysis conducted for the intersection of North West Street/Park Avenue/Mason Avenue in the City of Falls Church, Virginia. The purpose of this study is to determine whether or not a new traffic signal would be warranted at the subject intersection coincident with the full build out of the approved Founders Row mixed-use development.

The conclusions of this signal warrant study are as follows:

> ***A signal <u>is warranted</u> at the North West Street/Park Avenue/Mason Avenue intersection at full build out of the Founders Row development. The following warrants are met:***
>
> - ***Warrant 3A: Peak Hour Delay***
> - ***Warrant 3B: Peak Hour Volume***

BACKGROUND

On January 11, 2016, the Falls Church City Council approved rezoning and special exception applications for Founders Row (formerly Mason Row), subject to Voluntary Concessions (VC's) which permit the development of a mixed-use development. Subsequent to Council approval, the applicant has submitted a site plan conforming to the approved conceptual development plan and reflecting the following mix of uses (as shown on Figure 2):

- 58,356 gross square feet (GSF) of commercial (retail) uses
- 72 active adult dwelling units
- 322 apartment dwelling units
- 4,946 GSF of office uses

Figure 1
Site Location

North

Founders Row
City of Falls Church, Virginia

Wells + Associates, Inc.

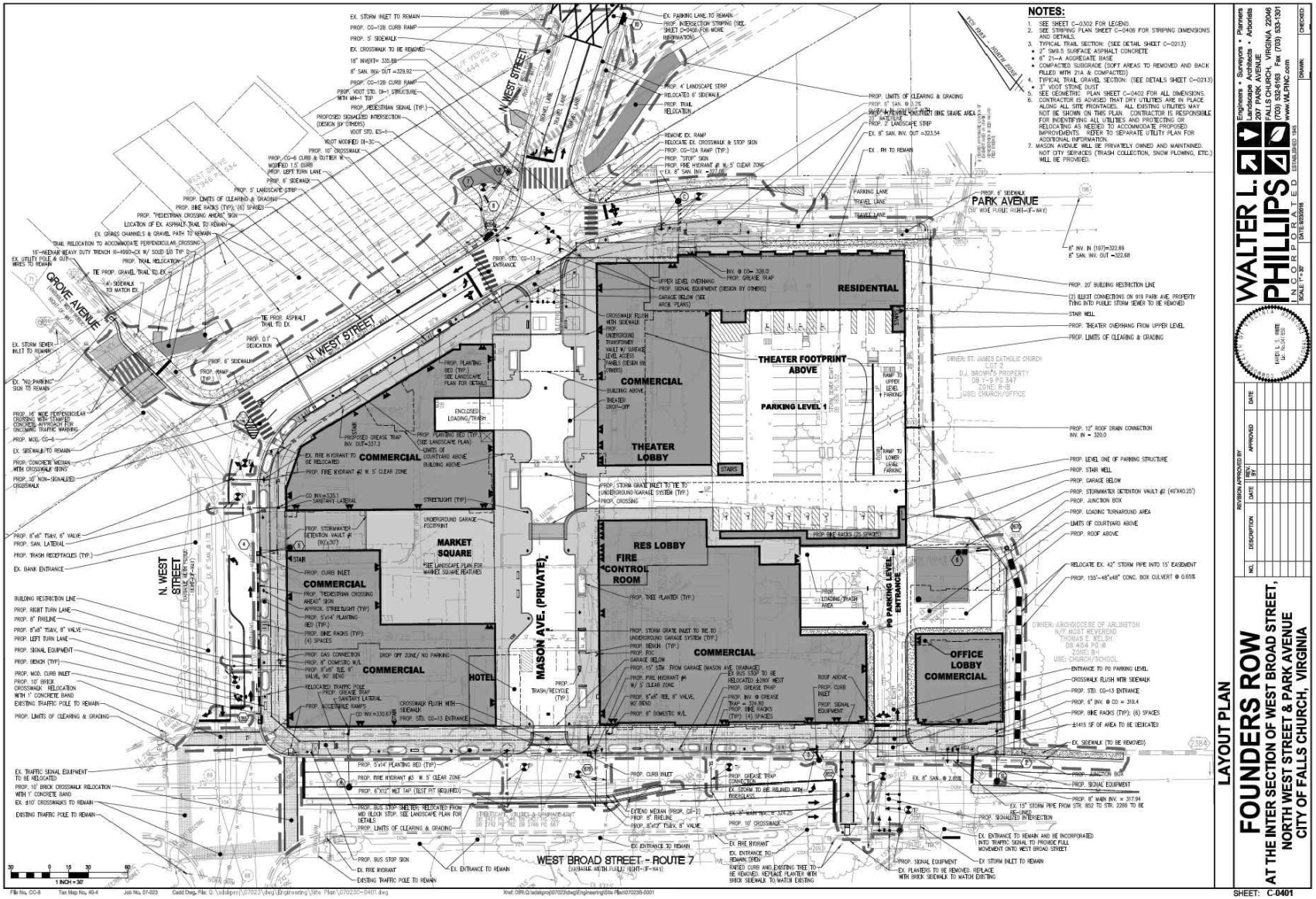


Figure 2
Site Plan Reduction

North

- 800-seat theater

This analysis addresses, specifically, VC#11 which commits the applicant to transportation improvements, including roadway improvements and traffic signals. A copy of the Council accepted Voluntary Concessions is included as Appendix A.

This report provides the signal warrant analysis of the North West Street/Park Avenue/Mason Avenue intersection. The location of this intersection is depicted on Figure 1.

This study was conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD)[1] 2009 Edition. The following sections detail the warrant analysis and associated results.

STUDY SCOPE

The primary purpose of this study is to evaluate the need for a new traffic signal at the intersection of North West Street/Park Avenue and the future Mason Avenue. Tasks undertaken in this study included the following:

- A field reconnaissance of existing roadway and intersection geometrics, traffic controls, speed limits, and other data.
- Collection of 13-hour turning movement counts at the subject intersection on a typical weekday.
- Development of projected traffic forecasts under total future full build-out conditions.
- Evaluation of the traffic signal warrants at the subject intersection as published by the Manual on Uniform Traffic Control Devices (MUTCD), under total future full build-out conditions.

Manual on Uniform Traffic Control Devices (MUTCD)

The signal warrant analyses were performed using the warrant criteria provided in the MUTCD, 2009 as reported by TEAPAC software, [version 8.23.05]. The MUTCD currently lists nine warrants, or criteria, which are used to define the relative need for, and appropriateness of traffic signals. The nine warrants currently recognized by the MUTCD are the following:

Warrant 1 – Eight – Hour Vehicular Volume
Warrant 2 – Four – Hour Vehicular Volume
Warrant 3 – Peak Hour
Warrant 4 – Pedestrian Volume
Warrant 5 – School Crossing
Warrant 6 – Coordinated Signal System

[1] The Manual on Uniform Traffic Control Devices, US Department of Transportation, Federal Highway Administration, December 2009.

Warrant 7 – Crash Experience
Warrant 8 – Roadway Network
Warrant 9 – Near an At Grade Crossing

One or more of these warrants must be satisfied before a new signal is considered for installation. The following warrants were deemed not applicable to the analysis:

- Warrant 5 – School Crossing – This warrant only applies to locations where there is an established school crossing. There is not an established school crossing at this intersection.

- Warrant 6 – Coordinated System – This warrant applies to a coordinated roadway segments where an additional signal may be necessary to maintain proper platooning of vehicles. This warrant was determined not applicable to the subject intersection.

- Warrant 8 – Roadway Network - This warrant applies only to the intersection of two or more major routes. Carta Way would not meet the definition of a major route as per the Manual on Uniform Traffic Control Devices (MUTCD).

- Warrant 9 – Intersection Near a Grade Crossing – This warrant applies only where none of the other warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach is the principal reason to consider installing a traffic control signal. A grade crossing is not located on any of the study intersection approaches.

EXISTING CONDITIONS

Roadway Network

At full build-out of the Founders Row development, the intersection of North West Street and Park Avenue will be reconfigured to allow the construction of Mason Avenue, which will operate as a full-movement site entrance. As part of the reconfiguration, the adjacent Washington and Old Dominion (W&OD) Trail will be partly relocated in order to cross North West Street at the reconfigured intersection. Users of the trail will be able to cross under signal control. A description of each of the existing roadway segments is provided below:

North West Street is constructed as a two-lane, undivided, street with a posted speed limit of 25 miles per hour (mph). According to the Plan, West Street is classified as a minor arterial. As stated in the Plan, a minor arterial roadway "provides for travel through the City."

Park Avenue is a two-lane, undivided street with a posted speed limit of 25 mph that runs from North West Street east along the northern property boundary. According to the Plan, collectors "provide for travel through neighborhoods." On-street parking is permitted along Park Avenue.

W&OD Trail is a major multi-use recreational trail that generally follows the former alignment of the Washington and Old Dominion railroad. In the vicinity of the subject site, the trail has at-grade crossing at North West Street.

Existing Traffic Volumes

In performing this assessment, Wells + Associates conducted 13-hour vehicle turning movement counts on Wednesday September 14, 2016, in the vicinity of the subject intersection in order to establish existing area traffic patterns and to complete the count needed for an MUTCD signal warrant evaluation. The count data are provided as Appendix B and crash data obtained from VDOT are provided as Appendix C. The existing 13-hour volumes are summarized in Appendix D - Table 1.

FUTURE TRAFFIC FORECASTS

Overview

As stated previously, the Founders Row mixed-use development is assumed to be complete by 2019. The following subsections describe the methodology in determining appropriate build-out traffic forecasts used for these signal warrant assessments.

Background Regional Traffic Growth

To account for background traffic growth between the present and the build-out year of 2019, a regional growth rate was applied to existing traffic volumes. Consistent with the growth factor used in the submitted TIS associated with the redevelopment, a growth rate of 1.0% per year, compounded annually, was applied to through traffic along North West Street. Appendix D - Table 2 summarizes the traffic growth for the thirteen-hour evaluation period.

Diurnal Rates

In order to forecast the number of site trips for each of the thirteen whole hours evaluated, and consistent with past engineering practice, Wells + Associates applied hourly distribution (i.e., "diurnal") rates to the daily vehicle trip estimates. The daily trips used to derive the hourly volumes are consistent with the methodologies applied in the Founders Row traffic study as shown in Table 1. The diurnal rates used in the signal warrant analysis are provided herein as Appendix E and described in greater detail below.

Office and Residential. Diurnal rates for Office and Residential land uses were published in the ITE Journal in January of 2015 which were "intended to supplement the information that is published in the ITE *Trip Generation Manual,* 9th Edition". This article is provided herein as Appendix E-1. The diurnal rates for office and residential land uses from this publication were used for the office and residential land uses in the proposed plan. The hourly rates were applied to the daily trip estimates consistent with the approved traffic study to provide thirteen-hour forecasts for the office and residential uses as shown in Appendix D - Tables 3, 4 and 5.

Table 1
Founders Row
Site Trip Generation [1]

Scenario	Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total		PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total		Average Daily Trips	
Proposed Uses													
Residential Uses													
Senior Adult Housing-Attached	252	72	dwelling units	5	9	14		10	8	18		248	
Apartment	220	322	dwelling units	32	130	162		127	68	195		2,075	
Residential Subtotal				37	139	176		137	76	213		2323	
Retail/Residential Internal Allowance (5% AM/10% PM)				(2)	(5)	(7)		(9)	(7)	(16)		(348)	
Residential External Trips				35	134	169		128	69	197		1,975	
5% Residential Mode Split				(2)	(7)	(8)		(6)	(3)	(10)		(99)	
Total Residential Vehicle Trips				**33**	**127**	**161**		**122**	**66**	**187**		**1,876**	
Office Uses	710	4,946	GSF	7	1	8	(2)	1	6	7	(2)	134	
Theater Uses	444	800	Seats	0	0	0		22	34	56		1,045	(3)
Specialty Retail Center	826	58,356	GSF	103	112	215	(4)	71	91	162		2,586	
Retail Subtotal				103	112	215		71	91	162		2586	
Retail/Residential Internal Allowance (5% AM/10% PM)				(5)	(2)	(7)		(7)	(9)	(16)		(348)	
Retail External Trips				98	110	208		64	82	146		2,238	
Pass-by Trips (25%)				(25)	(27)	(52)		(16)	(21)	(37)		(560)	
Total Non-Residential Vehicle Trips				**80**	**84**	**164**		**71**	**101**	**172**		**2,857**	
Total Site Trips				113	211	325		193	167	359		4,733	

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation, 9th Edition.

(2) It is noted in Trip Generation that "some of the regression curves plotted for this land use may produce illogical trip-end estimates for small office buildings". Thus, for this analysis, the rates have been used for the peak hour office trip generation.

(3) Average Daily Trips based on number of screens.

(4) AM peak hour of adjacent street rate based on (AM peak hour of generator rate X (PM peak hour of adjacent street rate / PM peak hour of generator rate))

Retail and Theater. The retail diurnal rates are taken directly from the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition (Shopping Centers under 100,000 Gross Leasable Area). The hourly rates were applied to the daily trip estimates consistent with the approved traffic study to provide thirteen-hour forecasts for the retail and theater uses as shown in Appendix D – Tables 6 and 7. The excerpt from ITE Trip Generation is included as Appendix E-2.

Pass-by Trips

Pass-by trip are those trips which are made as intermediate stops on the way to a primary destination. An example of a pass-by trip would be one in which a driver stops at a retail store on his/her way home from work. In recognition of this phenomenon and as agreed to with City staff, it was assumed that 25% of site generated retail trips would be classified as pass-by as shown in Table 1. The retail diurnal rates were applied to the pass-by trip estimates consistent with the approved traffic study to provide thirteen-hour forecasts for the pass-by trip assignments as shown in Appendix D – Table 8.

Site Development Trips

The trip generation associated with build out of Founders Row was based on the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition, consistent with the approved TIS. The trip generation analysis is summarized in Table 1. The thirteen-hour forecasts were established using the appropriate diurnal rates for each land use as described above and shown in Appendix E.

The regional traffic growth as well as trips associated with the build out of Founders Row as described above were distributed to the study intersection consistent with distributions from the approved TIS. The trip assignments associated with the uses described above are provided as Appendix D - Table 9.

SIGNAL WARRANT ANALYSIS

Right Turn Adjustments

As stated in the MUTCD, engineering judgement should be used to determine an appropriate reduction of minor street right turn volume due to the fact that right turn movements are not as conflicted as left turn movements. As shown in the site plan, there is no separate right turn lane provided exiting the site on to Park Avenue; therefore, right turn movements may be delayed by vehicles turning left. As a result, a modest 25% minor street right turn reduction was assumed in the TEAPAC signal warrant analysis.

Results Summary

The resulting hourly traffic forecasts shown in Appendix D - Table 10 associated with the future build-out were input into the TEAPAC model in order to test the applicable MUTCD signal warrants. The TEAPAC report is provided as Appendix F.

Based on the TEAPAC model established for the future build-out conditions, the following summarizes the results of the signal warrant analysis:

Warrant 1 – NOT MET
Warrant 2 – NOT MET
Warrant 3 – MET
Warrant 4 – NOT MET
Warrant 5 – Not applicable
Warrant 6 – Not applicable
Warrant 7 – NOT MET
Warrant 8 – Not applicable
Warrant 9 – Not applicable

Given these results, a signal is warranted at the North West Street/Park Avenue/Mason Avenue intersection under future build-out conditions. Although Warrant 4 – Pedestrian Volume was not met due to the forecasted pedestrian trips being below the established MUTCD thresholds, the benefit of a signal for future pedestrian traffic in terms of safety and accessibility should not be discounted.

CONCLUSIONS

The conclusions of this signal warrant study are as follows:

1. A signal is warranted at the intersection of North West Street/Park Avenue/Mason Avenue under future build-out conditions. The following warrants are met:

    - Warrant 3A: Peak Hour Delay
    - Warrant 3B: Peak Hour Volume

WELLS + ASSOCIATES

MEMORANDUM

Appendix A – Voluntary Concessions

Transportation Consultants

INNOVATION + SOLUTIONS

RESOLUTION 2016-04

RESOLUTION TO GRANT A SPECIAL EXCEPTION FOR RESIDENTIAL USES WITHIN A MIXED USE DEVELOPMENT PROJECT AND TO INCREASE THE BUILDING HEIGHT WITH A BONUS OF THIRTY (30) FEET WITH A MAXIMUM HEIGHT OF EIGHTY- FIVE (85) FEET FOR A MIXED-USE DEVELOPMENT PROJECT ON APPROXIMATELY 4.3 ACRES OF LAND LOCATED AT THE NORTHEAST CORNER OF 110, 112, 112A, 212 & 212A NORTH WEST STREET, 916, 920, 922, 924, 926, 928, 930, 932 & 934, WEST BROAD STREET AND 919, 921 & 925 PARK AVENUE (REAL PROPERTY CODE NUMBERS 51-202-009 THROUGH 51-202-015, 51-202-003, 51-202-004, 51-202-005, 51-202-028 AND 51-202-028 OUTLOT) KNOWN AS "MASON ROW" ON APPLICATION BY SPECTRUM DEVELOPMENT, LLC

WHEREAS, on May 12, 2003, City Council adopted Ordinance 1734, which amended Chapter 38, "Zoning", of the Code of the City of Falls Church to amend the special exception process within the business districts to allow for appropriate mixed-uses and additional height bonuses by special exception; and

WHEREAS, an application for a Special Exception to allow residential uses within a business district in a mixed-use development project and a Special Exception for a height bonus have been submitted by Spectrum Development, LLC ("the Applicant") pursuant to Section 48-455 (1), (2) in conformance with the procedure set forth in Section 48-90 of the City Code; and

WHEREAS, a concurrent application for a comprehensive plan map change, to the Future Land Use Plan Map as an amendment from "Business" and "Low-Density Residential (6.0)" to "Mixed Use" has been submitted by the Applicant pursuant to Section 17.06-07 of the City Charter and City Council approval is required as a prerequisite for the Special Exception; and

WHEREAS, a concurrent application for an Official Zoning Map change (Rezoning) to amend the map from B-3, general business district and R-1B, medium density residential district to all B-1, limited business district has been submitted by the Applicant pursuant to Section 48-85 in conformance with the procedure set forth in Section48-86 of the City Code and City Council approval is required, as a prerequisite for the Special Exception; and

WHEREAS, the application proposes a development comprising a total building/floor area of approximately 558,707 gross square feet on approximately 4.3 acres of land and an increase in building height by up to thirty feet (30)

feet to six (6) stories or maximum of 85 feet [instead of the B-1, business district fifty-five (55) foot height maximum]. The mixed-use development is proposing and a maximum of 322 multifamily residential rental apartment units, a quality hotel, "Hilton, Hyatt, Marriott or equal quality brand with approximately 112 to 145 ~~150~~ rooms, a multi-screen 400 to 850-seat, minimum 6-screen to maximum 8-screen theater between 20,000 to 33,000 square feet and approximately 62,500 gross square feet of ground floor commercial retail/service/restaurant space facing internally along Mason Row (Mason Avenue and Market Square) and externally along West Broad Street and North West Street; of which at least 30 percent and a minimum of 20,000 gross square feet of the commercial square feet shall be food and beverage uses; approximately 5,317 square feet of office: and

WHEREAS, in order to achieve the development as proposed, the application requests a special exception for a height bonus and for the residential uses also within a mixed-use development project in a business district as shown in the Special Exception application, including the Conceptual Development Plan, dated December 9, 2015 which includes "Mason Row Mixed Use Project - Special Exception Application SUB 08; Supplemental Information and Elevation Updates", dated December 9, 2015; and

WHEREAS, the applications for the special exception and associated Comprehensive Plan and Official Zoning Map changes, have also been referred to various citizen boards and commissions for public review and comment; and

WHEREAS, the application for the special exception and associated Comprehensive Plan and Official Zoning Map changes, has been referred to the Planning Commission, which conducted a public hearing and recommended to the City Council, and this recommendation has been received and considered; and

WHEREAS, City Council has duly advertised and conducted a public hearing to receive public comment on the application for this special exception with a public hearing held on July 13, 2015, December 14, 2015 and January 11, 2016;

WHEREAS, City Council has considered the application, the requirements of Section 48-90 and Section 48-455 (1), (2) of the City Code, the recommendation of the Planning Commission, comments from boards and commissions, and public comments; and

WHEREAS, City Council considered the subject properties' unique characteristics and the community benefits derived as a result of the proposed development, and determined that this particular project is acceptable for these parcels at this time, with the understanding that a similar project might not be appropriate on other parcels; and

