Appendix A

Development Statement

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January 29, 2015

VIA HAND DELIVERY
James Snyder
Director of Planning and Zoning City of Falls Church
City Hall
300 Park Avenue
Falls Church, VA 22046

Re: January 29, 2015 Resubmission Development Site Mason Row ("Broad and West") ; Letter of Transmittal and Justification of Application for (1) for Rezoning certain areas of the site to B-1 (2) Special Exceptions to allow Mixed Use and for a Building Height Bonus.

Dear Jim:

Baskin, Jackson & Lasso represents Spectrum Development Company LLC ("Spectrum") which has contracts to purchase the parcels comprising 4.3152 acres (more specifically identified in the accompanying partial list) including at 919 Park Avenue, 921 Park Avenue, 925 Park Avenue, 212 N. West Street, 110 N. West Street, 934 W. Broad Street, 932 W. Broad Street 922 W. Broad Street, 920 W. Broad Street and 916 W. Broad Street (collectively the "Site").

After the initial application (January, 2014) was accepted, the City's representatives asked for a number of modifications to the proposal. Modifications were made and a resubmission was made July 7, 2014. Among other things, the pharmacy was dropped as was its drive through; additional modifications were made to the resubmission and this concept was called "Mason Row". Mason Row was characterized by a "market square" within the development that provided a community gathering place; the square was surrounded by quality retail with a "spine road" through the development that allowed for a four way intersection at West and Park connecting to West Broad Street. A condominium component was added and it was located on Park Avenue. There was also an access on Park Ave. that led to the underground parking garage.

The Mason Row concept was presented to the community, the City staff, boards and commissions and to the City Council. The Mason Row Concept was well received. However, additional requests were made to further modify the massing and design, to enlarge the market square, to include a movie/dinner theater (or another comparable anchor), to drop the condominium component as a separate building, to reduce the massing and height of the hotel on

West Street, to make the sidewalk on West 20' wide, and to remove the vehicular access on Park Ave. In terms of process, the applicant was asked to continue it outreach to the community and to work with neighbors on Park, Grove, Steeples Court and St. James Church.

The January 29, 2015 resubmission includes responses to all of these requests. The move/dinner theater has been added, the 916 W. Broad St. parcel has been added to the site plan of the project, the market square has been substantially enlarged, the six parking spaces off West have been relocated to the interior of the development, the spine road has been widened and straightened out, the hotel on West Street is now "set back" 3' above the retail level so as to diminish it massing and appearance of height, the West Street sidewalk is not a full 20' wide, the condo component has been dropped, an above grade parking structure has replaced the condo building on Park Ave, the parking structure is less tall and there is no vehicular access on Park, while the number of apartment units has increased to reflect the loss of the condo component the overall floor area devoted to residential is nearly the same, and finally, an office component has been added.

Please note in the table in the plans that the parking reduction needed has been modified from the prior plan. Even with the movie theater being added, the overall reduction request is limited to 15.14%. Given the small size of the apartments and TDM being provided, the reductions will function well.

The rezoning request remains the same. This is possible as 916 W. Broad is already zoned B-1 and it will remain so. The special exception for mixed use and for increased height to 85 feet is amended to include the 916 W. Broad St. parcel. Please accept this Transmittal of and Justification for Applications to rezone the residential (R-1B) properties on Park Avenue and the Commercial properties in the site now zoned B-3, to B-1. Also please accept this revised Justification for the special exception and height bonus.

As discussed below, the B-1 Zone allows the requested uses. Moreover by rezoning to B-1, automotive uses cannot be located on the site in the future. The City has requested this assurance be provided and so Spectrum requests those portions of the site now zoned B-3 be "downzoned" to B-1.

Spectrum proposes to redevelop the site for a mixed use project.

- A six story mixed use (apartment) building with retail and service uses in the ground floor and with 336 units with about 70 percent one bedroom and studios and 30 percent two bedrooms above the ground floor.
- A hotel of five floors with retail and service uses in the ground level of 73,000 sq. ft. and 150 rooms in floors 2 through 6.

- An above grade parking structure in place of the former 65 unit residential condominium facing Park Ave. with no vehicular access on Park.
- The ground floor of the apartment building and hotel would have retail uses comprising about 53,000 square feet; such uses will include restaurants, retail shops and service businesses with a mix of local, regional and national brands. A commitment to 25% food and beverage uses is provided in a Proffer.
- A movie/dinner theater is provided.
- An office component of about 6,600 sq. ft. is provided.
- Such improvements to the existing parkland along the W& OD trail that will provide a connection to the transit and recreational opportunities of the Trail; subject to the approval of the Northern Virginia Regional Park Authority.

The site is located in planning opportunity area three and the site is discussed in the Comprehensive Plan at pages 58 and 59. The redevelopment area calls for mixed uses diagonally across from the site but in fact that area is committed in the long term to retail uses.

By consolidating the parcels in this site, Spectrum has achieved a number of the Goals in the City's Comprehensive Plan. Specifically, the proposed mixed use development provides for sustainable development as it will allow for improvements to storm water management, to energy efficiency, to parks and open space, to locating residents nearer to employment, transit and shopping areas, enhances the integrity of the low density residential area by establishing for the long term a "terminus" to the residential area of Park Avenue. The internal and external improvements to traffic movement will greatly improve the current difficult intersection of West Street and Park Avenue (See pages 75Rv through 76Rv of the Comprehensive Plan).

Demographic and market trends demonstrate that the future development in this area should be an innovative and integrated approach to a mixture of uses including retail, office, hospitality, residential and service uses.

Spectrum expects that given the increasing mass of retail, and newer, smaller multi-family units, the surrounding area will become more attractive to office users and other retailers as well.

Additionally, Spectrum requests the approval of special exceptions to allow for a mixed use development to include multi-family rental units and for a bonus of 30 feet in height.

The Staff will provide the fiscal impact analysis; we expect the net impact to be about $2m.

These requests for specific parcels are summarized in the attached document entitled: The Spectrum Development / Parcel Ownership. Concurrently, Spectrum is requesting a change in the Comprehensive Plan Future Land Use Map for certain areas of the site to be shown as mixed use rather than business and for the area of the site now noted as low residential to be noted mixed use as well. While the resubmission replaces the current single family dwelling with the parking structure (a portion of the apartment building at the very western end of Park Ave, the use would make a very good transition from the remaining single family detached (low residential) area to the more active portions of the mixed use Mason Row.

Spectrum and its development team have had extensive discussions with The City Council and Planning Commissions in public work-sessions and with stakeholders in the community, elected and appointed official and staff members. The central concerns have been the following:

1. There should be a substantial commercial component for this large site, and a considerable positive fiscal impact for the City of Falls Church is a primary goal.
2. Density should be increased and a quality hotel should be brought to the project to assist in achieving the desired positive fiscal impact.
3. Traffic is a great concern given, among other things, the unusual configuration of West and Park Ave and the need to control access on West Broad Street and West Street.
4. The buildings should have superior architecture and layout with tapering toward Park Ave and the greatest height and massing along West Broad with a superior focal point at West and West Broad.
5. Some local retailers should be encouraged to stay in the project.
6. Parks and open space needs should be addressed in part by linking the site to the W& OD Trail.
7. The apartment should be LEED Certified Silver.
8. Storm water management for the site and the immediate area should be improved.
9. Streetscape should be tailored to the site and also consistent with (but not necessarily the same) the City's existing streetscape standards.
10. There should be two commercial anchor tenants.
11. The frontage along Park Avenue should take the opportunity to make an appropriate transition to the development and solidify for the long term the low residential density of that terminus of Park Avenue.
12. Aerial utilities on the site will be placed underground.
13. This redevelopment opportunity involves a large consolidation of eleven separate parcels in the West Broad Street Area, and if redevelopment fails to go forward for any cause, then the existing auto and light industrial uses on some of the

parcels will remain for a long indefinite period of time before another redevelopment opportunity may arise.

THE PROPOSED DEVELOPMENT AND ITS COMMUNITY BENEFITS

Spectrum proposes to redevelop the site as a mixed use project.

- This mixed use project will contribute about $2m annual in net new tax revenues to the City.
- A contribution of $175,000 to City Parks is to be made.
- Undergrounding of aerial utilities along West Street and the W & OD trail will be made.
- Bike Share facilities will be provided (in additional to provisions for residents and customers who will use bikes).
- The hotel of 150 rooms will bring visitor to the City who will spend substantially in the City.
- There will be about 53,000 sq. ft. of retail with a mix of local, regional an national brands, 6,600 sq. ft. of offices and a movie/dinner concept of 41,100 sq. ft.
- A gathering place for the residents that is sufficiently large enough to accommodate a "band shell", skating ring, or farmers' market.
- Such improvements to the existing parkland along the W& OD trail that will provide a connection to the transit and recreational opportunities of The Trail; subject to the approval of the Northern Virginia Regional Park Authority.
- The expected contributions to the Schools Capital program of about $7500 per market rate rental units will be met (about $2.5m total).
- A commitment of about six percent of the total of the rental units (70% one bedroom and 30% two bedroom) being set aside as Affordable Housing Units in the Rental component and allocated among several income levels. (Please see the Voluntary Concessions).
- Net tax revenue increases of approximately $2m annually are expected based on the City's economic projections.
- The traffic in and around the area will be better managed with traffic calming added and improvements added to the larger street grid around the project.

The site is located in planning opportunity area three and the site is discussed in the Comprehensive Plan at pages 58 and 59. The redevelopment area calls for mixed uses diagonally across from the site but in fact that area is committed in the long term to retail uses.

By consolidating the parcels in this site, Spectrum has achieved a number of the Goals in the City's Comprehensive Plan. Specifically, the proposed mixed use development provides for sustainable development as it will allow for improvements to storm water management, to energy efficiency, to parks and open space, to locating residents nearer to employment, transit and shopping areas, enhances the integrity of the low density residential area by establishing for the long term a "terminus" to the residential area of Park Avenue. The internal and external improvements to traffic movement will greatly improve the current difficult intersection of West Street and Park Avenue (See pages 75Rv through 76Rv of the Comprehensive Plan). The number of access points on Broad, West and Park are being reduced from thirteen to four.

Demographic and market trends demonstrate that the future development in this area should be an innovative and integrated approach to a mixture of uses including retail, hospitality, residential and service uses.

Spectrum expects that given the increasing mass of retail, and newer, smaller multi-family units, the surrounding area will become more attractive to additional pedestrian oriented shopping and office users as well. The once in a generation parcel consolidation achieved by Spectrum provides the City with the opportunity to address all of the issues outlined above. Without the approvals requested, the properties will continue with their current uses for the indefinite future.

TRAFFIC IMPACT

Wells & Associates has reviewed the revisions to the uses. A letter from Wells is provided in the package of materials.

SPECIAL EXCEPTION CRITERIA FOR MIXED-USE AND HEIGHT BONUS

1. Primary Criteria (Section 48-90(1)):

a. The resulting development conforms to the City's adopted Comprehensive Plan and Design Guidelines (Section 48-90(1) (a)).

The Comprehensive Plan shows that the property is located in Planning Opportunity Area 3, and the proposed development meets or exceeds the strategies called for in that area:

1. Consolidation of lots to accommodate higher density.

2. Promotion of redevelopment that eliminates stand-alone automobile and light industrial facilities.

3. Improve pedestrian accessibility with controlled cross walks at various locations.

4. Create a consistent design, in terms of building height and design, streetscape improvements, and other aspects of the built environment in the City.

5. Preserve recreational resources in the area.

6. Create development to promote a positive image of the City in an area that has not seen any significant new development in decades.

7. Locate buildings as close to West Broad and West Streets as possible with parking located in the rear or in shared buildings or in structured facilities (in this case covered, surface and underground).

8. Achieve consistent architectural goals.

9. Traffic turn lanes will be added to Broad and West Streets.

Additionally, the Comprehensive Plan's Future Land Use Map designates the property as "business". The text of the comprehensive plan currently points out that while this means the area should be "primarily" recognized as retail or office districts rather than residential, "special exceptions for residential use and height bonuses have also been granted to create mixed use projects in 'business' areas since 2002".

The Comprehensive Plan should be changed to reflect current practice, the City's goals and the changing environment. To do this, an application to change the Comprehensive Olan's designation from Business to "Mixed Use" has been submitted to the City. The Design Guidelines show that the property is located in the West Broad Street Area. As called for in the Guidelines, the proposed development will reflect an urban street front, will provide a consistent identity for the area, increase pedestrian activity, and indicate the high standards of the City. In addition, the proposed development will widen paving at crosswalks, improve the area around the W& OD trail, all of which will work to increase pedestrian and bicycle activity in the area. The site's proximity offers a unique opportunity to finally provide superior connection to the W&OD Trail. The best use to optimize that linkage is mixed use and not office or light industrial uses.

b. The resulting development provides for significant net new commercial square footage and allows for a mix of commercial and residential uses (Section 48-90(1) (b)).

Currently, the properties in the site contribute only minimally in tax revenue. All existing properties are served by significant surface parking. The proposed development will remove these largely automobile-oriented and light industrial uses, providing significant net new commercial square footage and allowing for a mix of commercial and residential uses. The proposed development as noted provides substantial new commercial space (more specifically described in the Table in the Concept plan), and uses language desired by the City.

c. The resulting development produces substantial positive net new commercial and residential revenue to the City (Section 48-90(1) (c)).

In conjunction with this application, information has been submitted to the City to be inputted into the City's cost/revenue impact model to predict the project's net new revenue, and a report has been received, which is attached separately. As recognized by the Comprehensive Plan, the parcels that make up the property are underutilized currently in terms of their density and use. The proposed development will significantly increase the assessed value of and resultant property tax revenue generated by the property. In addition, by creating a vibrant, attractive western gateway into the City, the development will encourage additional consumers to enter the area and patronize commercial uses throughout the City.

2. Secondary Criteria (Section 48-90(2)):

a. The development is not disproportionate to surrounding land uses and planned land uses in size, bulk or scale (Section 48-90(2) (a)).

The proposed development is a concrete podium of commercial uses with five floors of multi-family and hotel above, with a total height of about 85 feet. The development has the unique aspect of substantial at grade parking for the retail uses hidden behind the retail and under the residences. The exterior is masonry, and the building is fully consistent with high standards established by the City for prior mixed use projects. The area of the footprint of this project is "low" and the height of the new building will blend well with its environment and set the stage for future development. Given the high-quality design and construction of the building and its prominent place in the City, a building of this scale is appropriate. The proposed development works in conjunction with existing buildings to further create a dramatic, defined statement of quality for this area of the City. The development is consistent with the discussion in the Comprehensive Plan for this Redevelopment Opportunity Area which calls for significant mixed

(multifamily) uses-the area called for this Plan however is committed long term to other uses that conflict with the Plan.

b. **The resulting development does not overburden the existing community facilities, including the school, transportation and water and sewer systems (Section 48-90(2) (b)).**

Transportation

A traffic study has been conducted by Wells and Associates that evaluates the anticipated traffic impacts of the application and provides specific recommendations to mitigate those impacts. That Study has been provided to the Staff. Some revisions to counts will be made to reflect the changes in the retail plan for the site. The application envisions a vibrant mixed-use development that will be sensitive to the transportation concerns of the City. By providing a variety of complementary uses on the same site, the proposed development will encourage self-contained, pedestrian trips. Additionally, due to its location proximate to several bus routes including a future intermodal transportation center and with implementation of Transportation Demand Management ("TDM") measures, a percentage of the trips generated by the residential and commercial components of the proposed development are anticipated to utilize non-auto modes of transportation. TDM measures will include convenient bicycle storage facilities, transit incentives, and resources conducive to teleworking. Furthermore, the developer proposes to reconfigure of the intersection at West Street and Park Avenue and add lane changes and traffic calming.

Water & Sewer

The City's utility engineer has confirmed that water and sewer service is adequate. The project will greatly improve storm water management with BMPs as the existing development has virtually no storm water management measures.

c. **The resulting development provides community benefits such as affordable housing, as it is described in Section 38-43 (Section 48-90(2) (c)).**

The developer is proposing an Affordable Dwelling Unit contribution in keeping with similar mixed use developments contributions, with about 6% of the total units being contributed as Affordable Housing Units and equally allocated among households at 60%, 80% and 100% of the median household income.

A commitment to LEED Silver for the Apartment building is provided, and the developer will underground all aerial utilities contiguous to the site depending on costs and

availability of easements. The developer proposes to review this in detail with the City to determine what poles can be undergrounded in the immediate area.

d. **The resulting development contributes to a vibrant, pedestrian-oriented environment both on site and in relation to adjoining properties, with street level activity throughout the day and evening (Section 48-90(2) (d)).**

The current uses at the site are distinctly automobile-oriented, with the majority of the property occupied by their own surface parking lots. The proposed development will move almost all parking within enclosed structures, which will contribute further to the walkable nature of the area.

The provision of streetscape along the entire development's three sides facing streets will contribute to the vibrant, pedestrian-oriented environment with connectivity to adjacent commercial and park areas. The mix of uses, including restaurants, retail, and other commercial opportunities will provide a balanced commercial center that will generate pedestrian traffic throughout the day and evening. The street level retail uses will be very visible and will encourage customers to enter the area to shop and visit not only this development, but the additional retail located nearby.

e. **The resulting development offers creative use of landscaping, open space and/or parks, public plazas or and walkways connecting to adjoining properties (Section 48-90(2) (e)).**

Three sides of the proposed building will have the attractive "streetscape" design and fixtures, and there will be enhanced connections around the site to nearby businesses, parks, and residences. The area near the W&OD trail will invite pedestrians to ride bikes, rest, talk, sit, eat and simply enjoy the area which includes the soon to be completed West End Park.

A cash contribution is provided. Further, a cash contribution is possible to facilitate the completion of the West End Park.

f. **The resulting development provides a variety of commercial services and uses that are attractive to and meet the needs of all city residents for entertainment, art, recreation, dining retail and array of consumable goods (Section 48-90(2)(f)).**

As stated above, the proposed development envisions a hotel as well as a mix of commercial uses. This includes a movie/dinner theater, and retail opportunities in an area that is lacking sufficient quality retail currently. These commercial entities will serve the

residential uses within the proposed development, as well as the neighborhood as a whole.

g. **The resulting development encourages local or independent businesses (Section 48-90(2) (g)).**

The retail and restaurant space provide a unique opportunity for local, regional and independent businesses, and the high-quality development will help the area as a whole attract and cultivate local and independent businesses. The smaller retail spaces in the development provides excellent opportunities for local "mom and pop" and incubator businesses.

h. **The resulting development provides for a reduction of single use parking requirements through shared parking Section 48-90(2) (h)).**

As shown in the submitted conceptual plan, the developer is recommending shared parking. The developer will explore with the final parking provided with the City to determine any additional parking reductions are justified based on the characteristics of the property and its proximity to bike ways, as well as several bus lines, will lead to fewer automobile trips. Additionally, metro to the nearest metro rail station is easily available and it is expected that some residents will bike to work (or to a multi-modal transit location for switching to bus or rail), and that the commercial uses will be patronized at least in part by pedestrians and cyclists.

i. **The resulting development encourages multi-modal transportation through design and other techniques to reduce the reliance on single occupancy vehicles, and utilizes sheltered stops for mass transit whenever feasible Section 48-90(2) (i)).**

As discussed, the property is in close proximity to existing bike ways, as well as the Metro Rail station and several bus lines. It is expected that some residents will walk to the Metro Rail station and others will bike to work, and that the commercial uses will be patronized at least in part by pedestrians and cyclists. The design includes attractive and user friendly places for bikes to be parked and stored.

j. **The resulting development utilizes LEED criteria in the design of the project Section 48-90(2) (j)).**

The proposed apartment development is planned to be LEED Silver certified, and will otherwise be designed using green design principles and elements.

By removing the existing imperious parking lots and implementing a new storm water management plan, the development will greatly reduce storm water runoff in the area.

Additionally, the non-residential part of the project will incorporate eco-conscious sustainable elements in the design of the hotel and other commercial spaces.

Special Exception for Height Bonus.

The area of the site to be used for the mixed use project is currently zoned B-3 and B-1, which permit a by-right height of up to 55 feet. The developer proposes the requested development to be a maximum height of 85 feet.

Up to 30 feet of bonus height may be granted if the project is exemplary in terms of conformance to the Primary Criteria 1 and 2 set out above and assists in conformance with Primary Criteria 2 and 3. The amount of new commercial area is more than three times the area of the existing commercial activity. More importantly, the new commercial activity replaces commercial uses which are discouraged by the City's Comprehensive Plan. The net new commercial and retail income is far greater than that of the existing uses and far superior in terms of making the area a desirable play to live, work, and play. Many of the difficult to achieve goals of the Comprehensive Plan will be met by the proposed development. For these reasons, this plan is exemplary in its achievement of the primary criteria set out above.

Bonus height may able be awarded for certain preferred uses when located on primary street frontage. These uses include outdoor dining, hotel and other uses specifically requested by the City. This development proposes improvements to the W&OD Park, a hotel, offices, a new movie/dinner theater, multiple retail opportunities and outdoor dining and some restaurants possibly with entertainment; all of which are considered preferred uses, justifying a bonus height of 30 feet.

It is important to note here that the first floor retail uses require a ceiling heights ranging from 15 to 24 feet, and that this required ceiling height is a major reason why the bonus is needed. As discussed, the design of this project, and in particular its height, is an exceptional new addition to this part of the City. The project sets a high bar for quality in terms of design, use, and materials, and if the proposed project were to be lowered by 30 feet, the integrity of the design would be greatly compromised, likely making the development infeasible.