WHEREAS, City Council considered state law regarding special exceptions, specifically, that special exceptions may be granted by the local governing body subject to conditions pursuant to Code of Virginia Sec. 15.2-2286(A)(3) that allows their issuance "under suitable regulations and safeguards" and that each special exception case shall rest on its own merits and the uniqueness of each piece of land; and in particular, that the ratio of commercial and residential uses approved herein are unique to this site; and

WHEREAS, City Council also considered the public interest in improving the subject property as part of overall economic development efforts to stimulate commercial redevelopment and enhance the commercial tax base to support City services; and

WHEREAS, the Developer has submitted the "Voluntary Concessions, Community Benefits, Terms and Conditions" dated January 7, 2016 to the City in order to further ensure consistency with the City of Falls Church's adopted Comprehensive Plan and policies and in support of the special exception; and

WHEREAS, City Council finds that the proposed project has met the primary criteria as listed in Section 48-90, (d), (1) a, b and c of the Falls Church City Code as follows: 1) the resulting development conforms with the City's adopted Comprehensive Plan and Design Guidelines; 2) the resulting development provides for significant net new commercial square footage and allows a mix of commercial and residential uses; and 3) the resulting development provides substantial positive net new commercial and residential revenue to the City; and

WHEREAS, City Council finds that the proposed project provides significant community benefits, including, but not limited to the following:

- important, large assemblage and consolidation of numerous individually-owned properties;
- Structured garage parking, below-grade, at-grade and above grade;
- preferred hotel and theater uses and ground level storefront commercial space including Mason Row - Market Square and Mason Lane festival space;

- various community benefits including affordable housing, school capital cost contributions and vicinity street and transportation facility improvements;
- planned streetscape improvements on West Broad and North West Streets;
- financial contributions and in-kind improvements to benefit vicinity off-site recreational park and W&OD Trail improvements;
- undergrounding of overhead utilities off-site on N. West Street;
- transportation related public street and pedestrian facility crossing improvements;
- sustainable LEED Silver or equivalent buildings for the residential portions of the project and LEED or equivalent for hotel; and

WHEREAS, the commercial height bonus of up to 30 feet for the mixed-use development as generally shown in the Special Exception application, which includes the Conceptual Development Plan, dated December 9, 2015, which includes "Mason Row Mixed Use Project - Special Exception Application SUB 08; Supplemental Information and Elevation Updates", dated December 9, 2015, shall be permitted as City Council finds that the bonus shall significantly assist in the conformance with Section 48-90 (d) (1) a, b and c of the City Code, and

NOW, THEREFORE it is hereby RESOLVED by the City Council of the City of Falls Church, Virginia, that in conjunction with the associated comprehensive plan map amendment and associated rezoning action and in consideration whereof, pursuant to Sections 48-90 and 48-455 of the Falls Church City Code, that the Special Exception for residential use within the proposed mixed-use development project and height bonus within the mixed-use development project is hereby granted and approved, subject to the following conditions:

1. The Developer's Voluntary Concessions, Community Benefits, Terms and Conditions Mason Row ("Broad and West") Development, dated January 7, 2016, ("voluntary concessions"), for Special Exception for Residential Development and Height Bonus for a Mixed Use Development at the subject site, and all the terms and conditions thereof, shall be a condition for the issuance and approval of the Special Exception; and the City Manager is hereby authorized and directed to execute the voluntary concessions on behalf of the City; and

2. The development of the site shall be in conformance with the Special Exception Application dated July 24, 2015 and Conceptual Development Plans, dated December 9, 2015, which includes "Mason Row Mixed Use Project - Special Exception Application SUB 08; Supplemental Information and Elevation Updates", dated

December 9, 2015 and as further modified by the VCs dated January ~~7~~ 11, 2016 *[updated Voluntary Concessions presented at meeting.]*; and

3. Construction of this project shall commence within three (3) years from date of adoption of this resolution; and

4. Violation of any of the conditions of this Special Exception, including any of the voluntary concessions, shall be grounds for revocation of the Special Exception by City Council.

Reading: 4-13-15
Adoption: 1-11-16
(TR14-28)

Voluntary Concessions dated January 11, 2016 ATTACHED

IN WITNESS WHEREOF, the foregoing was adopted by the City Council of the City of Falls Church, Virginia on January 11, 2016 as Resolution 2016-04.

Celeste Heath

Celeste Heath
City Clerk

VOLUNTARY CONCESSIONS, COMMUNITY BENEFITS, TERMS AND CONDITIONS

Spectrum Development LLC/Mason Row

REVISED JANUARY 11, 2016

In association with the requested rezoning, and special exception to allow the redevelopment of 110, 112, 112A, 212 & 212A North West Street, 916, 920, 922, 924, 926, 928, 930, 932, and 934 West Broad Street, and 919, 921 and 925 Park Avenue (Real Property Code numbers 51-202-009 through 51-202-015, 51 202-003, 51-202-004, 51-202-005, 51-202-028 and 51-202-028 outlot) (the "Subject Property"), Spectrum Development LLC (the "Owner") voluntarily proffers the following for the benefit of the community and the City of Falls Church (the "City"). The Owner acknowledges that through the special exception approval, it has been granted certain bonuses, including height and increased residential uses, and other benefits in return for its agreements as set forth below, to provide certain features, design elements, uses, services, or amenities desired by the City, including but not limited to, site design, public improvements, environmentally sustainable and energy-efficient building design, affordable housing creation, and capital contributions to City parks, library, and schools as part of the development. As used herein "Owner" shall refer to the applicant, any contract owner, the property owner, and any successors or assigns:

1. **Conceptual Development Plan:**
   The Owner agrees to develop the Subject Property in conformance with (1) the Conceptual Development Plan (CDP) dated December 9. 2015 as prepared by Walter L. Phillips, Inc.; (2) the Special Exception Application Submission 08 (Drawings), including Option A for treatment of the East Façade, as shown on drawing A.2.1.a, and the Architectural Elevation Drawings ("Elevations') dated December 9, 2015 as prepared by GTM Architects; and (3) the Transportation Management Plan (TMP) dated July, 2015 prepared by Wells & Associates. The Owner agrees that the project will include no more than 322 units in total, of which at least 23 will be affordable as provided for in these Voluntary Concessions. The Owner further agrees that the residential gross floor area (apartments, lobbies, amenity space and core space) in the project is capped at 372,245 square feet, and that if residential space includes loft, the loft area will be counted in determining the amount of total gross floor area for the residential portion on the project. The City Manager may approve minor deviations from conformance with these documents, as requested by the Owner, provided the deviations do not conflict with what is specifically agreed to in these Voluntary Concessions, are consistent with the purpose and intent of the City Council's approval of the Special Exception, and are either (i) necessary to permit reasonable construction of the project, or (ii) as determined by the City Manager, improve the project's overall functioning or benefit to the City. The Owner may appeal an adverse decision by the City Manager to the City Council.

2. **Uses:**
   The Owner agrees that the uses allowed on the Subject Property shall be limited to the

following: a hotel use, a multifamily use which is intended to be rental, but can be converted to condominiums at the discretion of the Owner, a movie theater use, an office use on the second level, and a commercial use on the ground floor. Uses shall be approximately as shown in the building square foot amounts and in the locations on the CDP. The Owner agrees to set back the townhouse apartment building on Park Avenue two feet further from the property line than is currently shown on the CDP and the Drawings.

3. **Commercial Space:**
The Owner acknowledges and agrees that the area(s) shown as commercial use(s) on the CDP cannot be converted to residential use(s) without City Council approval. In addition, commercial areas designated on the CDP shall not be used for office uses other than as specifically designated on the CDP. The Owner agrees to provide a hotel and a movie theater as set out in the concessions below. Additionally the Owner commits to use commercially reasonable efforts to market the first floor commercial spaces as described in the attached "Mason Row; Retail Project Plan" prepared by the Owner and retail consultant, Streetsense (referred to as the "Retail Plan"). The Owner does hereby commit that a minimum of 20,000 square feet of the commercial gross leasable area on the ground level will be leased to food and beverage retailers, and further agrees that there shall be a restaurant on the ground floor of the hotel building.

The Owner agrees that the following commercial uses that may otherwise be allowed in the B-1 zoning district shall not be permitted without the express agreement of the City Manager or on an appeal of said City Manager's decision to City Council.

Prohibited Uses:

- Disco
- Gun stores or firearm dealers, or shooting ranges
- Roller rink
- Amusement arcade
- Adult pornographic book store
- Adult pornographic theatre or amusement facility
- Facility selling or displaying pornographic materials or having such displays
- Second hand store
- Auction house
- Flea market
- Martial arts studio
- Blood bank
- Funeral home
- Outdoor housing or raising of animals
- Industrial uses (including, without limitation, any manufacturing, smelting, refining, chemical manufacturing or processing, or other manufacturing uses)
- Mining or mineral exploration or development except by non-surface means
- Car wash
- Carnival, amusement park or circus
- Off track betting establishment
- Bingo hall

- Church, temple, synagogue, mosque, or other house of worship
- Facility for the sale of paraphernalia for use with illicit drugs

The Owner further agrees that the following commercial uses that may otherwise be allowed in the B-1 zoning district shall not exceed, in total, 15% (approximately 9,400 sf) of the total commercial gross leasable area (approximately 62,500 sf not including hotel or movie theater space) on the ground level of Mason Row without the express agreement of the City Manager or on an appeal of said City Manager's decision to City Council.

Conditional Uses:

- Food catering (as a separate commercial tenant)
- Small pet shop/dog training
- Hair styling
- Antiques
- Used clothing
- Used electronics and used video games
- Comic books
- Yoga and Pilates studio
- Spa treatments and acupuncture
- Urgent medical care
- Non-profit organizations (those not included on the prohibited list above)
- Private wealth management office
- Insurance office
- Accounting and tax services
- ABC liquor store
- Packaging and shipping store
- Copy store
- Cleaners
- Office supplies
- Child learning center
- Child fitness center/gym
- Shoe repair
- Travel services
- Wholesale merchants (as defined for BPOL taxation)

Design Requirements:

The Owner agrees that the following design standards shall be met for all retail space identified as part of the GLA in the project:

- Retail ceiling heights: the ground floor retail spaces shall be constructed with a minimum interior ceiling height in at least 85% of the retail space (measured "slab to slab") of 16 feet in height..

- A minimum of two table service restaurants shall be located at Mason Row and no less than 50% (approximately 31,250 sf) of the total commercial gross leasable area located on the ground level (not including hotel or movie theater space) shall have access to a ventilation shaft through the roof that meets all City Building Code requirements for restaurant use, prior to issuance for a certificate of occupancy for tenant occupancy for such spaces.

- The Owner agrees that the ground floor retail or other ground floor commercial space wall fronting Mason Avenue, Market Square, W Broad Street or N. West Street shall have an average 70% transparency (meaning a clear view from the outside to the interior space and activity and not obstructed by drapes or blinds, or by any other window coverings) for the area of any wall facing said streets that is between three (3) feet and eight (8) feet above grade. This provision is not intended to prohibit merchandise displays that are viewed from the street within the transparency area or restaurants that utilize blinds or curtains to intermittently shade customers from unwelcomed sunlight.

- The Owner agrees that all retail businesses that front W. Broad Street east of Mason Avenue and all retail businesses that front N. West Street north of the hotel building shall have retail storefront entrances that provide retail customers ingress and egress to and from either (i) W. Broad Street or N. West Street, or (2) Market Square or Mason Avenue. Additionally, the first floor of the hotel building shall also have a minimum of one retail entrance on either W. Broad Street or N. West Street.

- The Owner agrees that loading and trash removal space for the hotel will not require use of the public street unless the Owner has obtained a separate approval from the City Council. The Owner agrees to eliminate the loading and trash pickup area and trash room for the hotel currently shown on N. West Street on the CDP and Drawings, and to relocate trash pick-up for the hotel to garage level "Park0Plan" which garage is drawing A1.3 of the Drawings. Attached is an exhibit, dated January 7, 2016, that shows conceptual options for storage and removal of the hotel trash; however, the final design and the location on Park0Plan will be approved through the site plan process.

- The Owner agrees that it will use its best efforts to provide a landscaped buffer along the entire eastern façade of the project, unless the open area on the site is insufficient to provide such landscaped buffer and the adjacent property owner(s) along that façade will not agree to an easement on reasonable terms that will permit the installation of such buffer.

Site Specific Uses:

- Theater Condition:

  The Owner agrees that approval of the Special Exception by the City Council shall not be final until the City Manager states in writing to the City Council that he has determined there exists an executed copy of a lease with a movie theater tenant for a theater brand that is part of an established chain of theaters operating in multiple locations throughout the

United States. The lease shall be of a term no less than ten years for the operation of a movie theater in the space shown on the approved CDP, and that such lease shall provide for a rent commencement date that is a specific number of days, but no more than 15 months, after the Owner delivers possession of the movie theater premises to the movie theater tenant. The movie theater premises will be 20,000 to 33,000 sf; will have 6 to 8 auditoriums; and will seat 400 to 850 persons, and have sufficient parking for the seats in the final design.

The Owner agrees that building permits for tenant improvements for the movie theater will be obtained and that construction of such tenant improvements will be substantially under way before issuance of a certificate of occupancy for the last twenty (20) residential units.

- Hotel Condition

The Owner agrees that approval of the Special Exception by the City Council shall not be final until the City Manager states in writing to the City Council that he has determined that there exists an executed agreement with a Hotel Operator with such agreement providing for the construction of a hotel as shown on the approved CDP, and that such executed agreement contains terms that require the Hotel Operator to provide evidence of a guaranty to the Hotel Operator's lender of the Hotel Operator's obligation to complete construction of the hotel by a date certain which shall be a specific number of days, but no more than three years, after the Owner delivers possession of hotel podium and associated parking to the Hotel Owner. The agreement shall provide that the completion guaranty shall include financial covenants acceptable to the Hotel Operator's lender. The Owner may allow the Hotel Operator to select the hotel brand from among the brands offered by Hilton, Marriott or Hyatt, or an equivalent or higher quality brand. The hotel shown in the CDP has 145 rooms; however depending on the brand selected (extended stay, select service, lifestyle, etc.) and the volume of meeting and event space, the number of rooms may be less than 145, but shall not be less than 112 rooms. The Owner agrees that, in the event fewer than 135 rooms are included in the hotel, the square footage of the room number reduction will be used for conference, event and other amenity space. The Elevations prepared by GTM Architects dated December 9, 2015 are based on the assumption that the hotel brand will be a Home 2 Suites by Hilton. During Site Plan Approval of the hotel brand will be selected by the Owner and Hotel Operator and the hotel elevations will be finalized to conform to the reasonable branding requirements prescribed by the hotel franchisor; provided, however that the type of materials specified for the hotel will substantially conform to the materials shown for the hotel in the December 9, 2015 elevation drawings.

The Owner agrees that building permits for the hotel will be obtained and construction of the hotel will be substantially under way before issuance of a certificate of occupancy the last twenty (20) residential units.

The Manager shall notify the City Council with a copy of the notification sent to the Owner, of having received a copy of the executed lease meeting the above-

described standards in the case of the movie theater and a copy of the executed agreement meeting the above-described standards in the case of the hotel, no later than ten (10) business days from the delivery of these contracts to the City Manager by the Owner, in which event the rezoning and special exception approved by the City Council shall be deemed automatically final.

4. School Capital Contribution:

The Owner agrees to make a contribution to the City of Falls Church to offset increased school capital costs resulting from the additional residential density in the development approved through the Special Exception process, as school capital costs are outlined in the City's Adopted Capital Improvement Program. The contribution will equal $5.24 per square foot of gross residential apartment unit area in the project (excluding affordable dwelling units). The total contribution will be paid prior to issuance of the first residential certificate of occupancy.

5. Affordable Housing Contribution:

The Owner agrees to provide affordable housing on the following terms:

(a) As the Owner and the City agree is consistent with the City of Falls Church Affordable Housing Policy, the Owner will provide affordable dwelling units ("ADUs") in the project equal to six (6) percent of the total number of dwelling units (rounded up to the nearest whole number) plus three additional ADUs for a projected total of 23 ADU's. The proportion of ADU's for studio; one bedroom and two bedroom will follow the same proportionate mix for the market rate units in the project. The ADU size will be in keeping with the typical unit size in the project for each similar unit type. All ADUs will be dispersed throughout the project. If the Owner provides parking for market-rate units, the Owner shall provide at least one parking space for each comparable ADU unit. If a parking fee is imposed, the same parking fee shall apply to comparable ADU units. The Owner shall have the right to require the payment of security deposits and other deposits or fees for ADU units (with the exception of Amenity Fees for the twenty 60% AMI ADUs) that are also charged to market-rate Units. Tenants of the twenty 60% AMI ADUs shall have access to the same amenities as market rate tenants.

(b) The Owner agrees to record Restrictive Covenants among the land records of the Clerk of the Circuit Court of Arlington County, which shall define terms and conditions of the ADUs as such terms and conditions are agreed to in these Voluntary Concessions regarding issues including, but not limited to, price control periods and owner/renter occupancy and the matters agreed to in these voluntary concessions. These Covenants shall run with the land and be an encumbrance on the ADUs. The Covenants shall be recorded with the City's land records in Arlington County, and evidence of such recordation will be provided to the Zoning Administrator before a Certificate of Occupancy is issued for any dwelling unit in the project.

(c) The Owner will rent the ADUs directly or through its designated agent to qualified tenants, as determined by the City. The City will regulate and establish ADU

qualification priorities and evaluate and qualify prospective applicants in accordance with the Affordable Unit Program official administrative procedures and regulations.

(d) The monthly rent for the ADUs will be set by the Housing Commission with reference to the U.S. Department of Housing and Urban Development ("HUD") Washington Primary Metropolitan Statistical Area ("PMSA") area median household income ("AMI"). The ADU's that are included in the six (6) percent of total units shall be offered for rents that are affordable to households whose income is no more than 60% of HUD PMSA AMI. The three (3) additional ADU's shall be offered for rents that are affordable to households whose income is no more than 80% of HUD PMSA AMI. Such rents, subject to changes permitted by this **Voluntary Concession 5(d)** will be in effect for a term of 20 years. ADU monthly rent shall include an additional amount as calculated by the percentage increase in AMI, but not less than the original ADU monthly rents listed above.

(e) If any ADU rental units are marketed for sale as individually and separately owned condominiums within 20 years after the certificate of occupancy is issued for the residential building, then such ADU units will become home ownership units subjected to the conditions in **Voluntary Concession 5(g)** below. The City will be notified a minimum of 120 days prior to the time of sale of any condominium that is part of the project and is an ADU. All ADUs which the Owner desires to sell will be made available for sale within the six-month period. Tenants of individual ADU units will be given the right to purchase their individual unit at prices established under **Voluntary Concession 5(g)**. ADU tenants opting not to purchase will receive relocation benefits from the Owner as outlined in the City of Falls Church Voluntary Relocation policy.

(f) If sold as a condominium, the Owner agrees to use commercially reasonable efforts to reduce and minimize condominium fees for such ADUs as allowed by the Virginia Condominium Act and applicable law. Upon written notification by the Owner (as outlined by the City) that an ADU is available for sale, the City or its designee will have the right of first offering to purchase the for-sale ADU for a 60-day purchase offer period following delivery of such written notification to the City Manager. In the event the City does not exercise such right to purchase the ADU or ultimately to close on the sale of the ADU, the ADU shall be offered for sale exclusively to City qualified and designated non-profit organizations for a period of 30 days.

(g) In the event that the ADU is not sold as outlined above, the Owner will be entitled to sell the ADU without further restrictions, except as set forth in these Voluntary Concessions document at market rates. Net sale proceeds received by the Owner in excess of the ADU price will be divided equally between the City and the Owner. The Owner agrees that the ADU sales price will be set by the Housing Commission with reference to the HUD PMSA AMI at a sales price that are affordable to households whose income is no more than 65% of HUD PMSA AMI for twenty ADU's and 80% of HUD PMSA AMI for three ADU's.

(h) The ADU sales price will include an additional amount as calculated by the percentage

increase in HUD median income at the time building permits are issued, but not less than the original sales prices listed above. The limitations on sale of ADUs will apply for a period of twenty years following the initial sale and with resale within that first twenty years of each subsequent ADU owner's date of purchase.

(i) ADU tenants/owners will have the same duties, rights and privileges as all other tenants/owners in the project, except as such ADU duties, rights and privileges are expressly altered by these voluntary concessions.

(j) A minimum of one of the ADU units shall be accessible as defined by federal law. Additionally, as provided by federal law, all ADU and market-rate units shall be ADA adaptable.

(k) The Owner will comply with all applicable fair housing laws.