The location and unique physical characteristics of the site make the requested building height appropriate. The property is located in an area that is expected to attract similar developments which will likely reach heights of 85', so that the requested height of 85' in certain locations is not out of the character of the surrounding neighborhood and the expected area as it evolves.

CONCLUSION

The Spectrum redevelopment at Broad and West fully reflects the City's vision for that area of Falls Church. The project meets or exceeds the primary and secondary criteria used to evaluate the merits of the special exceptions. Therefore, the requested special exceptions for residential use and height bonus at the City's gateway should be granted.

Thank you and the City Staff for its guidance and attentiveness to this project.

Sincerely,

David R. Lasso

David R. Lasso

DRL/saj
Enclosures

Appendix B

Scoping Document and Correspondence

CITY OF FALLS CHURCH

TO: Will Johnson, Wells+Associates, Inc.

FROM: Kirsten Munz, P.E. – Civil Engineer, DPW

SUBJECT: N. West & West Broad Site ("Shreve Corner" development)
TIA Scoping Approval

DATE: September 18, 2013

On August 15, 2013 a scoping meeting was held to discuss the conceptual development of a mixed-use project located at the corner of North West Street, West Broad Street and Park Avenue in the City of Falls Church. The applicant's pre-scoping form was discussed to determine the parameters of a TIA for the subject project. Subsequent to the meeting, the applicant revised the pre-scoping form based on the discussion.

The City approves the scoping parameters outlined in the updated scoping form, received August 16, 2013 with the following points of clarification and emphasis:

- The project's proximity to the W&OD trail should be of utmost consideration. All design elements should be driven by the goal to facilitate safe, convenient and efficient travel for a mixture of transportation modes.
- NVRPA has conducted a preliminary redesign of the W&OD trail crossing on North West Street to improve safety, which was provided to the applicant. The applicant has agreed to consider incorporating this element into the intersection redesign. The applicant is advised to coordinate any changes within the NVRPA right-of-way closely with the Park Authority.
- Analysis of access point on West Broad shall also include an option for right-in/right-out only access.
- If a new signal is pursued at the access point on West Broad, a full MUTCD signal warrant analysis must be conducted prior to SE approval, to adequately understand its merits and impacts.
- In addition to a roundabout at North West/ Park Avenue, alternative designs shall be explored and analyzed.
- A transportation demand management plan (TDM) shall include specific, quantifiable measures, accompanied by justification based on numerical data.
- Sight distance analyses at all intersections shall be based on AASHTO standards. Sight distances for bicycles, particularly in the vicinity of the W&OD trail, shall be analyzed as well.

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- Geometric design shall accommodate school bus turning movements.
- The applicant is advised to examine the feasibility of providing a pedestrian route mid-block along the east edge of the site, connecting East Broad to Park Avenue.

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PRE-SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information	
Consultant Name: Tele: E-mail:	William F. Johnson – Wells+Associates, Inc. 703-365-9262 wfjohnson@mjwells.com
Developer/Owner Name: Tele: E-mail:	Peter A. Batten – Spectrum Development LLC 202.607.3952 pbatten@spectrumdevelop.com

Project Information				
Project Name:	N West Street and W Broad Street		Locality/County:	City of Falls Church
Project Location: (Attach regional and site specific location map)	The subject site is located located north of W Broad Street (Route 7), south of Park Avenue and east of N West Street in the City of Falls Church, Virginia. See Attachment I for the site location.			
Submission Type	Comp Plan ☒	Rezoning ☒	Site Plan ☒	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The subject properties are zoned B-3 (General Business), B-1 (Limited Business), and R-1B (Medium Density Residential). The properties are currently developed with a variety of commercial, office, and residential uses. The applicant proposes to raze the existing uses and subsequently redevelop these properties with a mix of residential, retail, and office and/or hotel components as shown in Attachment II (footnote 1). Access to the project is proposed on West Street, Broad Street, and Park Avenue. On N West Street, a right-in/right-out access would be located approximately 175 feet north of the W Broad Street/N West Street intersection. Two entrances are proposed on W Broad Street with the westernmost access restricted to right-in/right-out movements only. Lastly, an access is also provided on Park Avenue (see Attachment II). Footnote 1: About half of the area currently zoned R-1B will be rezoned to B-1 (22,353 GSF) and the remaining three R-1B building lots reduced to two. Six parcels zoned B-3 will be downzoned to B-1 (92,031 GSF). The area devoted to mixed use (148,135 GSF) will have its comprehensive plan designation changed from "Business" to "Mixed Use" and the approximately 22,353 GSF of R1-B from "Low Density Residential" to "Mixed Use".			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☒	Other ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

	Residential Uses(s) Number of Units: 274 multifamily dwelling units, 2 single family detached dwelling units ITE LU Code(s): 220 210 **Commercial Use(s)** ITE LU Code(s): 912 881 826 Square Ft or Other Variable:	3,000 GSF bank 14,800 GSF pharmacy up to 26,420 GSF other retail uses **Other Use(s)** ITE LU Code(s): 310 OR 710 Independent Variable(s): 149 hotel rooms OR 40,044 GSF office uses (See Attachment III for a preliminary trip generation analysis)

Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☐	500 – 999 ☐	1,000 or more ☒

Traffic Impact Analysis Assumptions

Study Period	Existing Year: 2013	Build-out Year: 2019	Design Year: 2019
Study Area Boundaries (Attach map)	North: Lincoln Avenue (Route 6774)	South: W Broad Street (Route 7)	
	East: N Spring Street	West: N West Street (Route 6749)	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	Any approved and/or proposed pipeline development projects as well as potential external factors will be discussed with City staff.		
Consistency With Comprehensive Plan (Land use, transportation plan)	The subject parcels are planned for Business and Low Density Residential uses in the City's Future Land Use Plan Map. The applicant plans to redevelop the site in a manner that is in harmony with the City's Comprehensive Plan.		
Available Traffic Data (Historical, forecasts)	The traffic analysis will utilize the most recent VDOT traffic data as needed and the counts conducted by Wells+Associates, and/or counts from any other sources as agreed to with staff. 2012 VDOT Traffic Data: W Broad Street (Route 7) – 29,000 vehicles per day (vpd) N West Street (Route 6749) – 5,800 vpd Lincoln Avenue (Route 6774) – 2,700 vpd		
Trip Distribution	Road Name: 35% to/from west on W Broad Street	Road Name: 35% to/from east on W Broad Street	

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

(Attach sketch)	Road Name: 8% to/from north on N West Street Road Name: 2% to/from north on Grove Avenue		Road Name: 12% to/from east on Park Avenue Road Name: 8% to/from south on S West Street (See Attachment IV)
Annual Vehicle Trip Growth Rate:	1.0%	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT
		Peak Hour of the Generator	See Attachment III
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1.W Broad Street/West Street		6.N West Street/Lincoln Avenue
	2.N West Street/Grove Avenue		7.Grove Avenue/W&OD Trail (including pedestrian/bicycle movements)
	3.N West Street/Park Avenue		8.N West Street/W&OD Trail (including pedestrian/bicycle movements)
	4.W Broad Street/Spring Street		9.All Future Site Entrances
	5.Park Avenue/N Spring Street		10.(See Attachment IV)
Trip Adjustment Factors	Internal allowance: ☒ Yes ☐ No Reduction: 5/10/15 for AM/PM/Saturday capture of retail/residential % trips		Pass-by allowance: ☒ Yes ☐ No Reduction: 25 (non-residential)% trips
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☐ Other _____		
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	1. Synchro 7.0 will be used to conduct the capacity analysis. 2. Existing analysis will include Peak Hour Factor's from the existing traffic counts by approach. 3. A minimum PHF of 0.85 will be used under existing conditions. 4. Background and Total Future analysis will utilize a default PHF of 0.92. A table containing generalized Synchro parameters is included as Attachment V. These parameters will be used, as may be appropriate.		
Improvement(s) Assumed or to be Considered	A. Any assumed improvements/recommendations would be based on the results of the capacity analysis. B. Potential Transportation Demand Management (TDM) measures will be evaluated and included in the report. Additionally, enhancements to the pedestrian/bicycle network, as may be appropriate, will be investigated. C. Demonstration of adequate sight distance will be included in engineering drawings.		
Background Traffic Studies Considered			

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☒ Bike/Ped Accommodations ☐ Intersection(s) ☒ TDM Measures ☐ Other _____

NOTES on ASSUMPTIONS: 1. Synchro 7.0 will be used to conduct the capacity analysis with a minimum PHF of 0.85; all other movements for existing conditions would be field measured PHFs. Background and Total Future analysis shall use a PHF of 0.92.

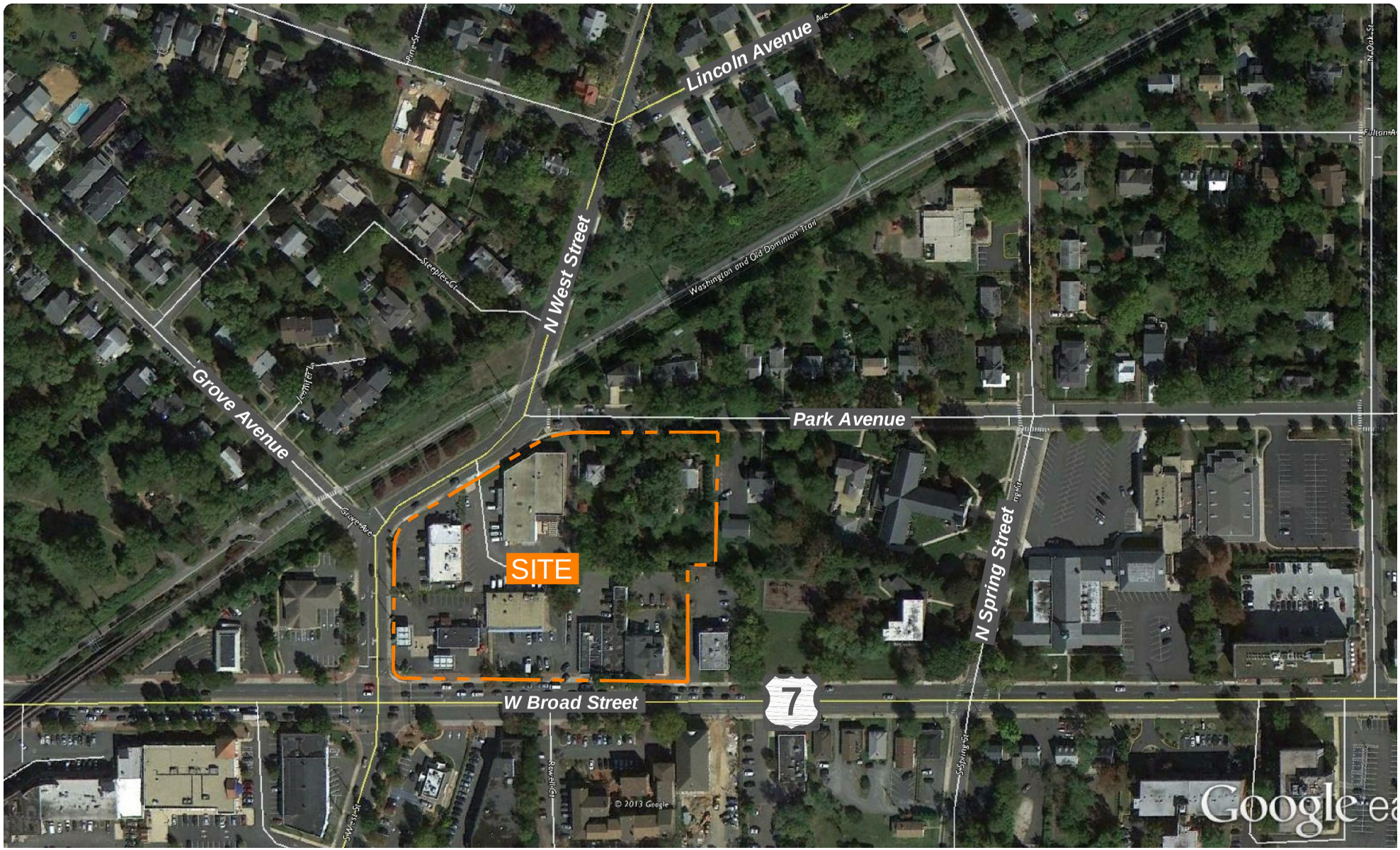
2. The percent heavy vehicles (%HV) will be based on the traffic counts or a default 2%, whichever is higher.

3. A maximum non-auto/transit reduction of 5% for residential generated trips will be applied, consistent with other area studies.

SIGNED: _____ DATE: _____
Applicant or Consultant

PRINT NAME: _____
Applicant or Consultant

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

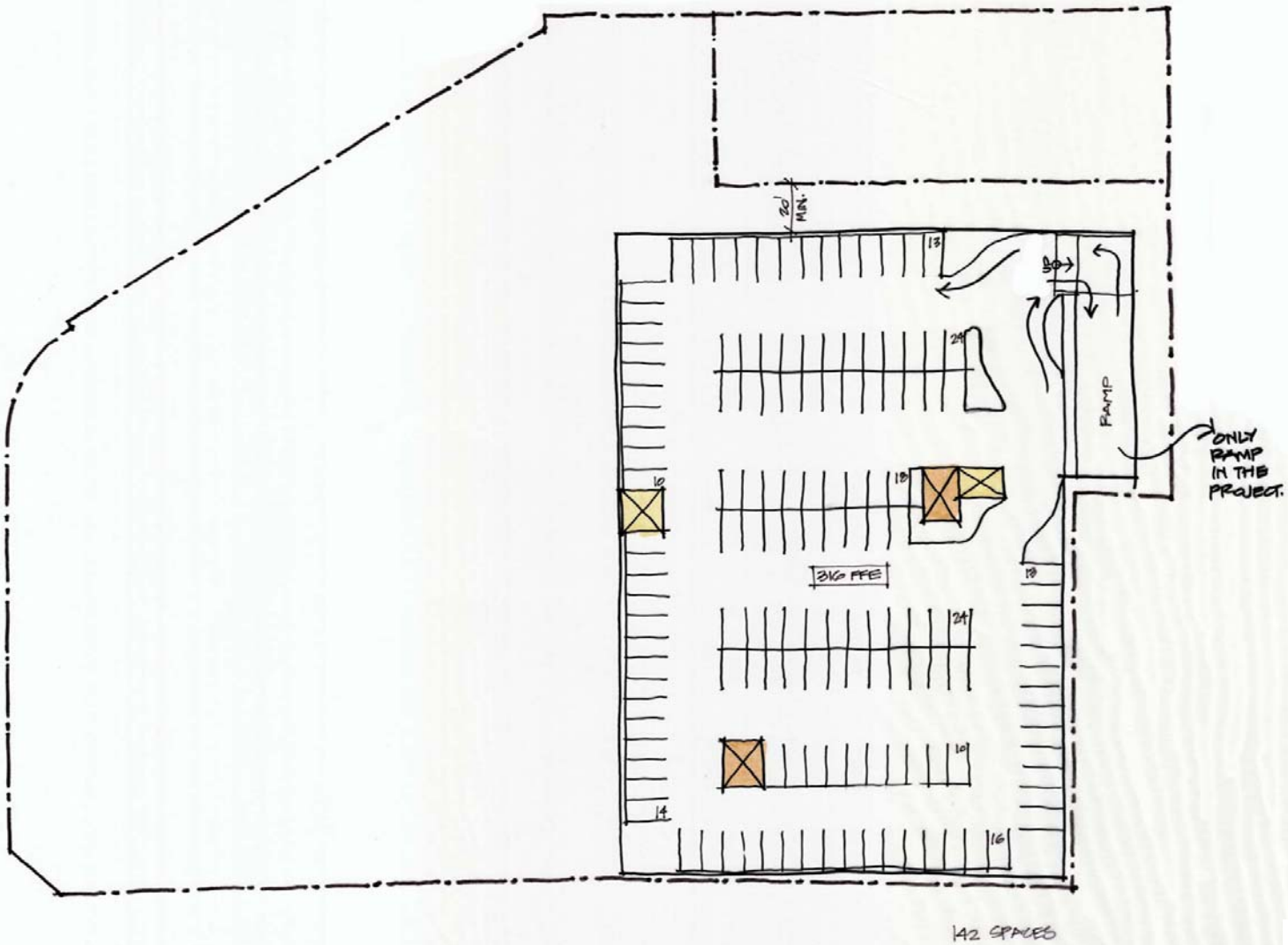


Attachment I
Site Location

North

N West Street and W Broad Street
City of Falls Church, Virginia

Wells + Associates, Inc.