6. <u>Pedestrian Oriented Design Elements</u>:

Streetscape

The Owner agrees that, in order to create a more pedestrian-oriented environment, to help preserve and protect the character of the neighborhood, and to beautify W. Broad Street, N. West Street and Park Avenue, streetscape improvements will be constructed and furnished by the Owner along W. Broad Street (pursuant to the City's adopted Streetscape Plan for W. Broad Street), N. West Street and Park Avenue and will be located on property on which the City has a fee interest for public street purposes, or on property which is owned by the Northern Virginia Regional Park Authority. In the event the existing dedicated area is insufficient to provide such streetscape, the Owner agrees to dedicate, or place in an easement, sufficient property, as shown in the CDP for public street purposes, prior to issuance of the first certificate of occupancy for the project. The improvements will conform to what is called for in the CDP. The Owner further agrees that a building setback of at least 20 feet from the back of curb will be maintained on all street frontages on W, Broad Street and N. West Street. The owner agrees there will be a 10 foot clear area for pedestrian travel ("Clear Sidewalk") along the entire streetscape on W, Broad Street and N. West Street; provided however, in instances where outdoor dining is to be located, and obstructions such as tree pits prevent the required Clear Sidewalk, modifications to the streetscape or a decrease in the required Clear Sidewalk to not less than 6 feet shall be permitted to allow a restaurant tenant a commercially reasonable amount of space for outdoor dining.

The Owner agrees to maintain the streetscape improvements (excluding street trees and maintenance of and cost of electricity for City standard streetlights) constructed as part of this project as long as the project remains. The terms of such maintenance responsibilities will be set forth in a Streetscape Maintenance Agreement to be negotiated between the Owner and the City, which agreement will be finalized, approved by the City Manager, and executed by the Owner prior to issuance of a Certificate of Occupancy for any occupiable space in the project.

The Owner agrees to provide two, 2" empty conduits for fiber optic cable, for use by the City, to run under the West Broad Street sidewalks and crosswalks constructed by the Owner.

Market Square

The Owner agrees to construct and maintain the surface level plaza and public space labeled Market Square in the CDP with the proposed features and amenities in Market Square to be defined with final Site Plan Design. One of the features that the Owner agrees to consider during site plan design is the feasibility of incorporating a water feature See CDP sheet P-0402.

Bus Stop

The Owner agrees to construct a bus stop including a shelter with appropriate signage, shelter, and landing pad amenities at a location as generally shown on the CDP, but with the final location to be determined in coordination with the City Manager as being consistent with the City's Bus Stop & Shelter Plan during Site Plan approval. The bus stop design and amenities shall be included in the Site Plan approval, and will be in conformance with the City's adopted Bus Stop & Shelter Plan, which provides specifications and target locations for such bus stops. The shelter shall include conduit and electrical service to allow for installation of a real time bus information sign. The Owner further agrees that, in lieu of building the shelter, and at the discretion of City, the Owner shall pay the City $30,000 prior to the issuance of building permits for the project, as its contribution toward a bus shelter elsewhere in the City.

Undergrounding of Utilities

The Owner agrees to place all on-site utilities underground except for switchgear equipment and transformers as provided below. The Owner agrees to obtain the City Manager's approval of a utility undergrounding plan and layout that meets the standards of this condition and that meets any requirements of the applicable public utility and the City, before issuance of any Building Permit for the Project. The Owner agrees to work directly with the Utility Companies to contract and arrange for the undergrounding of overhead utilities. In addition, the Owner will coordinate its efforts with the City's plans for undergrounding utility poles in the vicinity of the subject property. The final location of switchgear equipment and transformers in underground vaults, adjacent to buildings or above ground will be determined during Site Plan Approval among the Owner, City Public Works and Virginia Dominion Power. The Owner agrees that any switchgear equipment or transformers placed above ground will have vegetative or other decorative screening sufficient that the switchgear equipment and transformers cannot be seen from the right of way.

The Owner agrees to underground the three utility poles off site along a portion of the north side of N. West Street between Grove Avenue and the W&OD trail crossing on N. West Street subject to permission being granted by the Northern Virginia Regional Park Authority ('NVRPA"). The Owner agrees to restore W&OD landscaping disturbed

by the Project's utility undergrounding and pedestrian improvements, and plant 2.5-inch caliper trees at 30-foot spacing adjacent to all sidewalks constructed by the Project on the north sides of N. West Street, replacing existing landscaping where necessary to install the new trees. The trees shall match the Project's Park Avenue street trees, if compatible with remaining utilities.

Pedestrian Improvements, Connection and Ways

The Owner agrees to construct ADA-compliant pedestrian improvements as shown on the CDP which will include: (i) installation of crosswalks at N. West and Park Avenue intersection, (ii) installation of pedestrian crosswalk including median island for refuge across N. West Street at Grove Avenue intersection, (iii) installation of new crosswalks on two legs of the 4-way N. West and W. Broad intersection; iv) installation of crosswalk across W. Broad at the eastern vehicular access point of the property, and v) construct improvements to the W&OD trail crossing on Grove Avenue and N. West Street.

7. **Environmental Improvements:**

Green Building Criteria: National Green Building Standard ("NGBS"). The Owner agrees to have the Subject Project designed such that it will achieve a green building certification level of NGBS Silver for the multi-family portion of the project. Prior to release of the final site plan, the Owner will provide the City with evidence of the hiring of an accredited verifier ("Verifier") who has registered the project with Home Innovation Research Labs. The Owner will provide evidence to the City of submission of design information to the Verifier and scheduling of a mandatory inspection prior to installation of drywall. Prior to issuance of the first certificate of occupancy for residential tenant occupancy of the Subject Property, the Owner will provide evidence to the City of submission of materials for the construction phase to Home Innovation Research Labs, the scheduling of the final inspection and the necessary documentation to seek official NGBS Silver certification within six months of obtaining the final certificate of occupancy for residential tenant occupancy of the Subject Property. The Owner agrees that evidence of such submission will be provided to the Zoning Administrator as required in this **Voluntary Concession 7.** Prior to the issuance of the first certificate of occupancy for tenant occupancy, the Owner will provide the City with a **$50,000** letter of credit which includes terms approved in advance by the City Manager to assure the City that the Owner will satisfy its obligations under this paragraph to achieve NGBS Silver certification. Such letter of credit will be returned to Owner if the intended NGBS Silver certification is achieved within three years after the issuance of a certificate of occupancy for the last residential unit. If the project does not achieve the intended NGBS Silver certification within three years after the issuance of a certificate of occupancy for the last residential unit, the City will redeem the letter of credit to be used for environmental improvements in the City.

The Owner agrees that it, or the hotel operator as its successor, will employ sustainable practices in the construction of the hotel, and will agree to achieve LEED certification. The Owner or the hotel operator agrees to provide evidence to the City of ongoing compliance with LEED certifier's guidelines for document submissions. Prior to the issuance of the

certificate of occupancy for the hotel, the Owner will provide the City with a $20,000 letter of credit which includes terms approved in advance by the City Manager to assure the City that the Owner will satisfy its obligations under this paragraph to achieve LEED certification. Such letter of credit will be returned to Owner if the intended LEED certification is achieved within three years after the issuance of a certificate of occupancy for the last residential unit. If the project does not achieve the intended LEED certification within three years after the issuance of a certificate of occupancy for the last hotel room, the City will redeem the letter of credit to be used for environmental improvements in the City.

Future Solar Panels: The Owner agrees to aggregate rooftop mechanical systems to the best extent possible, and to take into consideration the possibility that in the future an opportunity may arise for installation of rooftop solar panels to capture solar energy to be sold to the grid. In such future event the Owner agrees to a good faith evaluation of the feasibility of allowing the installation of solar panels for providing solar energy to the grid; provided however, the Owner reserves the right to the future installation of solar panels to provide solar energy to be consumed exclusively by the project.

Electric Vehicle Charging Station: The Owner agrees that a minimum of five charging stations for electric vehicles will be provided in the project parking garage. The Owner further agrees to provide conduit for the future installation of five additional charging stations for electrical vehicles. The location of the charging station will be determined at Site Plan Approval.

Storm Drainage and Runoff: The Owner agrees that the development will meet the water quantity and quality requirements by the State, effective July 1, 2014, to reduce the phosphorus runoff of the equivalent existing impervious area on the site by 20%, and for any additional impervious area beyond existing, to release a maximum phosphorus of 0.41 lbs/ac/yr. Additionally, the Owner agrees to reduce the overall runoff from the site to meet the Channel Protection and Flood Protection requirements from the State. These requirements will be met through water quality treatment utilizing approved BMP Clearinghouse methods, and with onsite detention.

Removal of Contaminated Soil: During construction, the Owner agrees to remove contaminated soils from the site and transport the same to a site authorized and able to handle such contaminated soils in accordance with applicable environmental state and federal regulations. The Owner agrees to provide documentation of compliance with this requirement to the City before issuance of any permit for above-grade construction.

8. **Installation of Vegetation:** The Owner agrees that the vegetation installed for the project will consist of native and regionally adapted species with a majority being from the City's list of recommended plants. Final sizes, species and placement will be determined at Site Plan Approval. Plant materials shall be at least the following sizes at installation:

- Evergreen trees (8 to 10 feet in height at planting)
- Shade trees (minimum 3.5 inch caliper, 16 feet in height at planting on W Broad Street and minimum 2.5 inch caliper otherwise)
- Shrubs (minimum spread 18 to 24 inches)

In the event a substitution of approved native plants is required to enable the Owner to meet NGBS criteria, the City Manager or his designee may approve a substitute plant or procedure called for in this **Voluntary Concession 8** to meet the requirements for NGBS certification, if he finds the substitute plant is as hardy and has a similar growth habit to the original plant. The timing of installation of vegetation shall be determined during the Site Plan Approval. The City Arborist may allow modification to the timing of instillation based on the planting season, availability of plant materials, or weather, which may not permit installation of plant materials and/or street trees by the required timing.

9. **Lighting:** The Owner agrees that all exterior lighting for the Subject Property shall comply with the City Ordinances with respect to spill over to residential neighborhood north and east of the project, and exterior lighting shall be shielded and directed away from any adjacent residential property. Any building mounted signs which face the residential neighborhood to the north and east shall not be internally illuminated with translucent panels. The lighting plan for exterior lighting on N. West Street and Park Avenue that is visible by residential neighborhoods will incorporate dark sky lighting principles in accordance with the standards of the International DarkSky Association.

10. **Stormwater & Sanitary Sewer Capacity Expansion:** The Owner agrees, at the Owner's expense, to reline or construct new 15 inch diameter storm sewer line(s) between existing storm structure 879 and existing storm structure 2266, to provide sufficient capacity for the development. Such sewer line design and construction will be built according to the specifications of the City Public Works Department, and will be completed before obtaining the first certificate of occupancy for the project.

    Sanitary Sewer: The Owner agrees to conduct a sewer capacity analysis by a qualified engineer from structure 70 to structure 25 and structure 70 to 144. During Site Plan the Owner and City Public Works will determine the sanitary sewer improvements that are necessary to alleviate capacity concerns identified after development flows are modeled. The design and construction costs to perform necessary improvements (excluding capacity analysis) will be determined during Site Plan Approval. The Owner agrees to design and construct the system improvements. The City will waive part or all of Sewer Availability fees in an amount equal to the verified costs of design and construction of said improvements.

11. **Transportation Improvements:**
    The Owner agrees that the transportation improvements shown on the CDP are subject to further design work, and to determinations as to what configurations and traffic systems will work best at each location. Therefore, the Owner agrees to work collaboratively with the City to determine the precise nature of the transportation improvements that it will provide, and that such improvements may be different from what is shown on the CDP. The owner further agrees that all changes to the Transportation Improvements described below and in the CDP will be subject to approval of the City Manager, and ultimately to the approval of the Planning Commission through the site plan process. The Owner agrees to pay the cost of at least the number of traffic signals called for in the

December 9, 2015 submission. The Owner agrees that all transportation improvements proposed to the Planning Commission at site plan shall be approved by the City Manager.

Traffic Signals: The Owner agrees to install a traffic signal at the Mason Avenue, N. West and Park Avenue intersection and at the eastern garage entrance to the development on W. Broad Street as shown on the CDP as may be warranted and/or approved by the City. The Owner will be responsible for the design, Traffic Impact Assessment, warrant study, easement/right-of-way acquisition, and installation of these traffic signals. The Owner shall be found to have fulfilled this condition upon approval of the traffic signal as fully operational by the City Manager. The Owner agrees to obtain the City Manager's approval of the traffic signals as fully operational before issuance of the first certificates of occupancy for any residential building for which a certificate of occupancy is issued, provided the City review process is reasonably diligent and not delayed by VDOT review. In the event there is any delay due to VDOT review, the City Manager shall permit issuance of such certificate of occupancy if the Owner provides reasonable assurances that it will diligently pursue construction of the traffic signals called for in this Voluntary Concession as approved by the City.

Street Capacity and Safety Improvements The Owner agrees to (i) realign the Mason Avenue, N. West and Park Avenue intersection, (ii) realign the W&OD trail to cross N. West Street at the traffic signal, (iii) realign the W&OD Trail to cross Grove Avenue at an approximate 90 degree angle to Grove Avenue, construct a raised Trail crossing and add bump outs to reduce the road width of Grove Avenue at the W&OD Trail, iv) add a westbound only right turn-lane continuing onto N. West Street for the south approach on N. West Street to the intersection with Park Avenue/Mason Avenue, (v) add an additional east bound turn lane onto W. Broad for the south approach on N. West to the intersection, (vi) modify and extend the West Broad eastbound left turn lane approaching the signalized entrance to the parking garage, and (vii) add a northbound lane for northbound traffic on N. West Street that provides for a westbound left turn into the Wells Fargo parking lot and provides for a northwest left turn onto Grove Avenue, all as shown on the CDP. Implementation of the foregoing traffic signals and lane improvement designs are subject to final site engineering, signal design, and VDOT review and as the case may require, City and/or Northern Virginia Regional Park Authority approval.

The Owner agrees to construct three speed tables (or humps) to calm traffic on Grove Avenue at locations designated and approved by the City.

The Owner agrees to mill and repave: West Broad Street from the centerline to curb along the entire property frontage and the eastbound lanes from centerline to curb along the proposed median modifications; N. West Street from curb to curb along the property frontage; and Park Avenue from curb to the curb along the property frontage. The Owner agrees that paving work will be done per paving specifications provided by the City Public Works Department and will be completed prior to the issuance of any certificate of occupancy for any of the last twenty residential units.

The Owner agrees to replace and reconstruct sidewalk sections that were damaged by project construction at the end of the construction phase of the project, per specifications provided by the City Public Works Department.

12. **Parking Garage:** The Owner agrees that any parking garage walls that are visible from, and across a street from, a single family home, shall be at least 42 inches high, so as to block headlights of vehicles parking in the garage from shining across the street.

The Owner further agrees that it will enter into an agreement with the St. James Catholic Church to provide for 50 spaces to be available for Church use on Sundays from 7:00 am until 1:00 pm at no charge. Provided, however, that should the Owner be unable to reach agreement with the Church for use of the spaces on reasonable terms, after notifying the City Manager of that inability and working with the City Manager to resolve the impasse, then the Owner shall not be obligated to provide such spaces, but will provide such number of spaces for which a reasonable agreement can be reached.

13. **Transportation Demand Management (TDM) and Parking Management Plan:** The Owner agrees to develop and implement a TDM program as referenced in the Transportation Management Plan that was submitted with the special exception application. The Owner agrees to obtain the City Manager's approval of the TDM program as meeting the standards of this VC and as likely to achieve the goals listed below, before site plan approval. The Owner agrees to implement the TDM program and Parking Management Plan, together, in a way that achieves the following goals: (i) reduce onsite parking demand by 13 percent from City standards, (ii) reduce the number of peak hour vehicle trips by 25 percent from ITE Trip Generation Model predictions, and (iii) achieve a minimum non-Single Occupancy Vehicle (SOV) mode share of 47 percent. The TDM program will include a list of infrastructure and incentives to be provided as well as monitoring programs and additional techniques to be administered in the event performance goals are not achieved. In addition, the TDM program will categorize infrastructure, techniques and incentives (hereafter collectively referred to as "elements") as falling into one or more of four categories: (1) Site Design, Infrastructure and Options; (2) Promotion, education and incentives; (3) Monitoring and Enforcement; and/or (4) Adaptive Management. The Owner agrees to work with the City Manager to reach agreement as to how the elements will be used at any given time. The developer agrees that, for the first two years of the operation of the apartment building, the TDM program, as implemented, will include a shuttle service to the Metro for apartment residents, and any decisions to cancel or modify the apartment shuttle service after that two year period will be made with the City Manager's approval, which shall not be unreasonably denied and shall be made according to criteria as set forth in and in conformance with the administration of the TDM and Parking Management Plan. The TDM program will conform to these documents and the CDP and will be finalized and approved as part of the Site Plan process. In addition, the Owner will develop and implement a Parking Management Plan, which the Owner agrees to finalize and obtain approval for as part of Site Plan approval. The Owner further agrees that the Parking Management Plan will meet all City parking standards in effect at the time of Site Plan approval.

Access to Property for Monitoring of Parking Utilization and Monitoring of TDM and Parking Management Plans: The Owner agrees that City of Falls Church staff upon prior written notice to the Owner's designated representative will have access to the garage(s) on the Subject Property at all times to conduct parking utilization counts

and to monitor compliance with the TDM and Parking Management Plans.

14. **On-Street Parking Restrictions:** As part of the conditions to employment for persons working in businesses located at the project, the Owner agrees that no persons employed on the Subject Property will be permitted to park on City streets during their working hours. The Owner agrees to make available sufficient parking spaces on the property for all employees working at the project and to require all employees who drive to work on the Subject Property to park in the parking garage on the Subject Property during their shift.

15. **Shuttle Service:** The Owner agrees to require the Hotel Operator to provide a shuttle service to the East and/or West Falls Church Metro stations for its employees and guests during business hours. The Owner agrees that the shuttle service will not use Grove Street as part of its route(s). The shuttle service will begin operating within 60 days after the hotel opens for business. Any decisions to cancel or modify the hotel shuttle service in the future will be made in conformance with the administration of the "TDM and Parking Management Plan".

16. **Bicycle Parking, Storage and BikeShare:**

Bike Parking and Storage. The Owner agrees to provide Class 3 visitor bike racks as shown on the CDP and Class 1 bike storage consistent with Arlington County bicycle parking standards and requirements, finalized and approved as part of Site Plan approval.

BikeShare The Owner agrees to grant an easement to the City for installation and operation of a bike share facility at the location shown on the CDP. Provided, however, that if the City Manager and the Owner agree that a different location will improve usage of the station and will provide better transportation within the City, then they may agree to a different location finalized as part of Site Plan approval. Further, the Owner agrees to reimburse the City for the actual costs charged to the City for operation and maintenance of the BikeShare facility subject to a maximum annual reimbursement of $20,000 ("Cap"), adjusted as hereinafter provided. The Cap shall be adjusted each January 1 by the Percentage Increase in the "Consumer Price Index for All Urban Consumers (CPI-U), U. S. City Average-All Items (1982-1984=100)", published by the Bureau of Labor Statistics of the United States Department of Labor. "Percentage Increase" shall mean the percentage change in the Index published on the preceding January 1 to the Index published on the current January 1. The Cap for a reimbursement period that is less than one year shall be prorated. The annual reimbursement will be made every January 1 after installation of the BikeShare facility for the life of the project or until the discontinuation of the BikeShare facility at the Subject Property.

17. **Post-Development Traffic Study and Improvements:** The Owner agrees to pay the cost of a post-development traffic study and improvements, up to a total of **$50,000.** The update will be conducted approximately twelve months after completion of the project. The scope of the study will be finalized with City staff and may include an analysis of post-development parking and traffic patterns, volumes and impacts, as well as

neighborhood pass- through traffic and potential traffic calming strategies, as warranted. In the event the Owner fails to complete the traffic study and improvements by a date that is two years after issuance of the first certificate of occupancy for any space on the top floor of the building, the Owner agrees to pay **$50,000** to the City. The Owner agrees that such amount will be due, without notice from the City, on the date that is twenty-five months after issuance of the first certificate of occupancy for any space on the top floor of the building.

18. **Parks and Recreation Contribution:** In return for various benefits to the Owner granted through the special exception process and to ameliorate the reduction of open space in the City resulting from the Special Exception Approval, the Owner agrees to increase the environmental sustainability of its project by contributing to the City's parks. The Owner agrees to provide a contribution to the City of **$500** per residential unit (excluding ADUs) in support of community improvements and future planned upgrades to City owned Parks in the area. The total contribution will be paid prior to issuance of the first residential certificate of occupancy.