1 Sketch of Lower Garage
N.T.S.

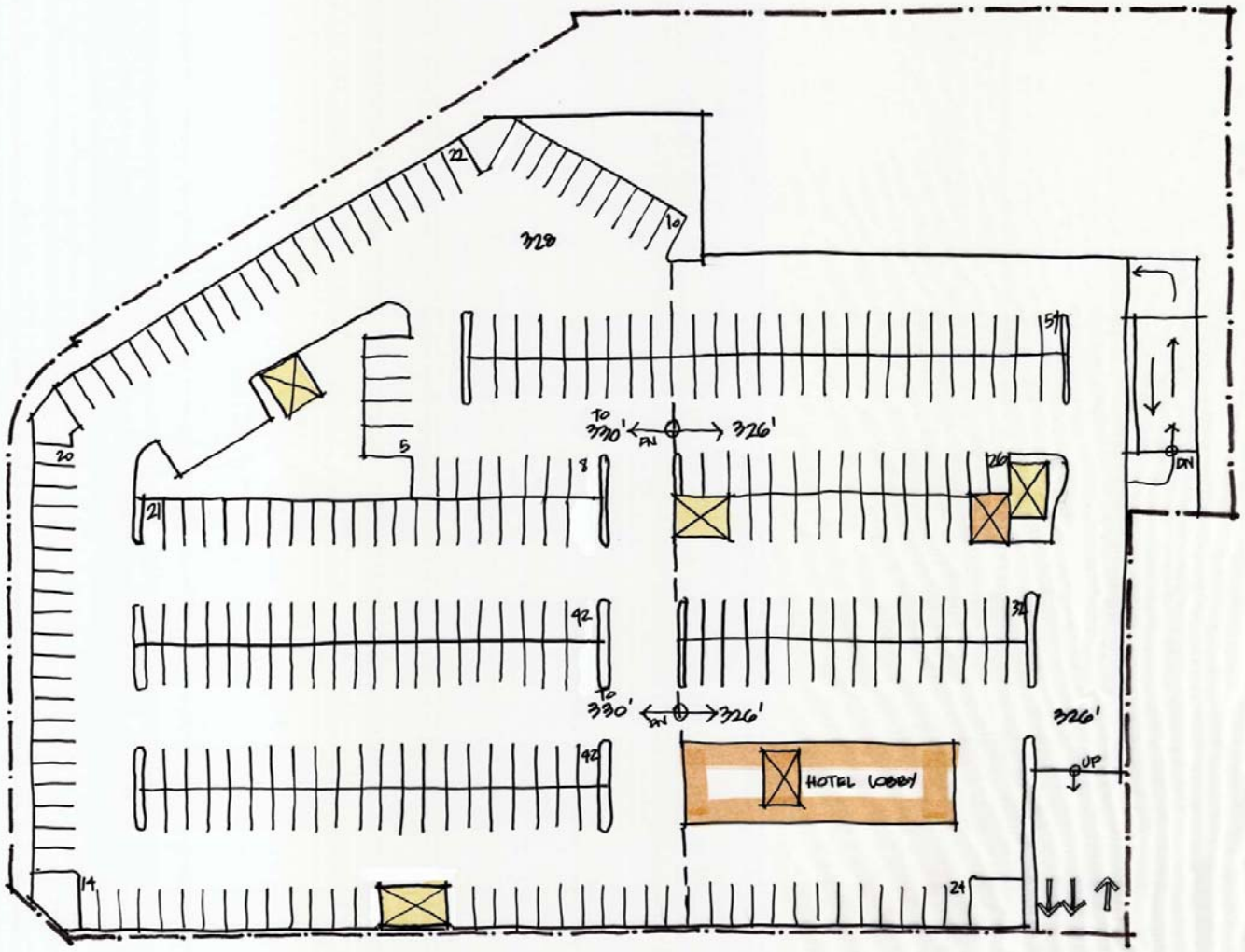
N West & W Broad Street

08/05/13

SPECTRUM development

streetsense.
streetsense.com

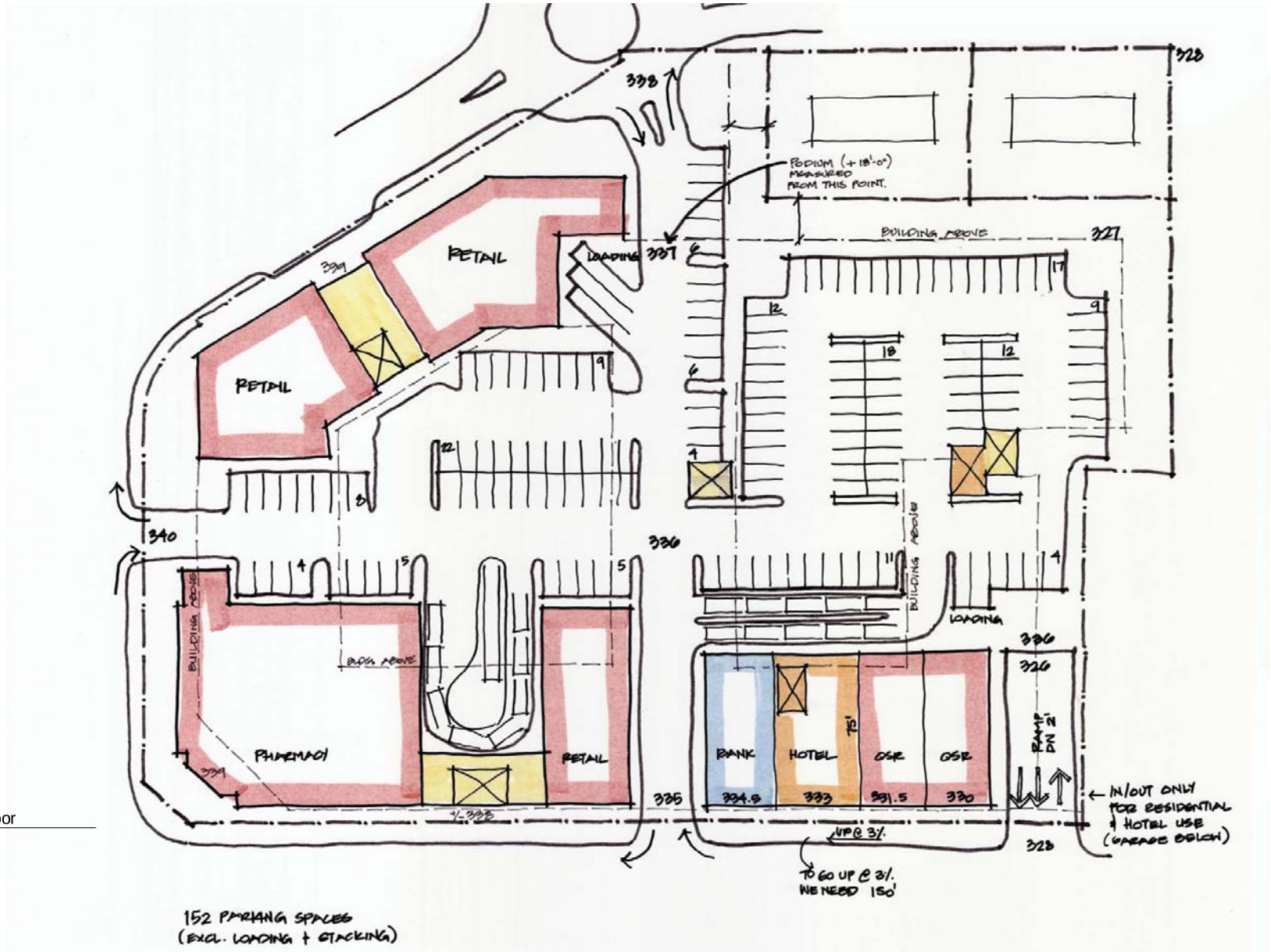
ATTACHMENT II



1 Sketch of Upper Garage
N.T.S.

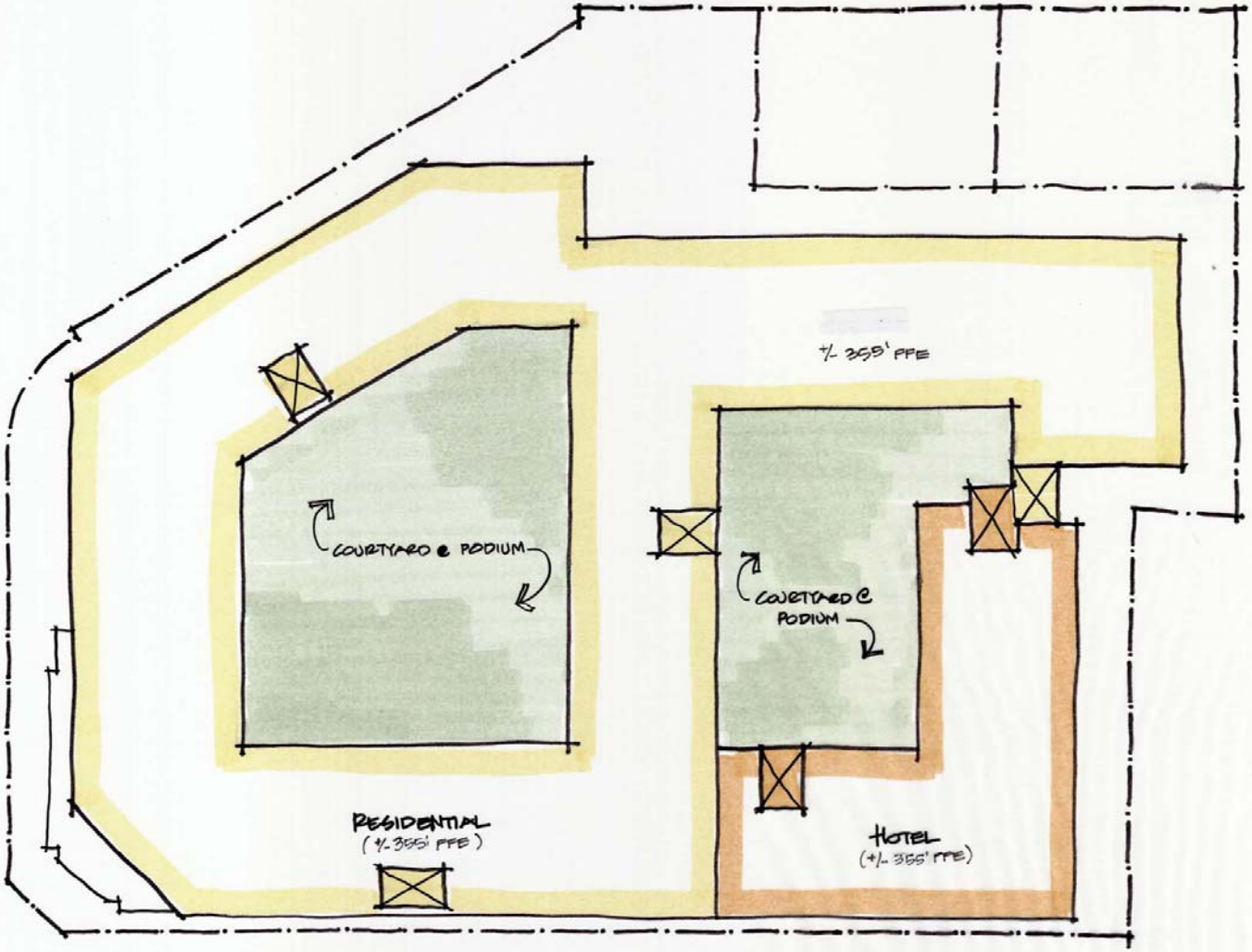
N West & W Broad Street

SPECTRUM development
streetsense.
streetsense.com



1 Sketch of 1st Floor
N.T.S.

N West & W Broad Street



1 Sketch of Upper Floors
N.T.S.

N West & W Broad Street

08/05/13

SPECTRUM development

streetsense.

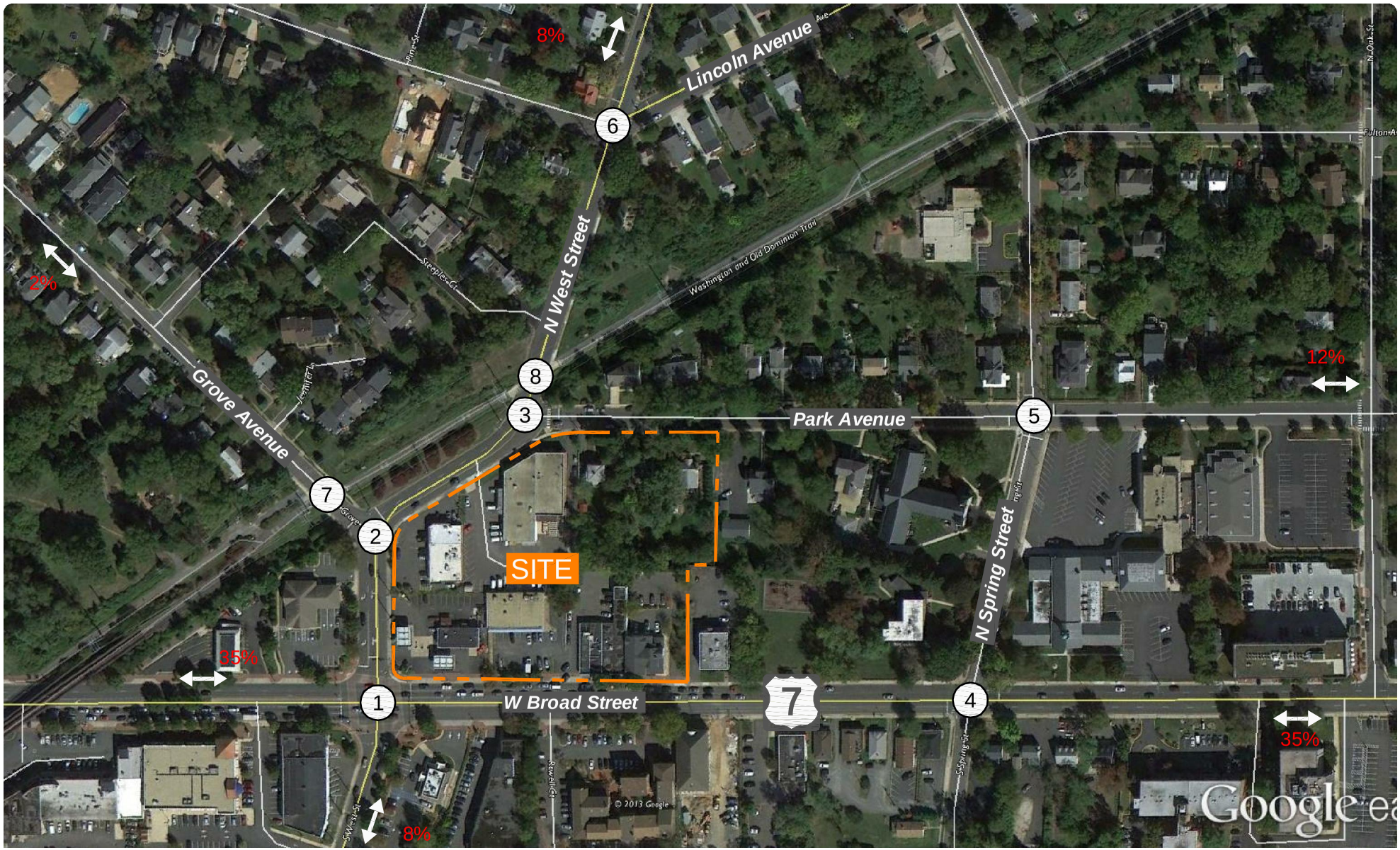
streetsense.com

ATTACHMENT II

Attachment III
North West and West Broad Street
Trip Generation - Peak Hour of the Generator (1)(2)

Lot Number	Land Use Code	Amount	Unit	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	
EXISTING USES													
51-202-009 Lot 1													
Gasoline/Service Station with Convenience Market	945	8	fueling positions	42	42	84	r	55	54	109	r	1,302	r
51-202-010 Lot 2													
Convenience Market (Open 24 Hours)	851	3,928	GSF	141	146	287	r	109	101	210	r	2,899	r
51-202-028 and 51-202-028 Outlot													
Specialty Retail Center	826	5,124	GSF	17	18	35	r	15	11	26	r	227	r
51-202-011 Lot 3 and 51-202-012													
Warehousing	150	11,016	GSF	10	6	16	e	2	11	13	e	39	r
51-202-005 Pt. Lot 1													
Specialty Retail Center	826	7,120	GSF	24	25	49	r	20	16	36	r	316	r
51-202-004 Pt. Lot 2													
Specialty Retail Center	826	5,740	GSF	19	20	39	r	16	13	29	r	254	r
51-202-013 Lot 2, 51-202-014 Lot 4 and 51-202-015 Lot 3													
Single-Family Detached Housing	210	3	dwelling units	4	10	14	e	3	2	5	e	42	e
Total Existing Trips				257	267	524		220	208	428		5,079	
PROPOSED USES													
Scenario 2A													
Drive-in Bank	912	3,000	GSF	28	25	53	r	41	39	80	r	444	r
Hotel	310	149	occupied rooms	53	43	96	e	61	46	107	e	1,329	r
Pharmacy/Drugstore with Drive Through Window	881	14,800	GSF	62	62	124	r	72	72	144	r	1,434	r
Apartment	220	274	dwelling units	44	106	150	e	109	70	179	e	1,784	e
Specialty Retail Center	826	11,516	GSF	38	41	79	r	32	26	58	r	510	r
Specialty Retail Center	826	12,468	GSF	41	44	85	r	35	28	63	r	553	r
Single-Family Detached Housing	210	2	dwelling units	4	10	14	e	2	1	3	e	29	e
Total Proposed Trips - Scenario 2A				270	331	601		352	282	634		6,083	
Total Net New Trips - Scenario 2A				13	64	77		132	74	206		1,004	
Scenario 2B													
Drive-in Bank	912	3,000	GSF	28	25	53	r	41	39	80	r	444	r
Pharmacy/Drugstore with Drive Through Window	881	14,800	GSF	62	62	124	r	72	72	144	r	1,434	r
General Office	710	40,044	GSF	81	11	92	e	21	102	123	e	655	e
Apartment	220	274	dwelling units	44	106	150	e	109	70	179	e	1,784	e
Specialty Retail Center	826	11,516	GSF	38	41	79	r	32	26	58	r	510	r
Specialty Retail Center	826	14,904	GSF	49	53	102	r	42	33	75	r	661	r
Single-Family Detached Housing	210	2	dwelling units	4	10	14	e	2	1	3	e	29	e
Total Proposed Trips - Scenario 2B				306	308	614		319	343	662		5,517	
Total Net New Trips - Scenario 2B				49	41	90		99	135	234		438	

Note(s):
(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 9th Edition.
(2) e = equations were used to calculate trip generation. r = rates were used to calculate trip generation.



Attachment IV
Trip Distribution and Study Intersections

(X) Study Intersection
XX% Site Trip Distribution

North

N West Street and W Broad Street
City of Falls Church, Virginia

Wells + Associates, Inc.

ITEM DESCRIPTION	STANDARD
SOFTWARE	
Software Version	Synchro 7.
Build	Build 773, Rev 8 (or most current build).
Source of Synchro Base	VDOT Synchro files.
Analysis Performed	Signalized and STOP-controlled intersection capacity analysis.
Reports Generated	"HCM Signals", "HCM Unsignalized", and the "INT: Queues" reports should be used.
Analysis Period	15 minutes.
LAYOUT	
Street Names/Route Numbers	Verify all links have street names and/or Route numbers.
Number of Lanes/Lane Markings	Field verify.
Layout of Lanes	Use cardinal directions for approaches (N, S, E & W): Leesburg Pike (Route 7) – East-West Chain Bridge Road (Route 123) – East-West Refer to area studies for orientation of specific intersections.
Distance between Intersections (centerline to centerline)	Import and scale aerial for all Synchro bases. Adjust base as required.
Speed Limits	Field verify.
Lane Widths	Set as default of 12'.
Grades (if available)	Leave values from VDOT Synchro files.
Central Business District (CBD)	Leave unchecked.
Storage Lane Lengths	Storage Length = Full width + portion of taper to a width of 8' (approximately 1/3 of taper)
Number of Storage Lanes	Field verify.
Channelization (yield, stop, signal, free flow)	Field verify.
Curb Radius	Field verify.
Add/Drop Lanes	Field verify.
Right Turns on Red	Field verify.
Left Turn Lanes	Field verify protected or protected/permitted phasing.
Bus Stops/Shelters	Field verify.
Terrain	All terrain in Northern Virginia is "level".
VOLUMES	
Vehicle Volumes	Based on master list of Tysons Corner area baseline volumes.
Pedestrian Volumes	Code in conflicting peds from count sheets if available.
Bicycle Volumes	Code in conflicting bikes from count sheets if available.
Peak Hour Factors	Use existing PHF's by approach adjusted to 0.85≤PHF≤0.92. Carry existing PHF 's to future scenarios for existing

ITEM DESCRIPTION	STANDARD
	intersections/approaches. New/modified intersections should be coded with PHF's of 0.92.
Heavy Vehicle Percentages	Use count data by movement if data is available. If not, use 2008 VDOT ADT data by approach.
Bus Blockages per Hour	Code in for all affected lane groups if there is a bus stop at an intersection approach. Base on number on bus headway data (30 min = 2 stops per hour).
Adjacent Parking	Check for all affected lane groups if there is on-street parking at the intersection.
Parking Maneuvers per Hour	Use engineering judgment. (e.g. 5 parked cars * 1 maneuver/hr = 5 per hour)
TIMING/PHASING	
Current Signal Timing Plans	Obtain VDOT MIST timing sheets from VDOT or other area projects.
Turn Types (left and right turns)	Field verify. For right turns that are coded as channelized yield control in the lane window, code them as permitted with the through movement on the same approach in the timing window, except in rare instances such as Route 123/Tysons Blvd. DO NOT code dual lefts as protected/permitted EVER.
Detector Phases Overrides	Leave consistent with VDOT Synchro files unless there is an obvious error. One error that seems to occur often is for right turn overlap phases; the detector phase should be coded with the mainline phase of the same approach, that is, not with the corresponding left turn movement.
Switch Phases Overrides	Leave consistent with VDOT Synchro files unless there is an obvious error.
Controller Type	Most likely either "Actd-Coord" or "Actd-Uncrd".
Cycle Length	Future signal timings should maintain corridor cycle lengths.
Minimum Green Time	New signals assume minimum G=7 seconds
Offset Time	Obtained from coordination sheet of MIST timing sheets.
Offset Referenced to (beginning of yellow, etc.)	Set for "Begin of Yellow".
Reference Phase	Almost always Phases 2 + 6. (Notable exception – Spring Hill Rd / International Dr / Jones Branch Dr. intersection)
Master Controller	Leave consistent with VDOT Synchro files.
Yield Point	Set as "Single".
Correct Phasing (split, lead, lag, etc.)	Field verify. For new intersections/approaches, all lefts should be treated as protected on roadways with speeds 45mph (or higher) or

ITEM DESCRIPTION	STANDARD
	with more than two opposing through lanes.
Minimum Initial	Based on "Phase Timing Bank" of MIST timing sheets. Usually 5-7s for lefts, 7-10s for side streets, and 10-20s for thrus.
Minimum Splits	Synchro can calculate as greater of min green + Y +AR or W + FDW + Y + AR.
Maximum Splits	Based on "Coordination Sheet" or "Phase Timing Bank" of MIST timing sheets. Can be less than the min split if there is a pedestrian phase. (Ped call would override max split). For uncoordinated signals, field timings are recommended to verify how much time each phase actually is using.
Yellow Time	Based on "Phase Timing Bank" of MIST timing sheets. Usually 4 seconds. Minimum Y+All R=6 seconds per *Administrative Guidelines*.
Red Time	Based on "Phase Timing Bank" of MIST timing sheets. Usually 3 seconds. Minimum Y+All R=6 seconds per *Administrative Guidelines*
Lost Time Adjust	Set so that total lost time = 3 sec. (Y + R + Adj = 3)
Allow led/lag Optimization	Uncheck to prevent accidental "optimization".
Vehicle Extension	Based on "Phase Timing Bank" of MIST timing sheets. Usually 2-4 seconds.
Minimum Gap	Based on "Phase Timing Bank" of MIST timing sheets. Almost always same as vehicle extension. Usually 2-4 seconds.
Recall Modes	For coordinated signals, the recall mode for the coordinated phases should be "C-Max". Other phases should be set to "No Recall". For uncoordinated phases, the mainline phases (2+6) should be set to "Min Recall". Other phases should be set to "No Recall".
Pedestrian Phase	Based on "Phase Timing Bank" of MIST timing sheets.
Walk Time	Based on "Phase Timing Bank" of MIST timing sheets. Usually 7 seconds.
Flashing Don't Walk Time	Based on "Phase Timing Bank" of MIST timing sheets. For new signals FDW = distance (in feet) / 3.5 ft/sec.
Pedestrian Calls per Hour	Based on ped counts where available. Use nominal value (e.g. 5 calls) when no information available.
Dual Entry	Based on "Coordination Timing Parameters" of MIST sheets.
Inhibit Max	Check boxes for mainline/coordinated phases. Uncheck boxes for all other phases.
SIGNING (UNSIGNALIZED)	

ITEM DESCRIPTION	STANDARD
Controller Type	Set as "Unsig".
Sign Control	Field verify.
Median Width	Equal to left turn lane width + additional median width.
TWLTL Median	Check if applicable. Use engineering judgment for storage length (e.g. distance to next driveway).
Right Turn Channelization	Should be same as in lane window.
SIMULATION SETTINGS	
Taper Lengths	Leave consistent with VDOT Synchro files unless there is an obvious error.
Lane alignment	Leave consistent with VDOT Synchro files unless there is an obvious error.
Enter Blocked Intersection	Leave consistent with VDOT Synchro files unless there is an obvious error.
Median widths	Equal to left turn lane width + additional median width.
Distance between offset legs of intersection	Leave consistent with VDOT Synchro files unless there is an obvious error.
Crosswalk widths	Leave consistent with VDOT Synchro files unless there is an obvious error.
Two-way Left Turn Lane	Check if applicable. Use engineering judgment for storage length (e.g. distance to next driveway).
Turning Speed	Leave consistent with VDOT Synchro files unless there is an obvious error.