19. **Public Art and Art Space:** The Owner agrees to make a **$25,000** contribution to The Little City C.A.T.C.H Foundation (C.A.T.C.H.). The contribution shall be used by the Foundation to fund grants to organizations that desire to stage art, history or cultural events and other performance activities in the public space at Mason Row. The Owner agrees to provide evidence of such payment having been made prior to issuance of the first residential certificate of occupancy for the Project. The Owner also agrees to make the Market Square public space available to C.A.T.C.H as a venue for C.A.T.C. H. to produce and manage a minimum of four special events per year. The Owner agrees to provide the name and telephone number in writing, of a person the Owner will designate to serve as a liaison to C.A.T.C.H., to the City Manager and to the C.A.T.C.H. chair person. This Owner representative will work with C.A.T.C.H. on logistics and marketing of the special events.

The Owner also agrees to provide art as shown on Option A for treatment of the East Façade, as shown on drawing A.2.1.a, dated December 9, 2015.

20. **Falls Church Public Library Contribution:** In return for various benefits to the Owner granted through the special exception process and to ameliorate the effect on the community of the additional residential density approved through the special exception process on the community, the Owner agrees to provide, as a service for the community, a contribution to the City's public libraries. The Owner agrees to make a capital contribution for public library construction. The contribution will equal **$0.62** per square foot of gross residential apartment unit area in the project (excluding affordable dwelling units). Such payment shall be made prior to issuance of the first residential certificate of occupancy for the Project.

21. **Construction Management:**

Construction Parking and Staging Plan: Prior to issuance of any demolition and/or

building permits the Owner agrees to prepare, submit, and obtain the City Manager's approval of a demolition and staging plan for the project. All demolition and construction of the project shall be done in conformance with the approved demolition and staging plan. Once a contractor has been selected for the project, the Owner will prepare a Construction Parking Plan and a Construction Traffic and Staging Plan to be enforced by the Owner for the entire the construction phase of the project, and to obtain the City Manager's approval of the plan as providing sufficient parking or other transportation services for working to the site, and not having an adverse impact on traffic safety, prior to the issuance of any building permit for the project. The Owner acknowledges and agrees that violations of these Plans during construction can result in a Stop Work Order and other enforcement measures by the City.

Community Liaison: The Owner agrees to designate a representative who is physically present on a regular basis on the Subject Property to serve as a liaison to the community for the period leading up to the issuance of the first Certificate of Occupancy and for two years thereafter. The Owner agrees to provide the name and telephone number of the liaison, in writing, to the City Manager prior to commencement of any work on the site. The Owner agrees to have the representative schedule meeting with the community, at an accessible location, no less frequently than quarterly. The Owner further agrees to hold such meetings, after notifying the City Manager, and the citizens at least ten days prior to the date of such meeting, and to permit citizens to speak at the meeting to air their concerns.

Excavation Monitoring: The Owner agrees to continuously monitor for soil movement and structural damage to adjacent structures during and after excavation for the project. Structures within a distance equivalent to or less than the depth of the excavation plus 10 feet will be surveyed by the Owner for pre-development conditions and compared to post-development conditions. For such structures, the Owner agrees to provide insurance coverage for damage caused by excavations or construction activities, as independently verified by a third party engineering consultant provided by the Owner. In no way will this provision limit the liability of the Owner or its contractors for damages caused by construction activity.

Sidewalk Accessibility: The Owner agrees to maintain safe pedestrian walkways throughout construction and thereafter, and to ensure that such walkways are, at all times, separated from street traffic. Sidewalks shall not be completely closed on either side of the street, unless the City Manager or his designee approves such closing, after finding that the Owner (1) cannot reasonably provide such a pedestrian walkway, (2) will provide clear signs and access to the sidewalk on the other side of the street, and (3) will manage the closure so that the pedestrian walkway is not closed for more than 15 consecutive days.

Pest Control: The Owner agrees to contract with a certified pest control company licensed to do such business in the Commonwealth of Virginia for a thorough extermination of any pests and/or rodents that may be present on the Subject Property prior to the start of demolition work and/or any other land disturbing activities, and throughout construction.

22. Public Safety:

Public Safety Radio: The Owner agrees to ensure that all buildings and parking garages on the Subject Property are constructed in a manner that permit public safety radio signals to be transmitted and received throughout all areas within the building and from those areas to all outdoor areas of the property that is the subject of the Special Exception. The Owner will install the necessary equipment and, with at least five days' notice to the City Manager, perform a radio transmission test upon completion of the project, but prior to issuance of the first Certificate of Occupancy, in order to establish that there exists the ability to transmit and receive public safety radio signals from the interior of the building and parking garages, including the subterranean levels. The Owner agrees to permit the City Manager or his designee to be present at the site during the tests and to verify the results. Should the test fail, the Owner will find and implement a solution acceptable to the City so as to resolve the problem with 90 days of the test.

Life Safety: To provide building safety for residents and responders during an emergency and to have the appropriate resilience to meet the demands for community safety, the Owner agrees to provide:

A. **Emergency Generator:** Natural gas emergency generator sized to accommodate the following loads (all at one time) for the Subject Property:

- Fire alarm system;
- Fire pump, if equipped;
- Emergency hall and exiting lighting;
- One elevator for each building if one exists:
- Domestic water pumps, if equipped; and
- Sump pumps.

B. Fire command center with control and annunciation of elevators, generator, fire pump and HVAC systems, including a separate cooling system for the command center.

C. Smoke removal by passive or mechanical system.

D. Automatic smoke detection for utility and other rooms not typically occupied.

E. Stairway communication system

F. Stairwell pressurization.

Driveway/Ramp Load Capacity: Mason Avenue will be engineered and constructed to support the weight of, and permit passage of, a 60,000-pound ladder truck as currently

used by the fire department.

Theater Life Safety Plan. During the Site Plan phase the Owner will prepare and submit a Theater Life Safety Plan.

23. **Easements:** The Owner agrees to provide such Easements to the City, in a form and substance as approved by the City Manager, as are shown on the CDP

24. **Other Terms and Conditions:**

Owner Acknowledgements: The Owner acknowledges, understands and agrees that the Subject Property will be developed in accordance with the applications approved by the City Council for the Subject Property and in full compliance with all applicable laws, codes, ordinances, charters, statutes, rules, regulations, agreements, and commitments.

The Owner acknowledges and agrees that the Special Exception, as granted, runs with the land and is not transferable to other land.

The Owner acknowledges that the Special Exception will automatically expire without notice, 36 months after the date of approval unless the use has been established or an above-grade building permit has been issued and construction has commenced and been diligently pursued, in accordance with Section 48-90 (d) (6) of the City of Falls Church Zoning Ordinance.

Proffered Conditions Binding on Future Owners: The Owner agrees that these Voluntary Proffered Concessions will apply to and be binding upon all future owners, and upon all heirs, successors and assigns of any owner of any portion of the Subject Property, and the Owner further agrees that it will provide a copy of these Voluntary Proffered Conditions to any such future owner, heir, successor and assign prior to transferring any interest in any part of the Subject Property to any such person, firm, corporation, or other entity.

Administrative Staff Approvals: Site Plan approval is defined as approval of the Site Plan for the Subject Property by the Planning Commission. The Owner agrees to apply within 90 days of Site Plan approval for associated administrative staff approvals and related bonds using good faith efforts to complete these approvals in a timely manner. There may be consideration of one extension of three months following the initial 90 days at the discretion of the Director of the Department of Development Services.

Access for Commissioner of Revenue: The Owner agrees that the City of Falls Church Commissioner of Revenue (CoR) and/or his designated staff upon prior written notice to an Owner designated representative will have access to the garage(s) on the Subject Property at all times for inspection of window stickers related to personal property taxes for vehicles. The CoR and staff will be provided all credentials necessary to have access to parking garage(s) by vehicle at all times. In the event the access

credentials are changed or updated, the CoR will be provided notice and updated access credentials within 30 calendar days.

Terms and Conditions Incorporated in Resolution: The Owner voluntarily submits the foregoing concessions, terms, and conditions to the City Council to be incorporated by reference with the Resolution for the Special Exception, should City Council grant the applications for Special Exception with the conditions set forth in this submission.

SPECTRUM DEVELOPMENT, LLC

By: _____, its authorized representative
Name: Richard P. Buskell
Title: Manager/Member

Date January 11, 2016

CERTIFICATION

I, Celeste Heath, City Clerk for the City of Falls Church, Virginia do hereby certify that the foregoing is a true and correct copy of "VOLUNTARY CONCESSIONS, COMMUNITY BENEFITS, TERMS AND CONDITIONS Spectrum Development LLC/Mason Row, REVISED JANUARY 11, 2016," and is incorporated into Resolution 2016-04, which was duly adopted by the City Council of the City of Falls Church at a meeting held on January 11, 2016.

The foregoing consists of 20 pages and is signed by Richard P. Buskell, Manager/Member, Spectrum Development, LLC.

IN WITNESS WHEREOF, I hereunto set my hand and affix the seal of the City of Falls Church, Virginia this 12th day of January 2016.

Celeste Heath

Celeste Heath
City Clerk

ATTACHMENT-VOLUNTARY CONCESSIONS

MASON ROW

Retail Project Plan

December 31, 2015

This Retail Project Plan is the product of a collaborative effort between Spectrum Development and its retail consultant and leasing agent Streetsense. Streetsense is a nationally recognized retail strategic planning and leasing firm that is headquartered in Bethesda, MD.

MASON ROW - MARKET ASSESSMENT

The area comprised of McLean, North Arlington and Falls Church is strong, with a healthy local economy and vibrant local neighborhoods; the area boasts some of the strongest demographics in Northern Virginia. The area's residents, however, are underserved in most retail categories, especially when compared to comparable areas in the Washington region. Leesburg Pike, one of the area's primary commercial corridors and transportation arterials, is the logical focal point and place of congregation for the surrounding communities, but instead this commercial corridor suffers from poor planning and is lacking a sense of place, that is so essential to the vitality and quality of life of any healthy urban or semi-urban community. The Falls Church/McLean/North Arlington sub-market is dominated by generic shopping malls, power centers and service-oriented strip centers and it is devoid of any commercial destinations with a strong sense of place.

Mason Row Project Design

The project's merchandising plan will evolve around the project's unique spaces and features, while responding to external influences and neighboring blocks and uses. It is important to encourage connectivity with surrounding neighborhoods, their residents, businesses and visitors and to provide the surrounding area with something that is commercially, recreationally and socially unparalleled in the marketplace. Mason Row will be among the prime visual, social and commercial anchors in the area and will feel more like an urban, open, public space than an enclosed "mall" or suburban shopping center.

The Falls Church market area is currently noted for sprawling, suburban-oriented communities and commercial centers, limited great "places," exist. The proposed project's plan and architecture will complement the neighborhood and make an invaluable contribution to the character of Broad Street, West Street and the surrounding communities. The great potential this project holds is its ability to anchor and reinforce the area's renaissance. It will encourage a myriad of tangible and intangible economic and social spin-offs to surrounding commercial areas and neighborhoods.

Parking
The availability of convenient public parking in Falls Church is limited. Many well-located mixed use projects and retail businesses in the area are struggling because parking is in short supply or because accessing it and walking from parking to shopping or dining is inconvenient and/or undesirable. For this reason, Mason Row is paying a tremendous amount of attention to parking availability, accessibility and circulation.

The current **parking plan at Mason Row** is strong, boasting an abundance of **dedicated retail spaces (greater than 4.5 spaces per 1,000 sf of retail space), plus shared parking** during non-peak hours. In an effort to maximize convenience, retail parking has been centrally located in close proximity to Mason Avenue and has been **separated from residential, and office parking**, which will maximize convenience and overall experience for retail customers. Parking circulation has been carefully thought through, with **multiple points of ingress/egress for vehicles**; the same goes for drivers once they've parked, as there will be multiple paths of travel for the pedestrian, to maximize convenience. Overall, **strong attention has been paid to making the pedestrian experience (from car to street) a, quick, convenient, safe and comfortable experience,** with high floor-to-floor garage ceilings and well-lit, wide sidewalks. Street parking on Mason Avenue has been maximized where possible; such teaser parking will strengthen the pedestrian environment and will enhance perceptions of the parking amenity. Mason Row will compete effectively with neighboring strip centers, Tysons Corner and Mosaic, because of the convenience, abundance and safety of its parking.

Mason Avenue and Market Square – an urban market street and plaza
While Broad Street and (to a lesser extent) West Street will represent the building's first impression in terms of approach, the market street and market square design, paired with the tenants surrounding it, will be the prime focal point of the project and will be its most distinguishing feature. Mason Avenue and the execution of its design is of paramount importance to the success of Mason Row. **Unlike most new development in Falls Church, Mason Avenue adds a one-of-a-kind landmark space to the interior of the site that a single street-oriented infill building cannot. Such a space brings with it an identity-creating element that, while located within the project's interior, will give Mason Row its "face." The retail Avenue brings with it the opportunity to create a hierarchy of public spaces with outdoor seating areas—not to mention enhanced circulation—within the site and to the surrounding area.** With careful design and thorough attention to detail when it comes to material selection, the space has the potential to be an authentically urban public space that puts Mason Row on the regional map.

Additionally, Mason Avenue is an opportunity to increase retail frontage, leasable area and the number of destinations within the project; all enhancements that separate the project from other infill projects that have been developed in the area in recent years.

RETAIL MERCHANDISING AND LEASING
The Mason Row retail project is an entertainment and food destination at its core. The project is designed to be a pedestrian oriented urban retail market place that is open air and which has significant public gathering space and an abundance of convenient commercial parking on site. **The aim of this project's retail merchandising plan is not to compete with existing suburban retail strip offerings or the Tyson's Corner malls, but rather, to provide the surrounding region with merchandising categories and a level of**

character not currently available, while also encouraging a high level of connectivity with surrounding neighbourhoods and existing businesses in the area.

Based on research of the current competitive landscape for retail and the assessment of the market by Streetsense, Mason Row is being merchandised to create an entertaining shopping environment, which has a high quality, urban movie theater, a well-curated mix of high quality restaurants—full-service and limited-service--and neighborhood serving retail shops, coupled with high, public space-oriented design. Additionally, the location on the bike trail sets the stage for a unique and interactive retail environment in Falls Church.

Cinema

Movie theater and retail shopping audiences are seeking the same goal when visiting a retail destination such as Mason Row, which is entertainment and socialization. **Movies help draw visitors to a retail project and the shopping and dining that a well-designed retail atmosphere creates is substantially beneficial to a movie theater, who wants its guests to have complementary reasons to visit the theater.** The movie theater business has reinvented itself over the past few years. Theaters are focusing on smaller, more intimate venues with fewer seats. Many theaters are making a luxury experience their prime focus, while others are looking to food and beverage offerings to entice viewers. Some theaters are concentrating on both, offering separate restaurants and a higher end food and service experience.

Mason Row is ideally suited for a high quality movie theater because of its superior, high quality place making and because of its abundance of quality restaurants and convenient commercial parking. **<u>The movie theater in Mason Row will</u> be a smaller urban design theater with no more than 8 screens (limited to 800 seats) and a cocktail lounge and or restaurant and will complement the public space and other restaurants in the project. The Mason Row Theater concept will have 1st Run movies from the Hollywood Studios as well as some smaller budget films and will host special themed film events and community and charity events with special film showings, which showings would be related to a specific community or charity event.**

Full-Service Dining

Falls Church is underserved in the full-service dining category. Full-service restaurants currently in the immediate vicinity of the Mason Row site are predominately lower quality national chains and locals. Many of the area's full-service restaurants suffer from parking deficiencies and rely too heavily upon pedestrian traffic, in a market in which the automobile is the preferred mode of travel. As a result, most of the area's residents travel to Mosaic, Tysons Corner, Clarendon or even downtown Washington for destination dining. **Through high quality place making, having a well-recognized theater in the project and abundant, convenient parking, Mason Row is ideally suited for high quality restaurants that are geared toward discerning, higher demographic families that reside in the Falls Church market area. Mason Row will target approximately 20% of the total ground floor retail space for Full-Service dining.**

Limited-Service Dining

Limited service food and beverage uses (also referred to as "fast casual") can add a layer of amenity for the consumer who doesn't want to eat in a full service environment every day or night. A more casual,

less costly commitment will increase the customer base, the number of trips per customer and the subsequent number of day parts during which the Mason Row project is active. Limited-service dining—particularly during lunch—is primarily for people who have a limited amount of time and therefore **Mason Row will have an advantage in serving this category, over many other mixed use projects and strip retail centers in the area, because of Mason Row's superior place making and due to the large amount of convenient retail parking** that Mason Row provides for short term retail visitors. **Mason Row will target approximately 30% of the total ground floor retail space for Limited-Service dining.**

Additional focus is being placed on high quality brands; particularly trendy Washington area restaurants, which might have a broader reach than some chains who are already over exposed in the marketplace and therefore who would draw from a smaller trade area. Mason Row has made a specific commitment in the Voluntary Concessions to the City, to provide outdoor patio seating space for the Food & Beverage retail tenants and that there will be no less than 20,000 square feet of commercial space offered to and exclusively retained for initial leasing to Food and Beverage retailers.

Neighborhood Services Retail and Other Conditional Retail Uses

Falls Church is already populated with basic service retail; however, a finely-tuned mix of neighborhood-oriented uses and a tenant mix that rises above the current offering will generate foot traffic throughout the day, week and year and will do so in a way that is complimentary of other high quality uses and is consistent with a high quality retail environment. **The Mason Row project has committed to limiting the amount of retail space for this category to no more than 15% of the total ground floor retail space in the project. This commitment is documented in the Voluntary Concessions terms and conditions made by Spectrum Development and the Mason Row project.**

Specialty Retail

This retail category will include important retail offerings that contribute to the overall sense of place for the Mason Row project. These retailers offer a limited variety of specialty products that are not readily available in most neighborhood shopping centers. This retail category will cover the product segments, other than the Retail Services/Conditional Retail Uses category, from the group of retail categories listed at the end of this document in the section marked Retail Categories for the Leasing Program. These Specialty stores are most often built out and configured using special lighting packages and building materials and paint schemes to promote a theme or brand of product. **The Mason Row project will target approximately 35% of the total ground floor retail space for the Specialty Retail category.**

MARKET SQUARE - PROGRAMMING THE PUBLIC SPACES AT MASON ROW

The retail component and market square at Mason Row will drive the character of the project and will establish its relationship with the community and surrounding region. High quality public gathering space, architecture and planning, strong accessibility, market-appropriate merchandising and high quality tenancy will dictate the retail's success. The sum of all its parts will be the main attraction; the degree of which can be greatly enhanced by supplemental, complimentary programing of its public areas. A site as prominent and centrally-located as Mason Row possesses exceptional potential for events that are highly visible and far reaching. Falls Church presently lacks a commercial place with which the residents of the community collectively identify for social gathering. As a result, **there is a tremendous amount of potential for events that support and promote Mason Row and strengthen its relationship with the immediately**

adjacent and surrounding communities. Conveniently, Mason Row will possess the public spaces to accommodate such events and these spaces are designed in a way that will maximize their influence on the public and their general degree of success.

Such events are the ultimate "destination use," bringing to the project people who might otherwise be difficult to attract. One-off events and regularly scheduled events that people can come to expect on specific dates (daily, weekly, monthly or annually) are effective in luring customers who might not otherwise be drawn to the project; they are also tremendously effective in drawing infrequent visitors to the project on an increased basis. Frequency of attendance promotes customer loyalty and is more likely to induce changes in existing shopping and socializing patterns within the project's trade areas; it is also a way of separating the project from other area retail shopping competitors.

Programmed Event Examples

Showtime for Kids
Interactive outdoor plays where kids are invited to participate with local stage troupes in key roles, adding to and changing the storyline.

Seasonal Concert Series
Weekly concert events, featuring local talent.

Weekly Farmers Market
A featuring of local farmers, food and craft merchants, spilling out onto streets and sidewalks.

Fall Season Farmers Market and Extravaganza
Vendors from around the region congregate to showcase Fall-related goods and specialties, featuring pumpkin carving lessons, a costume parade and live performances.

Annual Cook-off
Competition featuring popular local chefs and restaurateurs.

Annual Film Festival and/or Regular Outdoor Screenings
Sponsored by local companies and institutions, partnered with project cinema tenant.

Theatre in the Round
Theatrical performances by various local troupes.

Art Walk
Exhibits and demonstrations by local artists and art institutions.

"Mason Row will be a unique, local landmark. Paired with an anchor cinema use, strong emphasis on unique restaurant concepts and public events that work in concert with the project's design and its surroundings, will make this project highly identifiable". (Streetsense)

Retail Categories for the MASON ROW Leasing Program

FOOD

(1) Fast Casual Restaurants with or without Patio Seating – Pizza/Sandwiches/Burgers/Sushi/Pasta, etc.