Appendix C

Traffic and Pedestrian Count Data

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: W. Broad St. & N. West St.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Geraldin & Marlen
INPUTED BY: agan

SOUTHBOUND ROAD: North West Street
NORTHBOUND ROAD: South West Street
WESTBOUND ROAD: West Broad Street - 7
EASTBOUND ROAD: West Broad Street - 7

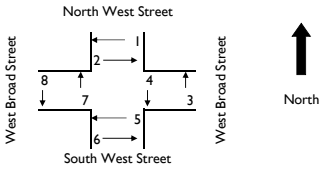
Time	Southbound North West Street					Westbound West Broad Street - 7					Northbound South West Street					Eastbound West Broad Street - 7					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM	8	2	5	15		3	36	4	43			13	8	21			67	18	85		36	128	164
6:15 AM - 6:30 AM	12	4		16		4	63		67		6	18	14	38		3	97	25	125		54	192	246
6:30 AM - 6:45 AM	14	9	4	27		9	118		127		4	28	27	59		9	177	34	220		86	347	433
6:45 AM - 7:00 AM	15	13	4	32		6	120	5	131		8	43	31	82		7	152	31	190		114	321	435
7:00 AM - 7:15 AM	24	8	5	37		3	151	4	158		5	62	62	129		7	154	48	209		166	367	533
7:15 AM - 7:30 AM	9	14	7	30		7	178	5	190		11	71	64	146		25	229	68	322		176	512	688
7:30 AM - 7:45 AM	29	18	7	54		19	210	7	236		6	74	55	135		21	231	64	316		189	552	741
7:45 AM - 8:00 AM	43	21	9	73		7	250	15	272		7	67	72	146		12	238	62	312		219	584	803
8:00 AM - 8:15 AM	32	22	12	66		11	221	2	234		14	51	46	111		12	212	44	268		177	502	679
8:15 AM - 8:30 AM	20	25	9	54		11	225	9	245		6	53	43	102		9	194	63	266		156	511	667
8:30 AM - 8:45 AM	31	13	5	49		3	192	4	199		15	59	59	133		9	178	48	235		182	434	616
8:45 AM - 9:00 AM	34	17	12	63		9	228	4	241		13	53	48	114		10	212	51	273		177	514	691
2:30 PM - 2:45 PM	39	31	20	90		11	191	14	216		11	28	42	81		30	165	40	235		171	451	622
2:45 PM - 3:00 PM	47	33	8	88		13	216	21	250		5	30	37	72		24	202	54	280		160	530	690
3:00 PM - 3:15 PM	61	33	14	108		7	201	20	228		8	33	27	68		29	193	39	261		176	489	665
3:15 PM - 3:30 PM	63	58	11	132		10	186	24	220		7	30	33	70		44	225	46	315		202	535	737
3:30 PM - 3:45 PM	43	37	9	89		14	221	28	263		4	13	31	48		25	215	40	280		137	543	680
3:45 PM - 4:00 PM	51	42	16	109		5	186	15	206		7	24	40	71		15	299	50	364		180	570	750
4:00 PM - 4:15 PM	66	67	9	142		5	220	26	251		7	28	30	65		25	297	52	374		207	625	832
4:15 PM - 4:30 PM	49	71	15	135		10	221	24	255		13	30	25	68		43	267	51	361		203	616	819
4:30 PM - 4:45 PM	65	93	21	179		2	196	30	228		18	43	29	90		24	229	46	299		269	527	796
4:45 PM - 5:00 PM	68	110	8	186		3	186	20	209		22	33	27	82		38	250	36	324		268	533	801
5:00 PM - 5:15 PM	58	91	8	157		3	196	19	218		10	38	36	84		25	270	56	351		241	569	810
5:15 PM - 5:30 PM	55	95	6	156		4	224	24	252		12	39	36	87		34	245	55	334		243	586	829
5:30 PM - 5:45 PM	66	81	12	159		1	180	17	198		12	47	38	97		17	255	77	349		256	547	803
5:45 PM - 6:00 PM	41	73	22	136		7	159	22	188		22	36	37	95		18	257	40	315		231	503	734
6:00 PM - 6:15 PM	66	82	9	157		14	221	27	262		9	33	36	78		27	279	63	369		235	631	866
6:15 PM - 6:30 PM	51	62	16	129		7	171	18	196		7	35	30	72		26	240	52	318		201	514	715
6:30 PM - 6:45 PM	43	51	14	108		8	138	14	160		16	36	29	81		26	289	41	356		189	516	705
6:45 PM - 7:00 PM	35	36	11	82		6	214	10	230		5	44	31	80		21	291	43	355		162	585	747
Total	1238	1312	308	2858		222	5519	432	6173		290	1192	1123	2605		615	6609	1437	8661		5463	14834	20297
One Hour Volumes																							
6:00 AM - 7:00 AM	49	28	13	90	0.7031	22	337	9	368	0.7023	18	102	80	200	0.6098	19	493	108	620	0.7045	290	988	1278
6:15 AM - 7:15 AM	65	34	13	112	0.7568	22	452	9	483	0.7642	23	151	134	308	0.5969	26	580	138	744	0.8455	420	1227	1647
6:30 AM - 7:30 AM	62	44	20	126	0.8514	25	567	14	606	0.7974	28	204	184	416	0.7123	48	712	181	941	0.7306	542	1547	2089
6:45 AM - 7:45 AM	77	53	23	153	0.7083	35	659	21	715	0.7574	30	250	212	492	0.8425	60	766	211	1037	0.8051	645	1752	2397
7:00 AM - 8:00 AM	105	61	28	194	0.6644	36	789	31	856	0.7868	29	274	253	556	0.9521	65	852	242	1159	0.8998	750	2015	2765
7:15 AM - 8:15 AM	113	75	35	223	0.7637	44	859	29	932	0.8566	38	263	237	538	0.9212	70	910	238	1218	0.9457	761	2150	2911
7:30 AM - 8:30 AM	124	86	37	247	0.8459	48	906	33	987	0.9072	33	245	216	494	0.8459	54	875	233	1162	0.9193	741	2149	2890
7:45 AM - 8:45 AM	126	81	35	242	0.8288	32	888	30	950	0.8732	42	230	220	492	0.8425	42	822	217	1081	0.8662	734	2031	2765
8:00 AM - 9:00 AM	117	77	38	232	0.8788	34	866	19	919	0.9378	48	216	196	460	0.8647	40	796	206	1042	0.9542	692	1961	2653
2:30 PM - 3:30 PM	210	155	53	418	0.7917	41	794	79	914	0.914	31	121	139	291	0.8981	127	785	179	1091	0.8659	709	2005	2714
2:45 PM - 3:45 PM	214	161	42	417	0.7898	44	824	93	961	0.9135	24	106	128	258	0.8958	122	835	179	1136	0.9016	675	2097	2772
3:00 PM - 4:00 PM	218	170	50	438	0.8295	36	794	87	917	0.8717	26	100	131	257	0.9049	113	932	175	1220	0.8379	695	2137	2832
3:15 PM - 4:15 PM	223	204	45	472	0.831	34	813	93	940	0.8935	25	95	134	254	0.8944	109	1036	188	1333	0.891	726	2273	2999
3:30 PM - 4:30 PM	209	217	49	475	0.8363	34	848	93	975	0.9268	31	95	126	252	0.8873	108	1078	193	1379	0.9218	727	2354	3081
3:45 PM - 4:45 PM	231	273	61	565	0.7891	22	823	95	940	0.9216	45	125	124	294	0.8167	107	1092	199	1398	0.9345	859	2338	3197
4:00 PM - 5:00 PM	248	341	53	642	0.8629	20	823	100	943	0.9245	60	134	111	305	0.8472	130	1043	185	1358	0.9078	947	2301	3248
4:15 PM - 5:15 PM	240	365	52	657	0.8831	18	799	93	910	0.8922	63	144	117	324	0.9	130	1016	189	1335	0.9245	981	2245	3226
4:30 PM - 5:30 PM	246	389	43	678	0.9113	12	802	93	907	0.8998	62	153	128	343	0.9528	121	994	193	1308	0.9316	1021	2215	3236
4:45 PM - 5:45 PM	247	377	34	658	0.8844	11	786	80	877	0.87	56	157	137	350	0.9021	114	1020	224	1358	0.9672	1008	2235	3243
5:00 PM - 6:00 PM	220	340	48	608	0.956	15	759	82	856	0.8492	56	160	147	363	0.9356	94	1027	228	1349	0.9608	971	2205	3176
5:15 PM - 6:15 PM	228	331	49	608	0.956	26	784	90	900	0.8588	55	155	147	357	0.9201	96	1036	235	1367	0.9262	965	2267	3232
5:30 PM - 6:30 PM	224	298	59	581	0.9135	29	731	84	844	0.8053	50	151	141	342	0.8814	88	1031	232	1351	0.9153	923	2195	3118
5:45 PM - 6:45 PM	201	268	61	530	0.8439	36	689	81	806	0.7691	54	140	132	326	0.8579	97	1065	196	1358	0.9201	856	2164	3020
6:00 PM - 7:00 PM	195	231	50	476	0.758	35	744	69	848	0.8092	37	148	126	311	0.9599	100	1099	199	1398	0.9472	787	2246	3033
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: W. Broad St. & N. West St.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Geraldin
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM													
6:15 AM - 6:30 AM	1					1							
6:30 AM - 6:45 AM	2		2										
6:45 AM - 7:00 AM	2		2	1	1		1	1					
7:00 AM - 7:15 AM	2	2			4		7						
7:15 AM - 7:30 AM				2				2					
7:30 AM - 7:45 AM	4						1						
7:45 AM - 8:00 AM	2		2			1	3						
8:00 AM - 8:15 AM	1	1				1	1	1					
8:15 AM - 8:30 AM							1						
8:30 AM - 8:45 AM													
8:45 AM - 9:00 AM													
2:30 PM - 2:45 PM				2	1		1	1					
2:45 PM - 3:00 PM		2			4			2					
3:00 PM - 3:15 PM					5			2					
3:15 PM - 3:30 PM		10						6					
3:30 PM - 3:45 PM	1	2		4	2	2		4					
3:45 PM - 4:00 PM						1							
4:00 PM - 4:15 PM			1	2			1	1					
4:15 PM - 4:30 PM						1	1	1					
4:30 PM - 4:45 PM													
4:45 PM - 5:00 PM													
5:00 PM - 5:15 PM				1									
5:15 PM - 5:30 PM													
5:30 PM - 5:45 PM													
5:45 PM - 6:00 PM			1				1						
6:00 PM - 6:15 PM													
6:15 PM - 6:30 PM													
6:30 PM - 6:45 PM			1			3		1					
6:45 PM - 7:00 PM		1		1		1							
Total	15	18	9	13	17	11	18	22					
One Hour Volumes													
6:00 AM - 7:00 AM	5		4	1	1	1	1	1	5	5	2	2	14
6:15 AM - 7:15 AM	7	2	4	1	5	1	8	1	9	5	6	9	29
6:30 AM - 7:30 AM	6	2	4	3	5		8	3	8	7	5	11	31
6:45 AM - 7:45 AM	8	2	2	3	5		9	3	10	5	5	12	32
7:00 AM - 8:00 AM	8	2	2	2	4	1	11	2	10	4	5	13	32
7:15 AM - 8:15 AM	7	1	2	2		2	5	3	8	4	2	8	22
7:30 AM - 8:30 AM	7	1	2			2	6	1	8	2	2	7	19
7:45 AM - 8:45 AM	3	1	2			2	5	1	4	2	2	6	14
8:00 AM - 9:00 AM	1	1				1	2	1	2		1	3	6
2:30 PM - 3:30 PM		12		2	10		1	11	12	2	10	12	36
2:45 PM - 3:45 PM	1	14		4	11	2		14	15	4	13	14	46
3:00 PM - 4:00 PM	1	12		4	7	3		12	13	4	10	12	39
3:15 PM - 4:15 PM	1	12	1	6	2	3	1	11	13	7	5	12	37
3:30 PM - 4:30 PM	1	2	1	6	2	4	2	6	3	7	6	8	24
3:45 PM - 4:45 PM			1	2		2	2	2		3	2	4	9
4:00 PM - 5:00 PM			1	2		1	2	2		3	1	4	8
4:15 PM - 5:15 PM				1		1	1	1		1	1	2	4
4:30 PM - 5:30 PM				1						1			1
4:45 PM - 5:45 PM				1						1			1
5:00 PM - 6:00 PM			1	1			1			2		1	3
5:15 PM - 6:15 PM			1				1			1		1	2
5:30 PM - 6:30 PM			1				1			1		1	2
5:45 PM - 6:45 PM			2			3	1	1		2	3	2	7
6:00 PM - 7:00 PM		1	1	1		4		1	1	2	4	1	8
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: N. West St. & Grove Ave.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Farid
INPUTED BY: agan