(2) Full Service Dining with or without Patio Seating

(3) Food Markets – Gourmet Butcher/Fresh Seafood Market/Cheese Shop/fresh vegetables & fruits

(4) Coffee Shop

(5) Ice Cream and Yogurt

(6) Chocolate Shop

(7) Wine Shop

(8) Tavern/Bar Restaurant

(9) Specialty Tea Store

(10) Candy store

(11) Baked goods store

(12) Food Catering

BOUTIQUES – SMALL RETAIL SHOPS

(1) Personal Beauty Products

(2) Candle & Soap Shop

(3) Fashionable Clothing

(4) Lifestyle Clothes - Vacation Wear

(5) Jewelry

(6) Home Accessories & Gifts

(7) Children's Apparel – Baby Accessories for the home & travel

(8) Kitchen Accessories & Cookware

(9) Premier Paperie – Card Shop

(10) Artisan Olive Oil & Vinegar

(11) Art Gallery/Art Studios/Art Framing

(12) Flower Shop

(13) Toy store

(14) Music store

(15) Shoe store

(16) Leather Goods

(17) Book store

SPORTS

(1) Bike Shop with Bike Service/Repair

(2) Running Store

(3) Athletic Wear Store

(4) Sporting Goods

(5) Ski shop

(6) Boating store

HOME FURNISHINGS/ACCESSORIES/GIFTS

(1) Home Furnishing & Interior Design

(2) Lamp/Lighting shop

(3) Carpet store

(4) Windows/Window Treatments

ELECTRONICS

(1) Computer Store

(2) Wireless Telephone

(3) Electronics store

(4) Computerized Games

WELLNESS (Mainstream)

(1) Fitness Center

(2) Health Supplements

(3) Pharmacy

FINANCIAL SERVICES (Mainstream)

(1) Bank Retail Branch Office – with no drive thru

THEATER

(1) Movie Cinema or Cinema Draft house/Dine-In Theaters

(2) Live Stage Theater/Performing Arts

GROCERIES

(1) Grocery store

(2) Convenience store

NEIGHBORHOOD SERVICES RETAIL and OTHER CONDITIONAL RETAIL USES (*This Retail Category is Limited to 15% of Total Ground Floor Retail in the Mason Row Project – Addressed in the VCs*)

(1) Packaging and Shipping store

(2) Copy shop

(3) Cleaners

(4) Office Supplies

(5) Child Learning Center

(6) Child Fitness Center

(7) Hardware store

(8) Shoe repair

(9) Travel Services

(10) Yoga & Pilates Studio

(11) Spa Treatments and Acupuncture

(12) Dentist/Doctor’s Office, Urgent Care

(13) Private Wealth Management Office

(14) Insurance Office

(15) Accounting and Tax services

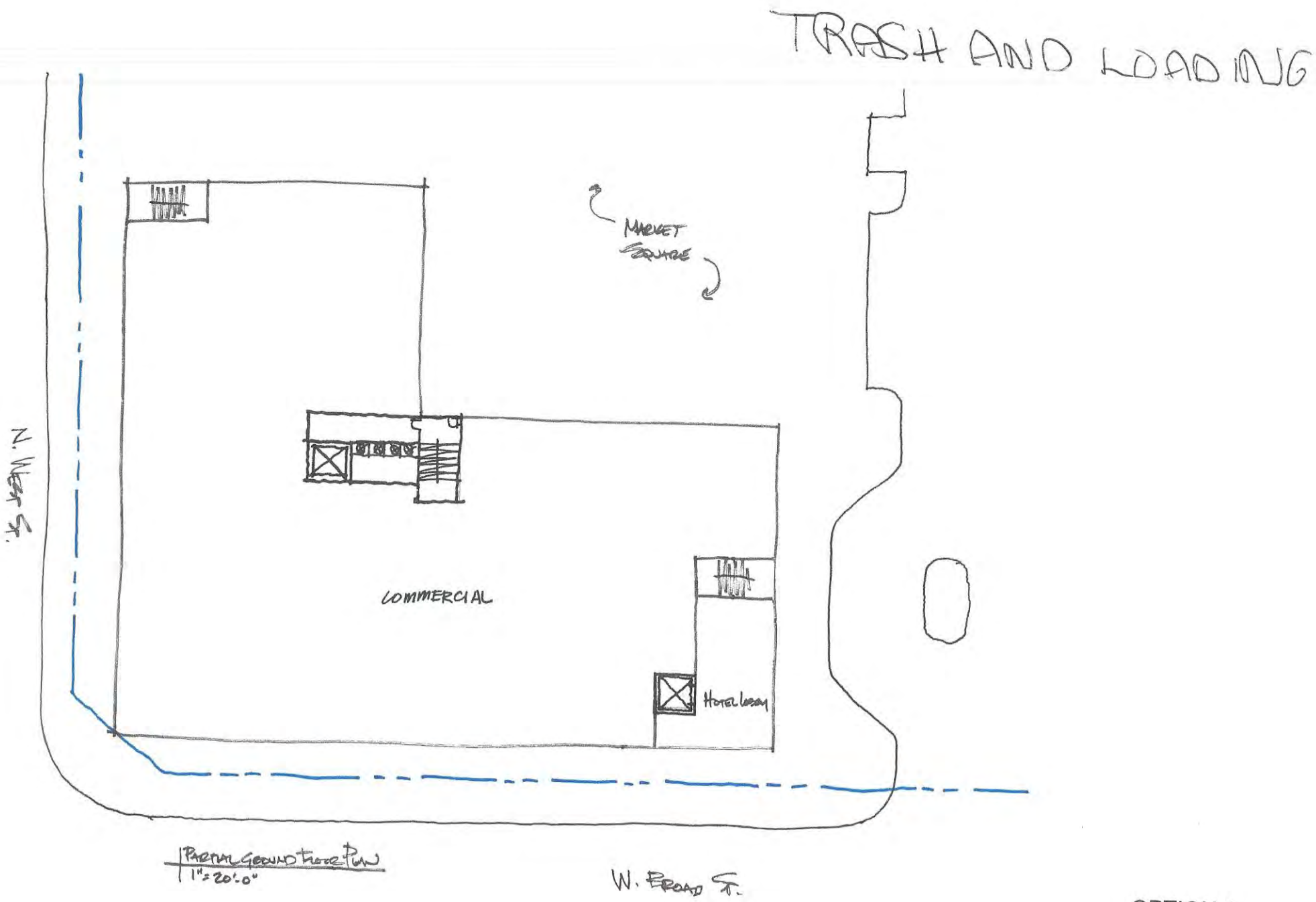
(16) Small Pet Shop/Dog Training

(17) Hair Styling

(18) Antiques

(19) ABC Liquor store

EXHIBITS FOR VOLUNTARY CONCESSIONS
PROVIDED BY APPLICANT
JANUARY 7, 2016

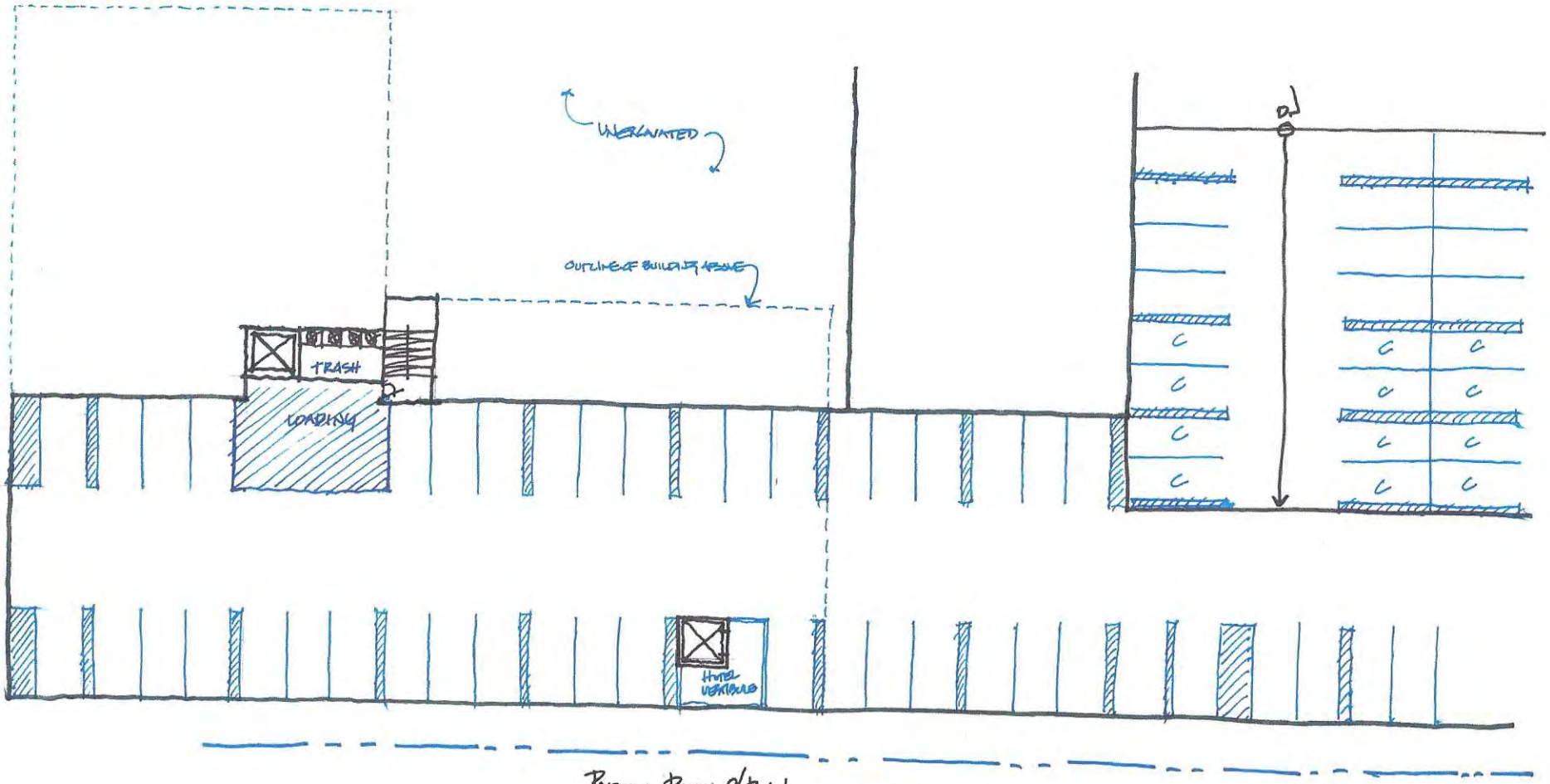


PARTIAL GROUND FLOOR PLAN
1" = 20'-0"

OPTION 1

PAGE 1

TRASH AND LOADING

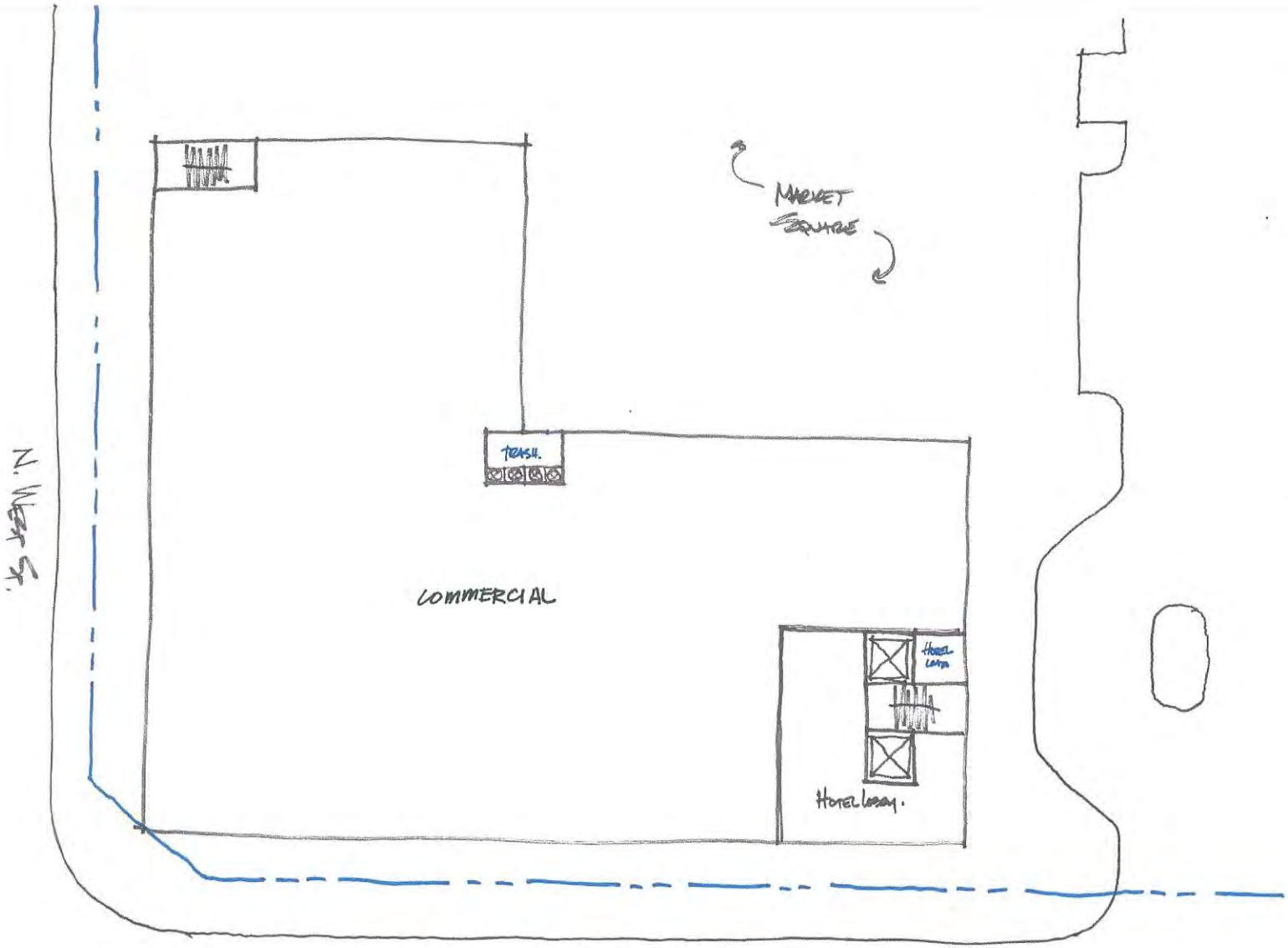


PARTIAL PARK & PLAN
1" = 20'-0"

OPTION 1

Page 2

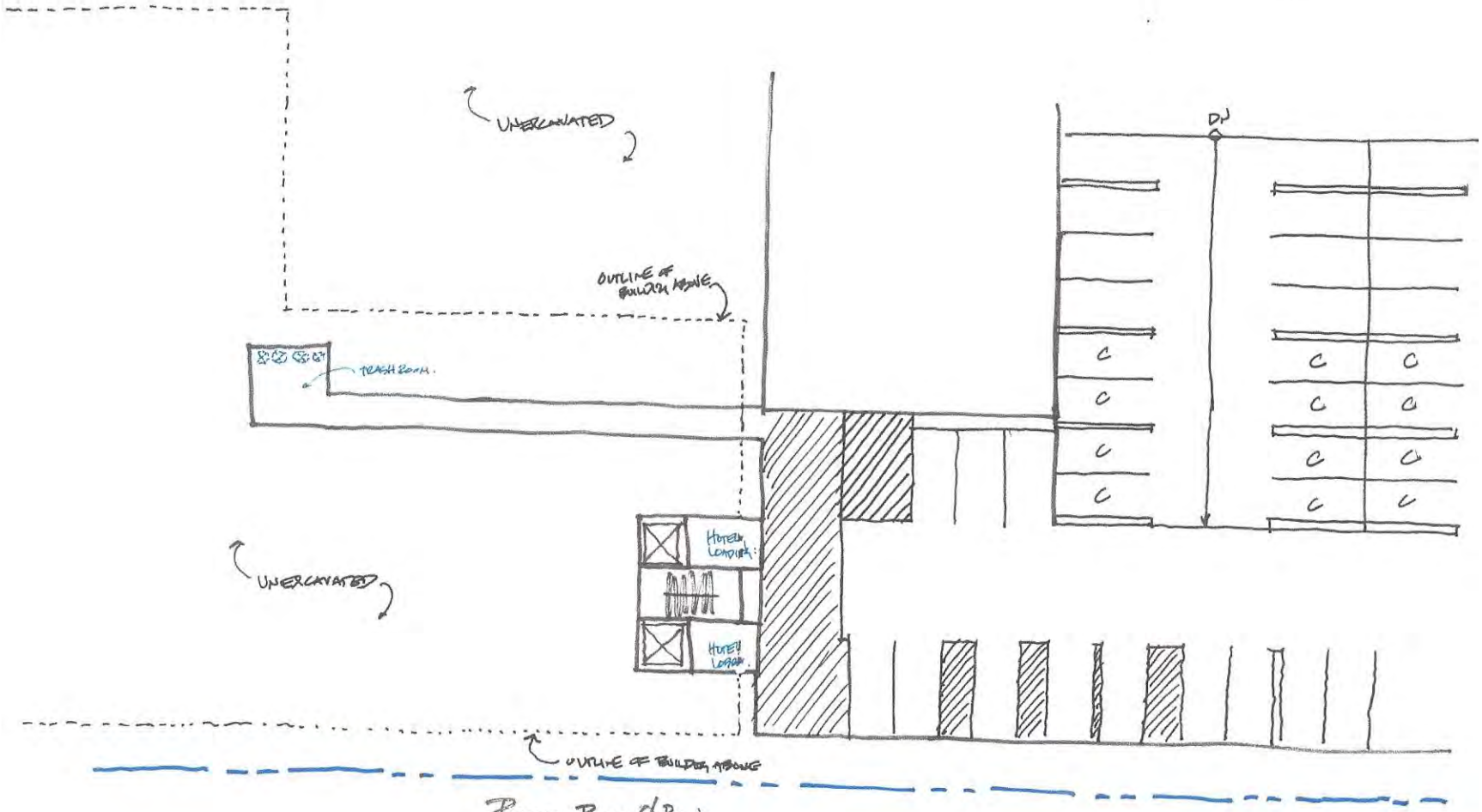
TRASH AND LOADING



PARTIAL GROUND FLOOR PLAN
1" = 20'-0"

OPTION 2
PAGE 1

TRASH AND LOADING



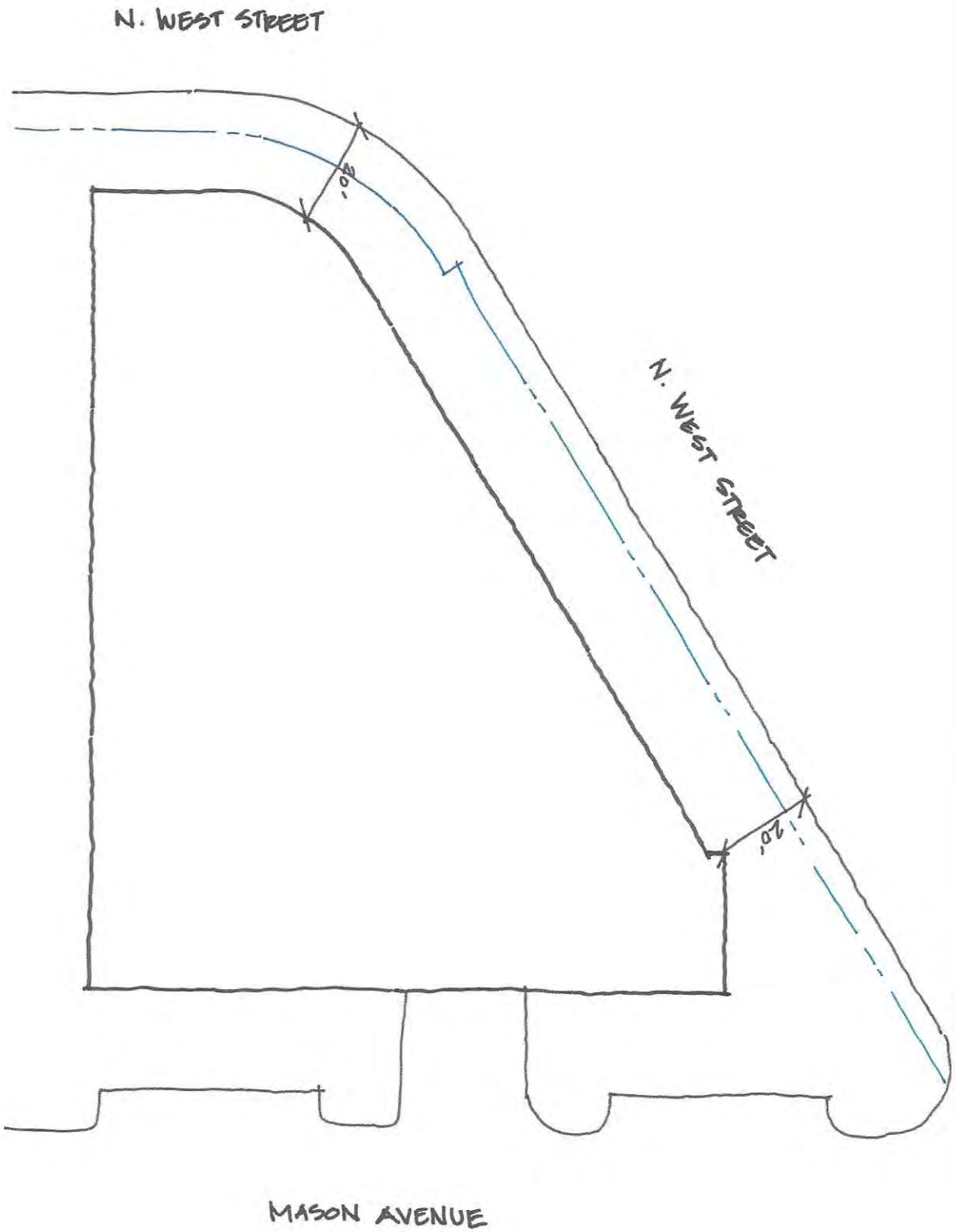
PARTIAL PARK ⌀ PLAN
1" = 20'-0"

OPTION 2

Page 2

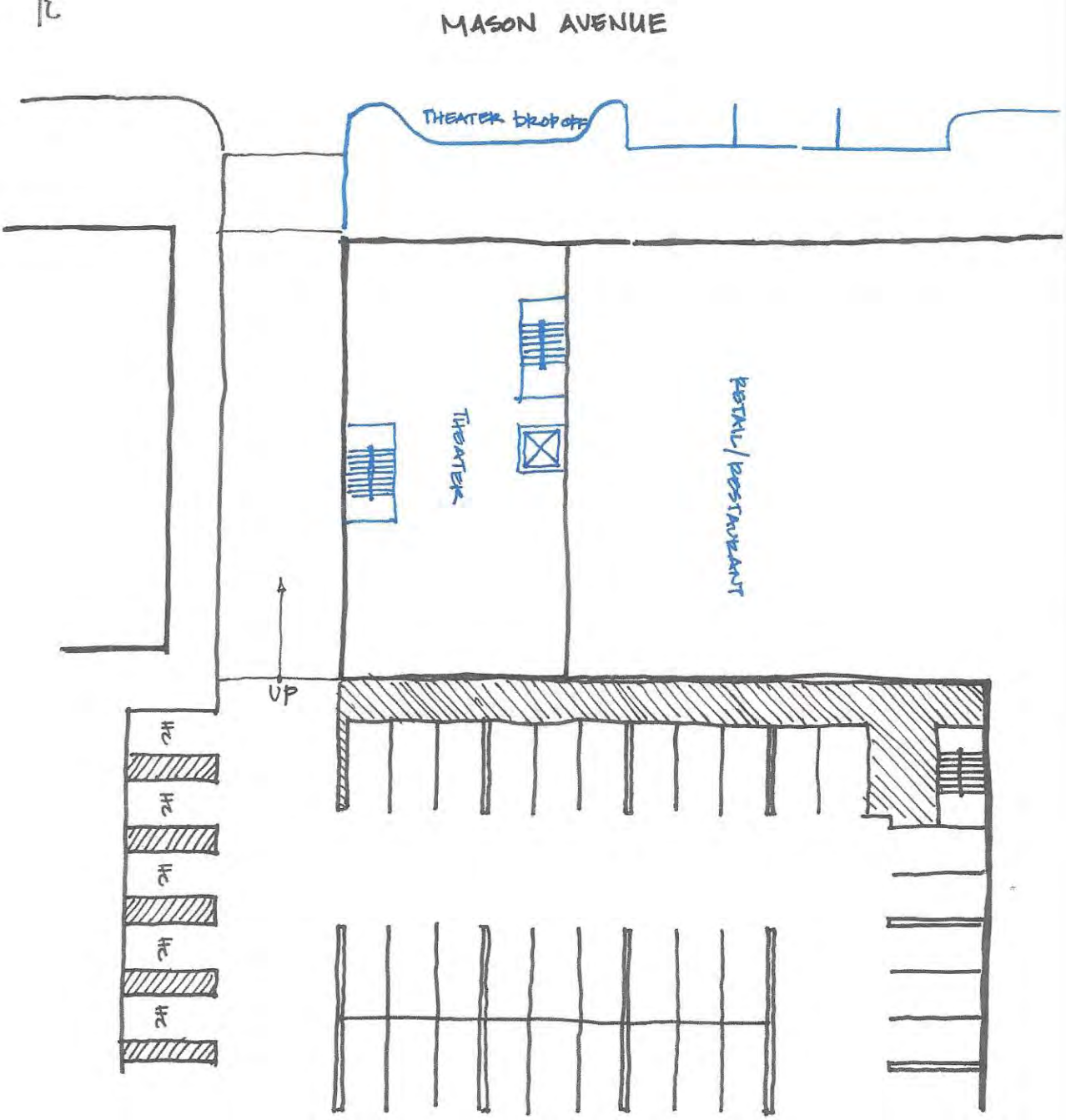
20 Foot Setback

PARTIAL GROUND FL. PLAN
1" = 20'-0"



THEATER DROPOFF AREA

Theater Ground Floor Plan
1" = 20'-0"



WELLS + ASSOCIATES

MEMORANDUM

Appendix B – Traffic Count Data

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Mason Row Site Plan
W+A JOB NO: 6953
INTERSECTION: N. West Street & Park Ave.
LOCATION: Falls Church,VA

DATE: 9/14/2016
DAY: Wednesday
WEATHER: clear
COUNTED BY: Jose & Denis
INPUTED BY: agan

SOUTHBOUND ROAD: North West Street
NORTHBOUND ROAD: North West Street
WESTBOUND ROAD: Park Avenue
EASTBOUND ROAD: 0

Time	Southbound North West Street					Westbound Park Avenue					Northbound North West Street					Eastbound 0					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
One Hour Volumes																							
6:00 AM - 7:00 AM		40	4	44	0.6111	3		14	17	0.425	47	255		302	0.7123						346	17	363
6:15 AM - 7:15 AM		43	4	47	0.6528	7		32	39	0.4063	53	335		388	0.7519						435	39	474
6:30 AM - 7:30 AM		76	7	83	0.5188	9		41	50	0.5208	61	403		464	0.7484						547	50	597
6:45 AM - 7:45 AM		109	16	125	0.5682	14		61	75	0.6466	80	468		548	0.8671						673	75	748
7:00 AM - 8:00 AM		133	16	149	0.6773	12		114	126	0.5164	98	497		595	0.9415						744	126	870
7:15 AM - 8:15 AM		158	21	179	0.8136	12		111	123	0.5041	106	536		642	0.9119						821	123	944
7:30 AM - 8:30 AM		157	23	180	0.8182	14		117	131	0.5369	103	530		633	0.8991						813	131	944
7:45 AM - 8:45 AM		159	17	176	0.8627	17		107	124	0.5082	90	507		597	0.848						773	124	897
8:00 AM - 9:00 AM		162	19	181	0.8873	18		57	75	0.8523	68	504		572	0.8125						753	75	828
8:15 AM - 9:15 AM		168	17	185	0.9069	15		55	70	0.7955	66	426		492	0.8425						677	70	747
8:30 AM - 9:30 AM		161	18	179	0.8775	17		54	71	0.8068	70	356		426	0.832						605	71	676
8:45 AM - 9:45 AM		150	15	165	0.8777	10		52	62	0.7381	67	340		407	0.7949						572	62	634
9:00 AM 10:00 AM		149	17	166	0.8646	9		53	62	0.7381	74	318		392	0.8673						558	62	620
9:15 AM 10:15 AM		145	14	159	0.8281	10		51	61	0.7262	65	312		377	0.8341						536	61	597
9:30 AM 10:30 AM		162	17	179	0.8136	5		49	54	0.9	65	324		389	0.8606						568	54	622
9:45 AM 10:45 AM		151	18	169	0.7682	10		49	59	0.8194	61	282		343	0.7588						512	59	571
10:00 AM 11:00 AM		141	13	154	0.7	14		53	67	0.8375	60	247		307	0.8342						461	67	528
10:15 AM 11:15 AM		143	14	157	0.7136	13		55	68	0.85	65	240		305	0.8288						462	68	530
10:30 AM 11:30 AM		136	5	141	0.8393	14		63	77	0.837	57	226		283	0.8956						424	77	501
10:45 AM 11:45 AM		147	4	151	0.8988	10		74	84	0.84	60	236		296	0.9367						447	84	531
11:00 AM 12:00 PM		180	22	202	0.6012	9		69	78	0.78	79	235		314	0.8263						516	78	594
11:15 AM 12:15 PM		182	24	206	0.6131	13		75	88	0.8462	81	210		291	0.7658						497	88	585
11:30 AM 12:30 PM		190	28	218	0.6488	15		64	79	0.7596	84	182		266	0.7						484	79	563
11:45 AM 12:45 PM		210	31	241	0.7173	19		75	94	0.5875	92	163		255	0.6711						496	94	590
12:00 PM 1:00 PM		187	15	202	0.8417	22		75	97	0.6063	76	143		219	0.928						421	97	518
12:15 PM 1:15 PM		200	12	212	0.8833	19		84	103	0.6438	75	158		233	0.8321						445	103	548
12:30 PM 1:30 PM		190	10	200	0.8333	16		95	111	0.6938	95	170		265	0.8604						465	111	576
12:45 PM 1:45 PM		181	11	192	0.8571	14		93	107	0.7431	93	175		268	0.8701						460	107	567
1:00 PM 2:00 PM		180	14	194	0.8661	10		102	112	0.7778	90	171		261	0.8474						455	112	567
1:15 PM 2:15 PM		160	17	177	0.851	11		97	108	0.75	96	151		247	0.8019						424	108	532
1:30 PM 2:30 PM		170	20	190	0.9135	15		101	116	0.8056	80	155		235	0.9038						425	116	541
1:45 PM 2:45 PM		163	19	182	0.875	13		89	102	0.85	86	153		239	0.9053						421	102	523
2:00 PM 3:00 PM		171	19	190	0.8636	15		89	104	0.8667	103	162		265	0.8494						455	104	559
2:15 PM 3:15 PM		195	22	217	0.822	16		91	107	0.8629	125	170		295	0.8576						512	107	619
2:30 PM 3:30 PM		229	25	254	0.7135	14		121	135	0.5819	143	176		319	0.8961						573	135	708
2:45 PM 3:45 PM		252	23	275	0.7725	20		134	154	0.6638	138	192		330	0.927						605	154	759
3:00 PM 4:00 PM		275	21	296	0.8315	17		129	146	0.6293	137	215		352	0.88						648	146	794
3:15 PM 4:15 PM		317	19	336	0.7925	20		135	155	0.6681	119	227		346	0.865						682	155	837
3:30 PM 4:30 PM		357	15	372	0.744	22		107	129	0.7866	104	236		340	0.85						712	129	841
3:45 PM 4:45 PM		418	23	441	0.8228	15		101	116	0.725	105	267		372	0.8532						813	116	929
4:00 PM 5:00 PM		453	25	478	0.8918	19		106	125	0.7813	94	273		367	0.8417						845	125	970
4:15 PM 5:15 PM		443	26	469	0.875	15		101	116	0.9063	100	296		396	0.9083						865	116	981
4:30 PM 5:30 PM		414	28	442	0.8246	15		95	110	0.8871	98	307		405	0.9289						847	110	957
4:45 PM 5:45 PM		454	23	477	0.7056	19		96	115	0.8712	122	303		425	0.8236						902	115	1017
5:00 PM 6:00 PM		514	27	541	0.7641	20		102	122	0.9242	135	350		485	0.7823						1026	122	1148
5:15 PM 6:15 PM		550	27	577	0.815	19		86	105	0.7955	116	374		490	0.7903						1067	105	1172
5:30 PM 6:30 PM		568	28	596	0.8418	16		84	100	0.7576	127	388		515	0.8306						1111	100	1211
5:45 PM 6:45 PM		493	28	521	0.7359	23		71	94	0.7344	107	362		469	0.7565						990	94	1084
6:00 PM - 7:00 PM		149	24	433	0.8139	17		45	62	0.5741	71	243		314	0.6709						747	62	809

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	Mason Row Site Plan	**DATE:**	9/14/2016	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	6953	**DAY:**	Wednesday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West Street & Park Ave.	**WEATHER:**	clear	**WESTBOUND ROAD:**	Park Avenue
LOCATION:	Falls Church,VA	**COUNTED BY:**	Denis	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

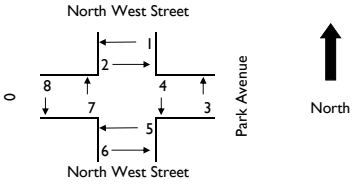
Time	Southbound				Westbound				Northbound				Eastbound				North	East	Total
	North West Street				Park Avenue				North West Street				0				&	&	
Period	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	South	West	
One Hour Volumes																			
6:00 AM - 7:00 AM		1		1	1			1									1	1	2
6:15 AM - 7:15 AM		1		1	1			1		1		1					2	1	3
6:30 AM - 7:30 AM										2		2					2		2
6:45 AM - 7:45 AM										2		2					2		2
7:00 AM - 8:00 AM										3		3					3		3
7:15 AM - 8:15 AM					2			2		2		2					2	2	4
7:30 AM - 8:30 AM					3			3		1		1					1	3	4
7:45 AM - 8:45 AM					3			3		1		1					1	3	4
8:00 AM - 9:00 AM					3			3										3	3
8:15 AM - 9:15 AM			2	2	1			1									2	1	3
8:30 AM - 9:30 AM		1	2	3	1			1									3	1	4
8:45 AM - 9:45 AM		1	2	3	1			1									3	1	4
9:00 AM - 10:00 AM	1	1	2	4	2			2									4	2	6
9:15 AM - 10:15 AM	1	1		2	3			3									2	3	5
9:30 AM - 10:30 AM	1			1	2			2									1	2	3
9:45 AM - 10:45 AM	1			1	3			3									1	3	4
10:00 AM - 11:00 AM					3			3	1			1					1	3	4
10:15 AM - 11:15 AM					3			3	2			2					2	3	5
10:30 AM - 11:30 AM		1		1	3			3	2			2					3	3	6
10:45 AM - 11:45 AM		1		1	2			2	2			2					3	2	5
11:00 AM - 12:00 PM		1		1	1			1	1			1					2	1	3
11:15 AM - 12:15 PM		1		1													1		1
11:30 AM - 12:30 PM		1		1	1			1									1	1	2
11:45 AM - 12:45 PM		1		1	1			1									1	1	2
12:00 PM - 1:00 PM		1		1	1			1									1	1	2
12:15 PM - 1:15 PM		2	1	3	1			1									3	1	4
12:30 PM - 1:30 PM		1	1	2													2		2
12:45 PM - 1:45 PM		1	1	2													2		2
1:00 PM - 2:00 PM		2	1	3													3		3
1:15 PM - 2:15 PM		1		1	2			2									1	2	3
1:30 PM - 2:30 PM		1		1	2			2									1	2	3
1:45 PM - 2:45 PM		1		1	2			2									1	2	3
2:00 PM - 3:00 PM					2			2										2	2
2:15 PM - 3:15 PM		1	2	3													3		3
2:30 PM - 3:30 PM		4	3	7													7		7
2:45 PM - 3:45 PM		4	3	7	2			2	3			3					10	2	12
3:00 PM - 4:00 PM		6	3	9	3			3	3			3					12	3	15
3:15 PM - 4:15 PM		7	1	8	3			3	3			3					11	3	14
3:30 PM - 4:30 PM		4		4	3			3	3			3					7	3	10
3:45 PM - 4:45 PM		4		4	1			1									4	1	5
4:00 PM - 5:00 PM		2		2			1	1									2	1	3
4:15 PM - 5:15 PM		2	1	3			1	1									3	1	4
4:30 PM - 5:30 PM		4	1	5			1	1									5	1	6
4:45 PM - 5:45 PM		4	3	7			1	1									7	1	8
5:00 PM - 6:00 PM		5	3	8	2		1	3									8	3	11
5:15 PM - 6:15 PM		5	2	7	2		1	3	1			1					8	3	11
5:30 PM - 6:30 PM		8	2	10	2		1	3	1	1		2					12	3	15
5:45 PM - 6:45 PM		8		8	2		1	3	2	1		3					11	3	14
6:00 PM - 7:00 PM		9		9					2	2		4					13		13

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Mason Row Site Plan
W + A JOB NO: 6953
INTERSECTION: N. West Street & Park Ave.
LOCATION: Falls Church,VA
DATE: 9/14/2016
DAY: Wednesday
WEATHER: clear
COUNTED BY: Jose
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
One Hour Volumes													
6:00 AM - 7:00 AM			2							2			2
6:15 AM - 7:15 AM			4							4			4
6:30 AM - 7:30 AM			2	1						3			3
6:45 AM - 7:45 AM			2	1						3			3
7:00 AM - 8:00 AM			2	1						3			3
7:15 AM - 8:15 AM				1						1			1
7:30 AM - 8:30 AM			3	2						5			5
7:45 AM - 8:45 AM			3	2						5			5
8:00 AM - 9:00 AM			3	3						6			6
8:15 AM - 9:15 AM			5	3						8			8
8:30 AM - 9:30 AM			2	1						3			3
8:45 AM - 9:45 AM			3	4						7			7
9:00 AM - 10:00 AM			3	4						7			7
9:15 AM - 10:15 AM			1	4						5			5
9:30 AM - 10:30 AM			2	6						8			8
9:45 AM - 10:45 AM			1	3						4			4
10:00 AM - 11:00 AM			3	4						7			7
10:15 AM - 11:15 AM			3	4						7			7
10:30 AM - 11:30 AM			2	3						5			5
10:45 AM - 11:45 AM			2	5						7			7
11:00 AM - 12:00 PM			2	5						7			7
11:15 AM - 12:15 PM			2	5						7			7
11:30 AM - 12:30 PM			2	4						6			6
11:45 AM - 12:45 PM			2	2						4			4
12:00 PM - 1:00 PM				1						1			1
12:15 PM - 1:15 PM				2						2			2
12:30 PM - 1:30 PM			1	2						3			3
12:45 PM - 1:45 PM			1	4						5			5
1:00 PM - 2:00 PM			2	5						7			7
1:15 PM - 2:15 PM			3	4						7			7
1:30 PM - 2:30 PM			2	4						6			6
1:45 PM - 2:45 PM			2	2						4			4
2:00 PM - 3:00 PM			1							1			1
2:15 PM - 3:15 PM													
2:30 PM - 3:30 PM			1	1						2			2
2:45 PM - 3:45 PM			1	3						4			4
3:00 PM - 4:00 PM			2	4						6			6
3:15 PM - 4:15 PM			3	14						17			17
3:30 PM - 4:30 PM			4	14						18			18
3:45 PM - 4:45 PM			6	13						19			19
4:00 PM - 5:00 PM			5	12						17			17
4:15 PM - 5:15 PM			5	2						7			7
4:30 PM - 5:30 PM			3	3						6			6
4:45 PM - 5:45 PM			3	3						6			6
5:00 PM - 6:00 PM			3	5						8			8
5:15 PM - 6:15 PM			6	8						14			14
5:30 PM - 6:30 PM			8	9						17			17
5:45 PM - 6:45 PM			6	10						16			16
6:00 PM - 7:00 PM			8	11						19			19

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: Mason Row Site Plan
W+A JOB NO: 6953
INTERSECTION: N. West Street & W & OD Trail
LOCATION: Falls Church,VA

DATE: 9/14/2016
DAY: Wednesday
WEATHER: clear
COUNTED BY: Mina
INPUTED BY: agan

SOUTHBOUND ROAD: North West Street
NORTHBOUND ROAD: North West Street
WESTBOUND ROAD: W & OD Trail
EASTBOUND ROAD: W & OD Trail

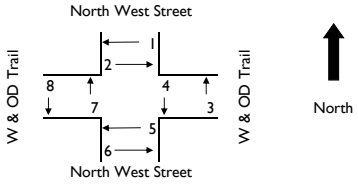
Time	Southbound North West Street				Westbound W & OD Trail				Northbound North West Street				Eastbound W & OD Trail				North & South	East & West	Total
Period	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
One Hour Volumes																			
6:00 AM - 7:00 AM	1			1		17	1	18	1			1		37	1	38	2	56	58
6:15 AM - 7:15 AM	2			2		23	1	24	2			2		40	2	42	4	66	70
6:30 AM - 7:30 AM	2			2	1	30		31	2			2		51	4	55	4	86	90
6:45 AM - 7:45 AM	5			5	1	41		42	2			2		75	4	79	7	121	128
7:00 AM - 8:00 AM	5		1	6	1	50		51	2		1	3		77	4	81	9	132	141
7:15 AM - 8:15 AM	5		1	6	1	54		55	1		3	4		96	4	100	10	155	165
7:30 AM - 8:30 AM	5		1	6		59		59		1	3	4		90	2	92	10	151	161
7:45 AM - 8:45 AM	4		1	5		59		59		1	3	4		69	2	71	9	130	139
8:00 AM - 9:00 AM	4			4		47		47		1	2	3		62	1	63	7	110	117
8:15 AM - 9:15 AM	3	1		4		40		40		1		1	1	43		44	5	84	89
8:30 AM - 9:30 AM	3	1		4		33	1	34	1			1	1	35	1	37	5	71	76
8:45 AM - 9:45 AM	2	1		3		32	1	33	1			1	1	36	2	39	4	72	76
9:00 AM - 10:00 AM	2	1		3		34	2	36	1		1	2	1	34	2	37	5	73	78
9:15 AM - 10:15 AM	2			2		36	2	38	1	1	1	3		27	3	30	5	68	73
9:30 AM - 10:30 AM	1			1		32	1	33		1	1	2		24	2	26	3	59	62
9:45 AM - 10:45 AM	1			1		24	1	25		1	1	2		16	1	17	3	42	45
10:00 AM - 11:00 AM	1			1		27		27	2	1		3		16	1	17	4	44	48
10:15 AM - 11:15 AM	1			1		22		22	3		1	4		14	1	15	5	37	42
10:30 AM - 11:30 AM	2	1		3		24		24	4		1	5		21	1	22	8	46	54
10:45 AM - 11:45 AM	2	1		3		19		19	4		1	5		26	1	27	8	46	54
11:00 AM - 12:00 PM	3	1		4		12		12	2		1	3		23	1	24	7	36	43
11:15 AM - 12:15 PM	3	1		4		12		12	1			1		24	2	26	5	38	43
11:30 AM - 12:30 PM	2			2		6		6	1			1		21	2	23	3	29	32
11:45 AM - 12:45 PM	1			1		13		13	1			1		16	2	18	2	31	33
12:00 PM - 1:00 PM						17		17	1			1		17	3	20	1	37	38
12:15 PM - 1:15 PM						13	1	14	1			1		21	1	22	1	36	37
12:30 PM - 1:30 PM					1	14	1	16					1	19	2	22		38	38
12:45 PM - 1:45 PM	1		1	2	1	8	1	10					1	19	2	22	2	32	34
1:00 PM - 2:00 PM	1	1	1	3	1	5	1	7					1	17	1	19	3	26	29
1:15 PM - 2:15 PM	1	1	1	3	2	8		10			2	2	1	11	13	25	5	35	40
1:30 PM - 2:30 PM	2	1	1	4	1	7		8			2	2		12	12	24	6	32	38
1:45 PM - 2:45 PM	1	1		2	1	8		9			2	2		18	12	30	4	39	43
2:00 PM - 3:00 PM	1		1	2	1	9		10			2	2		37	13	50	4	60	64
2:15 PM - 3:15 PM	1		1	2		8	1	9					2	43	6	51	2	60	62
2:30 PM - 3:30 PM	1	2	1	4		9	1	10					3	40	6	49	4	59	63
2:45 PM - 3:45 PM	1	2	1	4		13	2	15		1		1	3	36	6	45	5	60	65
3:00 PM - 4:00 PM	1	2		3		13	3	16	1	1		2	3	20	5	28	5	44	49
3:15 PM - 4:15 PM	1	2		3		12	2	14	3	1		4	1	21	1	23	7	37	44
3:30 PM - 4:30 PM						18	2	20	3	1		4		24	1	25	4	45	49
3:45 PM - 4:45 PM						24	1	25	3			3		24	1	25	3	50	53
4:00 PM - 5:00 PM			1	1		35		35	2			2	1	28	1	30	3	65	68
4:15 PM - 5:15 PM			1	1		41		41					1	37		38	1	79	80
4:30 PM - 5:30 PM	1		3	4		42	2	44					1	42		43	4	87	91
4:45 PM - 5:45 PM	3		3	6		46	2	48					1	46		47	6	95	101
5:00 PM - 6:00 PM	3		2	5	2	52	3	57			1	1		53	2	55	6	112	118
5:15 PM - 6:15 PM	3		2	5	2	67	4	73	1		1	2	1	57	2	60	7	133	140
5:30 PM - 6:30 PM	2			2	3	77	2	82	1		1	2	2	63	3	68	4	150	154
5:45 PM - 6:45 PM					3	85	2	90	1		1	2	2	66	3	71	2	161	163
6:00 PM - 7:00 PM	2	1		3	1	83	2	86	2			2	2	60	1	63	5	149	154

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Mason Row Site Plan
W + A JOB NO: 6953
INTERSECTION: N. West Street & W & OD Trail
LOCATION: Falls Church,VA
DATE: 9/14/2016
DAY: Wednesday
WEATHER: clear
COUNTED BY: Mina
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
One Hour Volumes													
6:00 AM - 7:00 AM	36	30							66				66
6:15 AM - 7:15 AM	44	42							86				86
6:30 AM - 7:30 AM	50	45							95				95
6:45 AM - 7:45 AM	54	45							99				99
7:00 AM - 8:00 AM	45	40							85				85
7:15 AM - 8:15 AM	36	28							64				64
7:30 AM - 8:30 AM	35	33							68				68
7:45 AM - 8:45 AM	36	30							66				66
8:00 AM - 9:00 AM	33	31							64				64
8:15 AM - 9:15 AM	39	33							72				72
8:30 AM - 9:30 AM	42	28							70				70
8:45 AM - 9:45 AM	36	32							68				68
9:00 AM - 10:00 AM	31	29							60				60
9:15 AM - 10:15 AM	24	28							52				52
9:30 AM - 10:30 AM	15	19							34				34
9:45 AM - 10:45 AM	9	15							24				24
10:00 AM - 11:00 AM	8	14							22				22
10:15 AM - 11:15 AM	9	14							23				23
10:30 AM - 11:30 AM	10	18							28				28
10:45 AM - 11:45 AM	11	18							29				29
11:00 AM - 12:00 PM	14	19							33				33
11:15 AM - 12:15 PM	15	16							31				31
11:30 AM - 12:30 PM	13	10							23				23
11:45 AM - 12:45 PM	12	6							18				18
12:00 PM - 1:00 PM	9	7							16				16
12:15 PM - 1:15 PM	6	7							13				13
12:30 PM - 1:30 PM	7	11							18				18
12:45 PM - 1:45 PM	9	13							22				22
1:00 PM - 2:00 PM	9	10							19				19
1:15 PM - 2:15 PM	11	12							23				23
1:30 PM - 2:30 PM	9	10							19				19
1:45 PM - 2:45 PM	8	7							15				15
2:00 PM - 3:00 PM	8	7							15				15
2:15 PM - 3:15 PM	6	8							14				14
2:30 PM - 3:30 PM	7	26							33				33
2:45 PM - 3:45 PM	5	33							38				38
3:00 PM - 4:00 PM	5	36							41				41
3:15 PM - 4:15 PM	5	36							41				41
3:30 PM - 4:30 PM	7	16							23				23
3:45 PM - 4:45 PM	8	13							21				21
4:00 PM - 5:00 PM	6	10							16				16
4:15 PM - 5:15 PM	12	12							24				24
4:30 PM - 5:30 PM	11	15							26				26
4:45 PM - 5:45 PM	14	14							28				28
5:00 PM - 6:00 PM	17	18							35				35
5:15 PM - 6:15 PM	15	19							34				34
5:30 PM - 6:30 PM	16	22							38				38
5:45 PM - 6:45 PM	36	30							66				66
6:00 PM - 7:00 PM	49	55							104				104

WELLS + ASSOCIATES

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Appendix C – Crash Data

Document Number	Crash Date	Crash Time	Day Of Week	Collision Type	Crash Description	First Harmful Event	First Harmful Event Location	KABCO Severity Code	Route Name	Route Number	Secondary Location	Latitude	Longitude	TREDS Jurisdiction	Route Or Street Name	Crash Severity	Pedestrian Fatality Count	Non Pedestrian Fatality Count	Pedestrian Injury Cnt	Non Pedestrian Injury Count	Work Zone Related
153655223	7/29/2015	17:43	Wed	2. Angle	Vehicle #1 was exiting the parking lot of 112 N West Street. Vehicle #2 was traveling east of N West St. Vehicle #1 exited the parking lot and struck Vehicle #2. The driver of Vehicle #1 did not have the right of way and the driver of Vehicle #1 stated that Vehicle #2 was in his blind spot. Vehicle #1 sustained damage to the front left bumper and quarter panel. Vehicle #2 sustained damage to the front right quarter panel and right, front passenger door. Driver #1 - 571-228-5344 Driver #2 - 703-979-9017	20. Motor Vehicle In Transport	1. On Roadway	Possible Injury (C)	UR-57E (City of Falls Church)	57	PARK AVE	38.89138	-77.18332	City of Falls Church	N WEST ST	injury crash	0	0	0	1	2. No
153655282	12/3/2015	8:15	Thu	2. Angle	V1 (703-536-7444) was entering the roadway from a private parking lot. V2 (571-762-5370) was traveling northbound in the 100 block of N. West Street. V1 failed to yield the right of way when entering roadway and struck V2 at an angle. V1 sustained damages to the front left bumper and V2 sustained damages to the rear right side quarter panel, rear left wheel well and rear right side bumper.	20. Motor Vehicle In Transport	1. On Roadway	No Injury (O)	UR-6749N (City of Falls Church)	6749	PARK AVE	38.89135	-77.18322	City of Falls Church	N WEST ST	property damage crash	0	0	0	0	2. No

7/29/2015
12/3/2015

WELLS + ASSOCIATES

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Appendix D – Summary of Forecasts

Table D-1
Founders Row
North West Street/Park Avenue
Existing Traffic Volumes (From 13-Hour Counts)

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	40	0	4	3	14	0	0	0	0	0	47	255
7:00am-8:00am	133	0	16	12	114	0	0	0	0	0	98	497
8:00am-9:00am	162	0	19	18	57	0	0	0	0	0	68	504
9:00am-10:00am	149	0	17	9	53	0	0	0	0	0	74	318
10:00am-11:00am	141	0	13	14	53	0	0	0	0	0	60	247
11:00am-12:00pm	180	0	22	9	69	0	0	0	0	0	79	235
12:00pm-1:00pm	187	0	15	22	75	0	0	0	0	0	76	143
1:00pm-2:00pm	180	0	14	10	102	0	0	0	0	0	90	171
2:00pm-3:00pm	171	0	19	15	89	0	0	0	0	0	103	162
3:00pm-4:00pm	275	0	21	17	129	0	0	0	0	0	137	215
4:00pm-5:00pm	453	0	25	19	106	0	0	0	0	0	94	273
5:00pm-6:00pm	514	0	27	20	102	0	0	0	0	0	135	350
6:00pm-7:00pm	149	0	24	17	45	0	0	0	0	0	71	243
Totals	2734	0	236	185	1008	0	0	0	0	0	1132	3613

Table D-2
Founders Row
North West Street/Park Avenue
2019 Regional Traffic Growth

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	1	0	0	0	0	0	0	0	0	0	0	8
7:00am-8:00am	4	0	0	0	0	0	0	0	0	0	0	15
8:00am-9:00am	5	0	0	0	0	0	0	0	0	0	0	15
9:00am-10:00am	5	0	0	0	0	0	0	0	0	0	0	10
10:00am-11:00am	4	0	0	0	0	0	0	0	0	0	0	7
11:00am-12:00pm	5	0	0	0	0	0	0	0	0	0	0	7
12:00pm-1:00pm	6	0	0	0	0	0	0	0	0	0	0	4
1:00pm-2:00pm	5	0	0	0	0	0	0	0	0	0	0	5
2:00pm-3:00pm	5	0	0	0	0	0	0	0	0	0	0	5
3:00pm-4:00pm	8	0	0	0	0	0	0	0	0	0	0	7
4:00pm-5:00pm	14	0	0	0	0	0	0	0	0	0	0	8
5:00pm-6:00pm	16	0	0	0	0	0	0	0	0	0	0	11
6:00pm-7:00pm	5	0	0	0	0	0	0	0	0	0	0	7
Totals	83	0	0	0	0	0	0	0	0	0	0	109

Table D-3
Founders Row
North West Street/Park Avenue/Mason Avenue
Office Trips

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	0	0	0	0	0	0	0	0	1	0	0
7:00am-8:00am	0	1	0	0	0	1	0	0	0	2	0	0
8:00am-9:00am	0	1	0	0	0	1	0	0	0	3	0	0
9:00am-10:00am	0	1	0	0	0	1	0	0	0	1	0	0
10:00am-11:00am	0	0	0	0	0	0	0	0	0	1	0	0
11:00am-12:00pm	0	0	0	0	0	0	1	1	1	1	0	0
12:00pm-1:00pm	0	1	0	0	0	1	1	1	1	1	0	0
1:00pm-2:00pm	0	1	0	0	0	1	0	0	1	1	0	0
2:00pm-3:00pm	0	0	0	0	0	0	0	0	1	1	0	0
3:00pm-4:00pm	0	0	0	0	0	0	1	1	1	1	0	0
4:00pm-5:00pm	0	0	0	0	0	0	1	1	2	0	0	0
5:00pm-6:00pm	0	0	0	0	0	0	1	1	2	0	0	0
6:00pm-7:00pm	0	0	0	0	0	0	0	0	1	0	0	0
Totals	0	5	0	0	0	5	5	5	10	13	0	0

Table D-4
Founders Row
North West Street/Park Avenue/Mason Avenue
Residential Trips - Multifamily

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	1	0	0	0	1	5	5	2	1	0	0
7:00am-8:00am	0	2	0	0	0	2	8	8	3	1	0	0
8:00am-9:00am	0	3	0	0	0	3	8	8	3	1	0	0
9:00am-10:00am	0	3	0	0	0	3	5	5	2	1	0	0
10:00am-11:00am	0	3	0	0	0	3	5	5	2	1	0	0
11:00am-12:00pm	0	4	0	0	0	4	5	5	2	2	0	0
12:00pm-1:00pm	0	4	0	0	0	4	4	4	2	2	0	0
1:00pm-2:00pm	0	5	0	0	0	5	5	5	2	2	0	0
2:00pm-3:00pm	0	5	0	0	0	5	5	5	2	2	0	0
3:00pm-4:00pm	0	7	0	0	0	7	5	5	2	3	0	0
4:00pm-5:00pm	0	8	0	0	0	8	5	5	2	3	0	0
5:00pm-6:00pm	0	9	0	0	0	9	5	5	2	4	0	0
6:00pm-7:00pm	0	7	0	0	0	7	4	4	2	3	0	0
Totals	0	61	0	0	0	61	69	69	28	26	0	0

Table D-5
Founders Row
North West Street/Park Avenue/Mason Avenue
Residential Trips - Senior Adult Housing-Attached

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	0	0	0	0	0	1	1	0	0	0	0
7:00am-8:00am	0	0	0	0	0	0	1	1	0	0	0	0
8:00am-9:00am	0	0	0	0	0	0	1	1	0	0	0	0
9:00am-10:00am	0	0	0	0	0	0	1	1	0	0	0	0
10:00am-11:00am	0	0	0	0	0	0	1	1	0	0	0	0
11:00am-12:00pm	0	0	0	0	0	0	1	1	0	0	0	0
12:00pm-1:00pm	0	1	0	0	0	1	1	1	0	0	0	0
1:00pm-2:00pm	0	1	0	0	0	1	1	1	0	0	0	0
2:00pm-3:00pm	0	1	0	0	0	1	1	1	0	0	0	0
3:00pm-4:00pm	0	1	0	0	0	1	1	1	0	0	0	0
4:00pm-5:00pm	0	1	0	0	0	1	1	1	0	0	0	0
5:00pm-6:00pm	0	1	0	0	0	1	1	1	0	0	0	0
6:00pm-7:00pm	0	1	0	0	0	1	1	1	0	0	0	0
Totals	0	7	0	0	0	7	13	13	0	0	0	0

Table D-6
Founders Row
North West Street/Park Avenue/Mason Avenue
Retail Trips

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	1	0	0	0	1	0	0	0	1	0	0
7:00am-8:00am	0	2	0	0	0	2	1	1	1	3	0	0
8:00am-9:00am	0	3	0	0	0	3	1	1	2	5	0	0
9:00am-10:00am	0	5	0	0	0	5	2	2	3	9	0	0
10:00am-11:00am	0	6	0	0	0	6	4	4	5	12	0	0
11:00am-12:00pm	0	7	0	0	0	7	5	5	8	14	0	0
12:00pm-1:00pm	0	8	0	0	0	8	7	7	10	16	0	0
1:00pm-2:00pm	0	7	0	0	0	7	7	7	11	14	0	0
2:00pm-3:00pm	0	6	0	0	0	6	7	7	11	13	0	0
3:00pm-4:00pm	0	7	0	0	0	7	7	7	11	13	0	0
4:00pm-5:00pm	0	7	0	0	0	7	7	7	11	13	0	0
5:00pm-6:00pm	0	7	0	0	0	7	8	8	12	14	0	0
6:00pm-7:00pm	0	7	0	0	0	7	6	6	9	13	0	0
Totals	0	73	0	0	0	73	62	62	94	140	0	0

Table D-7
Founders Row
North West Street/Park Avenue/Mason Avenue
Theater Trips

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	0	0	0	0	0	0	0	0	1	0	0
7:00am-8:00am	0	1	0	0	0	1	0	0	1	2	0	0
8:00am-9:00am	0	2	0	0	0	2	1	1	1	3	0	0
9:00am-10:00am	0	3	0	0	0	3	1	1	2	6	0	0
10:00am-11:00am	0	4	0	0	0	4	2	2	3	7	0	0
11:00am-12:00pm	0	4	0	0	0	4	3	3	5	9	0	0
12:00pm-1:00pm	0	5	0	0	0	5	4	4	7	10	0	0
1:00pm-2:00pm	0	4	0	0	0	4	4	4	7	9	0	0
2:00pm-3:00pm	0	4	0	0	0	4	5	5	7	8	0	0
3:00pm-4:00pm	0	4	0	0	0	4	5	5	7	8	0	0
4:00pm-5:00pm	0	4	0	0	0	4	5	5	7	8	0	0
5:00pm-6:00pm	0	4	0	0	0	4	5	5	7	9	0	0
6:00pm-7:00pm	0	4	0	0	0	4	4	4	6	8	0	0
Totals	0	43	0	0	0	43	39	39	60	88	0	0

Table D-8
Founders Row
North West Street/Park Avenue/Mason Avenue
Pass-by Trips

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	0	0	0	0	0	0	0	1	1	0	0
7:00am-8:00am	0	1	0	0	0	0	1	1	1	3	0	0
8:00am-9:00am	0	1	0	0	0	0	2	1	2	4	0	0
9:00am-10:00am	-1	2	0	0	0	0	3	2	4	8	0	-1
10:00am-11:00am	-1	2	0	0	0	0	4	2	5	10	0	-1
11:00am-12:00pm	-2	2	0	0	0	0	5	2	6	12	0	-2
12:00pm-1:00pm	-2	3	0	0	0	0	5	3	7	13	0	-2
1:00pm-2:00pm	-2	2	0	0	0	0	5	2	6	11	0	-2
2:00pm-3:00pm	-2	2	0	0	0	0	4	2	5	11	0	-2
3:00pm-4:00pm	-2	2	0	0	0	0	4	2	5	11	0	-2
4:00pm-5:00pm	-2	2	0	0	0	0	4	2	6	11	0	-2
5:00pm-6:00pm	-3	2	0	0	0	0	5	2	6	12	0	-3
6:00pm-7:00pm	-2	2	0	0	0	0	4	2	6	11	0	-2
Totals	-19	23	0	0	0	0	46	23	60	118	0	-19

Table D-9
Founders Row
North West Street/Park Avenue/Mason Avenue
Site Trip Assignments

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
6:00am-7:00am	0	2	0	0	0	2	6	6	2	4	0	0
7:00am-8:00am	0	6	0	0	0	6	10	10	5	8	0	0
8:00am-9:00am	0	9	0	0	0	9	11	11	6	12	0	0
9:00am-10:00am	0	12	0	0	0	12	9	9	7	17	0	0
10:00am-11:00am	0	13	0	0	0	13	12	12	10	21	0	0
11:00am-12:00pm	0	15	0	0	0	15	15	15	16	26	0	0
12:00pm-1:00pm	0	19	0	0	0	19	17	17	20	29	0	0
1:00pm-2:00pm	0	18	0	0	0	18	17	17	21	26	0	0
2:00pm-3:00pm	0	16	0	0	0	16	18	18	21	24	0	0
3:00pm-4:00pm	0	19	0	0	0	19	19	19	21	25	0	0
4:00pm-5:00pm	0	20	0	0	0	20	19	19	22	24	0	0
5:00pm-6:00pm	0	21	0	0	0	21	20	20	23	27	0	0
6:00pm-7:00pm	0	19	0	0	0	19	15	15	18	24	0	0
Totals	0	189	0	0	0	189	188	188	192	267	0	0

Table D-10
Founders Row
North West Street/Park Avenue/Mason Avenue
Future Hourly Traffic Volumes

	N West Street			Park Avenue			Site Driveway			N West Street		
	SBR	SBT	SBL	WBR	WBT	WBL	NBR*	NBT	NBL	EBR*	EBT	EBL
6:00am-7:00am	41	2	4	3	14	2	6	6	3	5	47	263
7:00am-8:00am	137	7	16	12	114	6	11	11	6	11	98	512
8:00am-9:00am	167	10	19	18	57	9	13	12	8	16	68	519
9:00am-10:00am	153	14	17	9	53	12	12	11	11	25	74	327
10:00am-11:00am	144	15	13	14	53	13	16	14	15	31	60	253
11:00am-12:00pm	183	17	22	9	69	15	20	17	22	38	79	240
12:00pm-1:00pm	191	22	15	22	75	19	22	20	27	42	76	145
1:00pm-2:00pm	183	20	14	10	102	18	22	19	27	37	90	174
2:00pm-3:00pm	174	18	19	15	89	16	22	20	26	35	103	165
3:00pm-4:00pm	281	21	21	17	129	19	23	21	26	36	137	220
4:00pm-5:00pm	465	22	25	19	106	20	23	21	28	35	94	279
5:00pm-6:00pm	527	23	27	20	102	21	25	22	29	39	135	358
6:00pm-7:00pm	152	21	24	17	45	19	19	17	24	35	71	248
Totals	2798	212	236	185	1008	189	234	211	252	385	1132	3703

*Does not reflect a 25% minor street right turn reduction which was applied in the TEAPAC warrant analysis.

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Appendix E – Diurnal Rates Data Sources

HOURLY VARIATION IN TRIP GENERATION FOR OFFICE AND RESIDENTIAL LAND USES

By Aaron T. Zimmerman, PTP

Abstract

Following the development of *Trip Generation*, 8th Edition, a call for data was sent out to ITE members soliciting twenty-four hour trip generation data. In response, ITE members submitted hundreds of datasets for not only the land uses discussed in this article, but also for other land uses such as shopping centers, auto dealerships, golf courses, hotels, and daycare centers, among others. Due to the short time frame between completion of the initial data collection portion of this project and development of the most recent edition of *Trip Generation Manual*, twenty-four hour summaries for office and residential land uses were not included in the ninth edition.

This article presents hourly distributions of trip generation for both office and residential land uses. It is intended to supplement the information that is published in the ITE *Trip Generation Manual*, 9th Edition.

Data Collection

This article presents the results of a data collection effort of twenty-four hour trip generation data for office and residential land uses to supplement those currently published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*, 9th Edition. The data reported is intended to assist planners and engineers seeking to project four, eight, twelve, or more than twelve hours of traffic volumes for a signal warrant analysis. Other important uses include conducting trip generation and parking demand analyses of multiple study hours as part of a traffic impact study for multiuse developments. Specifically, developments that are composed of land uses with differing peak hours for entering and exiting traffic, such as office, retail, residential, movie theaters, sports arenas, restaurants, and daycare centers for example. In addition, the hourly variations will be useful for estimating emissions associated with land use developments. The current method for determining hourly traffic distribution for a particular land use typically involves collecting field counts at a limited number of sites and then making important assumptions about adaptability to the analysis site. The primary goal of this data collection effort was to consolidate twenty-four hour data, collected and submitted for inclusion in ITE's trip generation database, with recently collected datasets. These data were then used to report the average percentage distributions in summary tables making it readily available for all transportation professionals.

Purpose

Most of the hourly datasets analyzed for this study were collected using tube counters and then submitted to ITE on spreadsheets organized in either fifteen-minute or one-hour intervals, typically for each individual driveway serving the site. These newly-collected raw datasets, as well as previously submitted twenty-four hour datasets from the ITE trip generation database, were compiled into spreadsheets in one-hour increments and assigned to the appropriate *Trip Generation Manual* land use codes with guidance from

Table 1: Office Uses Combined

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	4.6	0.7	4.1	1.4	1.8	2.4
7–8 a.m.	14.9	1.9	5.4	2.5	3.8	1.2
8–9 a.m.	20.7	3.0	9.1	1.5	6.0	2.9
9–10 a.m.	8.2	3.2	7.2	3.9	6.6	3.8
10–11 a.m.	5.0	3.9	6.8	4.6	9.7	7.5
11–12 p.m.	5.1	8.6	7.1	11.3	8.9	9.6
12–1 p.m.	8.7	10.5	8.1	14.0	6.9	9.1
1–2 p.m.	10.0	6.6	7.3	8.3	8.6	12.0
2–3 p.m.	5.9	6.3	7.6	7.7	6.6	8.2
3–4 p.m.	4.3	9.5	6.0	9.6	4.6	6.3
4–5 p.m.	3.4	15.4	3.1	7.9	5.5	7.5
5–6 p.m.	2.5	16.5	3.2	6.9	3.1	6.7
6–7 p.m.	1.4	5.5	2.5	3.2	3.5	4.1
7–8 p.m.	0.9	2.5	2.0	2.2	2.7	2.9
8–9 p.m.	0.7	1.6	2.4	2.1	3.3	4.3
9–10 p.m.	0.6	1.1	1.4	1.4	3.1	3.1
10 p.m.–6 a.m.	3.2	3.2	16.9	11.4	15.3	8.4

ITE. Once hourly traffic calculations and land use code assignments were verified for accuracy by ITE staff, the average hourly traffic volumes were then summarized into tables as a percentage of the twenty-hour total entering and exiting vehicles from 6:00 a.m. to 10:00 p.m. This range of hours not only represents an expansion of four hours beyond the range of summary data published in previous editions of *Trip Generation* but also the inclusion of the critical morning commuter peak hours. For practical purposes, information was not provided for individual hours in the middle of the night. Instead, percentages for the combined period of 10:00 p.m. to 6:00 a.m. were provided in the last line of the summary tables. Where available, datasets for Saturdays and Sundays were also tabulated and summarized.

Office Land Uses

There were a total of 38 combined site observations for average weekday data, and five sites observed for each of Saturday and Sunday. The datasets were initially analyzed for each of three office land uses separately—General Office Building (710), Corporate Headquarters (714), and Office Park (750)—but due to the similarities in hourly distributions, it was determined that a combined summary table would provide a more robust and accurate depiction of hourly variations in traffic for general office uses. As expected, ingress traffic tended to be highest in the morning commuter period as office employees arrive for work, while egress traffic tended to be highest during the evening commuter period as office employees leave work for home. There was also a noticeable spike in the middle of the day due to office workers leaving and returning from lunch. The size of office developments analyzed ranged from 10,000 to 903,000 square feet. Based on the analysis conducted, it is noted that size of the office development had no discernible impact on the hourly distribution throughout the day.

Residential Land Uses

There were a total of 40 combined site observations for average weekday data, 36 site observations for average Saturday data, and 35 site observations for average Sunday data compiled for all residential land uses. Analysis of individual residential uses indicated that the general trip generation characteristics throughout the day were noticeably different between traditional residential uses (i.e., apartment, single family home, townhomes, condominiums) and senior-oriented residential uses (i.e., senior-attached, senior-detached, continuing care). Therefore, two separate and distinct summary tables combining similar types of residential uses (senior-oriented facilities only and non-senior residential only) were developed, as shown in Tables 2 and 3. As expected, the traditional residential uses generate a large egress of traffic during the weekday morning commuter rush hours and a similarly large ingress during the evening commuter peak hours. Contrarily, the largest ingress/egress period for senior-oriented residential uses tended to occur after the morning commuter peak hours and before the evening peak hours. The sizes of traditional residential uses

Table 2: Residential Uses Combined – Excluding Senior-Oriented Facilities

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	1.6	5.7	1.1	2.1	0.9	1.9
7–8 a.m.	2.5	9.0	1.8	3.6	1.6	3.3
8–9 a.m.	3.7	9.1	2.8	5.6	2.6	4.7
9–10 a.m.	3.7	6.5	4.4	7.3	3.5	6.8
10–11 a.m.	4.1	5.5	5.6	7.7	6.3	7.5
11–12 p.m.	4.5	5.7	6.9	7.5	6.4	9.5
12–1 p.m.	5.3	5.3	6.6	7.8	6.9	7.6
1–2 p.m.	5.4	5.7	7.1	6.9	7.2	7.4
2–3 p.m.	6.5	5.9	7.1	6.7	7.2	6.6
3–4 p.m.	8.1	6.3	7.4	6.1	7.3	6.6
4–5 p.m.	9.8	6.3	8.5	5.9	8.0	6.7
5–6 p.m.	10.8	6.5	8.6	6.3	7.3	6.9
6–7 p.m.	8.5	5.1	6.4	6.0	5.8	5.1
7–8 p.m.	5.9	4.9	5.2	4.9	5.5	4.1
8–9 p.m.	5.1	3.4	4.2	3.6	4.6	3.3
9–10 p.m.	4.2	2.3	3.8	2.6	4.3	2.7
10 p.m.–6 a.m.	10.3	5.6	12.4	9.3	14.6	9.4

Table 3: Residential Uses Combined - Senior-Oriented Facilities Only

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	3.6	2.0	4.0	1.3	3.7	1.5
7–8 a.m.	5.4	4.5	3.2	3.8	2.8	3.8
8–9 a.m.	6.5	5.8	3.3	3.6	2.9	4.4
9–10 a.m.	6.0	7.5	5.0	6.1	4.1	5.6
10–11 a.m.	7.3	8.0	7.5	7.1	7.6	6.6
11–12 p.m.	8.2	6.8	8.9	8.1	8.2	5.8
12–1 p.m.	8.2	7.7	8.0	7.3	8.6	6.8
1–2 p.m.	7.7	8.0	7.5	7.3	8.2	7.6
2–3 p.m.	8.8	8.0	8.6	7.7	9.5	9.6
3–4 p.m.	9.9	9.6	11.1	11.3	10.5	11.5
4–5 p.m.	6.7	7.6	6.6	7.3	6.8	7.4
5–6 p.m.	4.7	6.5	4.8	5.1	5.6	6.1
6–7 p.m.	3.9	4.4	4.4	3.9	5.2	4.7
7–8 p.m.	4.0	5.0	5.3	6.5	5.0	6.1
8–9 p.m.	3.0	3.1	3.9	4.6	4.3	4.9
9–10 p.m.	1.7	1.6	2.0	2.7	2.0	2.5
10 p.m.–6 a.m.	4.3	3.9	5.7	6.3	4.9	5.1

ranged from 46 to 1,248 dwelling units, and the sizes of senior-oriented developments analyzed ranged from 28 to 2,238 dwelling units. As with the office land use data, smaller and larger sized residential communities generally had similar hourly distributions.

The time-of-day summary tables reported both in this article and in the ninth edition should be used only as a reference. Professional judgment should be exercised with regard to the limited number of site observations, utilizing data for the hours after 10:00 p.m., and in situations where peak hour data may not fit perfectly with the distributions provided. As explained in *Trip Generation Handbook*, 3rd Edition, time-of-day data should not be used to determine peak hour traffic volumes. Instead, peak hour volumes should be estimated by using the standard regression analysis and data plots presented for each land use code in *Trip Generation Manual*. Also note that the percentages in the summary tables do not add up to 100 percent due to rounding. **itej**

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Note

The twenty-four hour distribution of trip generation for office and residential land uses presented in the summary tables contained in this article are the result of an effort to develop and provide a useful tool that can be directly applicable to the work done daily by transportation professionals. Although the summary tables provided in this article and in the ninth edition cover a large share of the land uses most regularly analyzed by transportation professionals, the author strongly encourages readers to submit time-of-day trip generation data to ITE to improve the robustness of existing twenty-four hour distribution summaries and to allow summaries for additional land use codes to be established in future editions of Trip Generation Manual. *Time-of-day trip generation data can be submitted to ITE by completing the "Data Collection Form" located at www.ite.org/tripgeneration/index.asp.*

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Table 1
Hourly Variation in Shopping Center Traffic

Time	Average Weekday[a]		Average Saturday[b]		Average Sunday[c]	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6 a.m.–7 a.m.	0.8	0.3	0.2	0.2	0.2	0.1
7 a.m.–8 a.m.	2.0	0.9	0.9	0.4	0.4	0.3
8 a.m.–9 a.m.	3.1	1.2	2.7	1.0	0.9	0.5
9 a.m.–10 a.m.	5.5	2.0	5.5	2.2	1.7	1.1
10 a.m.–11 a.m.	7.0	4.3	8.6	4.8	3.8	2.5
11 a.m.–12 p.m.	8.4	6.2	10.8	7.5	10.0	4.6
12 p.m.–1 p.m.	9.4	8.3	11.8	9.3	15.1	7.9
1 p.m.–2 p.m.	8.2	8.6	12.1	10.3	16.7	12.0
2 p.m.–3 p.m.	7.7	8.9	11.8	11.8	15.8	14.7
3 p.m.–4 p.m.	7.8	8.8	10.7	12.5	13.0	15.6
4 p.m.–5 p.m.	8.0	8.9	8.8	12.5	9.4	15.8
5 p.m.–6 p.m.	8.4	9.2	5.3	11.3	5.1	13.0
6 p.m.–7 p.m.	8.0	7.5	3.3	6.7	2.3	4.6
7 p.m.–8 p.m.	7.9	7.2	2.7	2.9	1.7	1.9
8 p.m.–9 p.m.	4.3	7.7	1.8	2.2	1.1	1.3
9 p.m.–10 p.m.	1.8	7.2	1.0	1.6	0.7	1.1
10 p.m.–6 a.m.	1.7	2.8	2.0	2.8	2.1	3.0

Sites ranged in size from 11,000 to 1,750,000 square feet gross leasable area
[a] Source numbers – 13, 73, 88, 190, 217, 220, 225 and 376; based on ten studies
[b] Source numbers – 13, 73, 88, 190, 220, 225 and 376; based on nine studies
[c] Source numbers – 13, 73, 88, 190, 220 and 225; based on eight studies

WELLS + ASSOCIATES

MEMORANDUM

Appendix F – TEAPAC Outputs

Founders Row 02/06/18
Signal Warrant Analysis 09:17:41
North West Street/Park Avenue/Mason Avenue

TEAPAC[Ver 8.62.01] - MUTCD Warrant Analysis

Conditions Used for Warrant Analysis	2009 MUTCD

Intersection # 1	
Major Street Direction	EastWest
Number of Lanes in North-South direction	2
Number of Lanes in East-West direction	2
Approach speed on major street is greater than 40 mph	No
Isolated community has population less than 10,000	No
Signal will not seriously disrupt progressive traffic flow	Yes
Trials of other remedies have failed to improve conditions	Yes
Number of accidents correctable by a signal	2
Peak hour stop sign delay for worst minor approach (veh-hours)	20
Number of accidents correctable by a multi-way stop	0
Peak hour average delay for all minor approaches (sec/veh)	**

TEAPAC[Ver 8.62.01] - Warrant Analysis for Traffic Signal

Warrant 1A Analysis - 8-Hour Minimum Vehicular Volume

Start Time	1700	1600	1500	1200	1100	1300	1400	1800	Req.
Minor Volume	577	512	323	228	222	217	211	197	200
Major Volume	665	544	549	369	441	422	414	426	600
Warrant Met?	Yes	No	No	No	No	No	No	No	8

Number of 1-hour periods meeting the warrant	1
Signal will not seriously disrupt progressive traffic flow	Yes

>> WARRANT 1A IS NOT MET <<

Warrant 1B Analysis - 8-Hour Interruption of Continuous Traffic

Start Time	1700	1600	1500	1200	1100	1300	1400	1800	Req.
Minor Volume	577	512	323	228	222	217	211	197	100
Major Volume	665	544	549	369	441	422	414	426	900
Warrant Met?	No	No	No	No	No	No	No	No	8

Number of 1-hour periods meeting the warrant	0
Signal will not seriously disrupt progressive traffic flow	Yes

>> WARRANT 1B IS NOT MET <<

Founders Row 02/06/18
Signal Warrant Analysis 09:17:41
North West Street/Park Avenue/Mason Avenue

TEAPAC[Ver 8.62.01] - Warrant Analysis for Traffic Signal

Warrant 1A Analysis (80%) - 8-Hour Minimum Vehicular Volume

Start Time	1700	1600	1500	800	900	700	1200	1100	Req.
Minor Volume	577	512	323	196	184	160	228	222	160
Major Volume	665	544	549	683	494	750	369	441	480
Warrant Met?	Yes	Yes	Yes	Yes	Yes	Yes	No	No	8

Number of 1-hour periods meeting the warrant 6

Warrant 1B Analysis (80%) - 8-Hour Interruption of Continuous Traf

Start Time	700	1700	1600	1500	1200	1100	1300	1400	Req.
Minor Volume	160	577	512	323	228	222	217	211	80
Major Volume	750	665	544	549	369	441	422	414	720
Warrant Met?	Yes	No	No	No	No	No	No	No	8

Number of 1-hour periods meeting the warrant 1

Warrant 1C Analysis - 8-Hour Combination of Warrants

80% of Warrants 1A and 1B are met	No
Signal will not seriously disrupt progressive traffic flow	Yes
Trials of other remedies have failed to reduce delays	Yes

>> WARRANT 1C IS NOT MET <<

Warrant 2 Analysis - 4-Hour Vehicular Volume

Start Time	1700	1600	1500	1200	1100	1300	1400	1800	Req.
Minor Volume	577	512	323	228	222	217	211	197	——
Minor Reqrmt	351	426	423	540	493	506	511	503	<--
Warrant Met?	Yes	Yes	No	No	No	No	No	No	4

Number of 1-hour periods meeting the warrant	2
Signal will not seriously disrupt progressive traffic flow	Yes

>> WARRANT 2 IS NOT MET <<

Founders Row 02/06/18
Signal Warrant Analysis 09:17:41
North West Street/Park Avenue/Mason Avenue

TEAPAC[Ver 8.62.01] - Warrant Analysis for Traffic Signal

Warrant 3A Analysis - Peak Hour Delay

Start Time	1700	1600	1500	800	700	1200	1100	1300	Req.
Minor Volume	577	512	323	196	160	228	222	217	150
Total Volume	1312	1122	936	909	935	661	717	702	800
Warrant Met?	Yes	Yes	Yes	Yes	Yes	No	No	No	1

Number of 1-hour periods meeting the warrant	5
Signal will not seriously disrupt progressive traffic flow	Yes
Delay for worst minor approach (must be at least 5 veh-hours)	20

>> WARRANT 3A IS MET <<

Warrant 3B Analysis - Peak Hour Volume

Start Time	1700	1600	1500	1200	1100	1300	1400	1800	Req.
Minor Volume	577	512	323	228	222	217	211	197	——
Minor Reqrmt	559	631	628	745	698	711	716	708	<--
Warrant Met?	Yes	No	No	No	No	No	No	No	1

Number of 1-hour periods meeting the warrant	1
Signal will not seriously disrupt progressive traffic flow	Yes

>> WARRANT 3B IS MET <<

Warrant 7 Analysis - Crash Experience

80% of Warrant 1A or 1B is met	No
Signal will not seriously disrupt progressive traffic flow	Yes
Trials of other remedies have failed to reduce accidents	Yes
Number of correctable accidents (must be 5 or more per year)	2

>> WARRANT 7 IS NOT MET <<

Summary of MUTCD Traffic Signal Warrant Analysis

Warrant 1A 8-Hour Minimum Vehicular Volume	NOT MET
Warrant 1B 8-Hour Interruption of Continuous Traffic	NOT MET
Warrant 1C 8-Hour Combination of Warrants	NOT MET
Warrant 2 4-Hour Vehicular Volume	NOT MET
Warrant 3A Peak Hour Delay	MET
Warrant 3B Peak Hour Volume	MET
Warrant 7 Crash Experience	NOT MET

>> Traffic Signal Warrant is MET <<