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

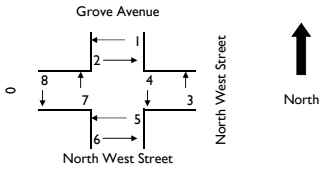
Time	Southbound Grove Avenue					Westbound North West Street					Northbound North West Street					Eastbound 0					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM		3	1	4		2		6	8		18	1		19							23	8	31
6:15 AM - 6:30 AM		1	2	3		2		8	10		32	5		37							40	10	50
6:30 AM - 6:45 AM		3	2	5		6		13	19		42	2		44							49	19	68
6:45 AM - 7:00 AM		2	7	9		3		28	31		63	6		69							78	31	109
7:00 AM - 7:15 AM		1	2	3		7		36	43		79	4		83							86	43	129
7:15 AM - 7:30 AM		2	16	18		9		33	42		128	4		132							150	42	192
7:30 AM - 7:45 AM		7	20	27		19		54	73		130	5		135							162	73	235
7:45 AM - 8:00 AM		6	18	24		17		60	77		132	3		135							159	77	236
8:00 AM - 8:15 AM		4	16	20		5		53	58		87			87							107	58	165
8:15 AM - 8:30 AM		5	8	13		9		55	64		123	1		124							137	64	201
8:30 AM - 8:45 AM		4	6	10		11		58	69		93	1		94							104	69	173
8:45 AM - 9:00 AM		4	10	14		4		45	49		97	2		99							113	49	162
2:30 PM - 2:45 PM		6	8	14		5		64	69		64	8		72							86	69	155
2:45 PM - 3:00 PM		7	8	15		13		69	82		80	6		86							101	82	183
3:00 PM - 3:15 PM		4	22	26		5		67	72		66	5		71							97	72	169
3:15 PM - 3:30 PM		4	12	16		8		107	115		67	3		70							86	115	201
3:30 PM - 3:45 PM		2	15	17		5		61	66		60	6		66							83	66	149
3:45 PM - 4:00 PM		4	10	14		13		84	97		75	2		77							91	97	188
4:00 PM - 4:15 PM		4	22	26		12		126	138		67	7		74							100	138	238
4:15 PM - 4:30 PM		4	18	22		16		105	121		69	9		78							100	121	221
4:30 PM - 4:45 PM		3	21	24		11		110	121		69	11		80							104	121	225
4:45 PM - 5:00 PM		4	22	26		11		105	116		69	6		75							101	116	217
5:00 PM - 5:15 PM		5	17	22		10		117	127		73	13		86							108	127	235
5:15 PM - 5:30 PM		4	23	27		15		100	115		88	2		90							117	115	232
5:30 PM - 5:45 PM		3	22	25		13		126	139		89	5		94							119	139	258
5:45 PM - 6:00 PM		6	21	27		13		103	116		79	7		86							113	116	229
6:00 PM - 6:15 PM		6	22	28		14		125	139		81	8		89							117	139	256
6:15 PM - 6:30 PM		10	27	37		9		91	100		80	8		88							125	100	225
6:30 PM - 6:45 PM		16	27	43		8		73	81		80	2		82							125	81	206
6:45 PM - 7:00 PM		9	19	28		10		67	77		74	12		86							114	77	191
Total	0	143	444	587		285	0	2149	2434		2354	154	0	2508		0	0	0	0		3095	2434	5529
One Hour Volumes																							
6:00 AM - 7:00 AM		9	12	21	0.5833	13		55	68	0.5484	155	14		169	0.6123						190	68	258
6:15 AM - 7:15 AM		7	13	20	0.5556	18		85	103	0.5988	216	17		233	0.7018						253	103	356
6:30 AM - 7:30 AM		8	27	35	0.4861	25		110	135	0.7849	312	16		328	0.6212						363	135	498
6:45 AM - 7:45 AM		12	45	57	0.5278	38		151	189	0.6473	400	19		419	0.7759						476	189	665
7:00 AM - 8:00 AM		16	56	72	0.6667	52		183	235	0.763	469	16		485	0.8981						557	235	792
7:15 AM - 8:15 AM		19	70	89	0.8241	50		200	250	0.8117	477	12		489	0.9056						578	250	828
7:30 AM - 8:30 AM		22	62	84	0.7778	50		222	272	0.8831	472	9		481	0.8907						565	272	837
7:45 AM - 8:45 AM		19	48	67	0.6979	42		226	268	0.8701	435	5		440	0.8148						507	268	775
8:00 AM - 9:00 AM		17	40	57	0.7125	29		211	240	0.8696	400	4		404	0.8145						461	240	701
2:30 PM - 3:30 PM		21	50	71	0.6827	31		307	338	0.7348	277	22		299	0.8692						370	338	708
2:45 PM - 3:45 PM		17	57	74	0.7115	31		304	335	0.7283	273	20		293	0.8517						367	335	702
3:00 PM - 4:00 PM		14	59	73	0.7019	31		319	350	0.7609	268	16		284	0.9221						357	350	707
3:15 PM - 4:15 PM		14	59	73	0.7019	38		378	416	0.7536	269	18		287	0.9318						360	416	776
3:30 PM - 4:30 PM		14	65	79	0.7596	46		376	422	0.7645	271	24		295	0.9455						374	422	796
3:45 PM - 4:45 PM		15	71	86	0.8269	52		425	477	0.8641	280	29		309	0.9656						395	477	872
4:00 PM - 5:00 PM		15	83	98	0.9423	50		446	496	0.8986	274	33		307	0.9594						405	496	901
4:15 PM - 5:15 PM		16	78	94	0.9038	48		437	485	0.9547	280	39		319	0.9273						413	485	898
4:30 PM - 5:30 PM		16	83	99	0.9167	47		432	479	0.9429	299	32		331	0.9194						430	479	909
4:45 PM - 5:45 PM		16	84	100	0.9259	49		448	497	0.8939	319	26		345	0.9176						445	497	942
5:00 PM - 6:00 PM		18	83	101	0.9352	51		446	497	0.8939	329	27		356	0.9468						457	497	954
5:15 PM - 6:15 PM		19	88	107	0.9554	55		454	509	0.9155	337	22		359	0.9548						466	509	975
5:30 PM - 6:30 PM		25	92	117	0.7905	49		445	494	0.8885	329	28		357	0.9495						474	494	968
5:45 PM - 6:45 PM		38	97	135	0.7849	44		392	436	0.7842	320	25		345	0.9691						480	436	916
6:00 PM - 7:00 PM		41	95	136	0.7907	41		356	397	0.714	315	30		345	0.9691						481	397	878
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. West St. & Grove Ave.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Farid
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM													
6:15 AM - 6:30 AM													
6:30 AM - 6:45 AM				2		1		1					
6:45 AM - 7:00 AM													
7:00 AM - 7:15 AM					2	1							
7:15 AM - 7:30 AM													
7:30 AM - 7:45 AM													
7:45 AM - 8:00 AM													
8:00 AM - 8:15 AM													
8:15 AM - 8:30 AM						1							
8:30 AM - 8:45 AM					1								
8:45 AM - 9:00 AM													
2:30 PM - 2:45 PM													
2:45 PM - 3:00 PM													
3:00 PM - 3:15 PM								2					
3:15 PM - 3:30 PM						2							
3:30 PM - 3:45 PM						2							
3:45 PM - 4:00 PM													
4:00 PM - 4:15 PM				2									
4:15 PM - 4:30 PM													
4:30 PM - 4:45 PM													
4:45 PM - 5:00 PM													
5:00 PM - 5:15 PM													
5:15 PM - 5:30 PM				1									
5:30 PM - 5:45 PM													
5:45 PM - 6:00 PM			1	1									
6:00 PM - 6:15 PM													
6:15 PM - 6:30 PM													
6:30 PM - 6:45 PM				1		1							
6:45 PM - 7:00 PM				1	1								
Total	0	0	1	8	4	8	0	3					
One Hour Volumes													
6:00 AM - 7:00 AM				2		1		1		2	1	1	4
6:15 AM - 7:15 AM				2	2	2		1		2	4	1	7
6:30 AM - 7:30 AM				2	2	2		1		2	4	1	7
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													
7:30 AM - 8:30 AM						1					1		1
7:45 AM - 8:45 AM					1	1					2		2
8:00 AM - 9:00 AM					1	1					2		2
2:30 PM - 3:30 PM						2		2			2	2	4
2:45 PM - 3:45 PM						4		2			4	2	6
3:00 PM - 4:00 PM						4		2			4	2	6
3:15 PM - 4:15 PM				2		4				2	4		6
3:30 PM - 4:30 PM				2		2				2	2		4
3:45 PM - 4:45 PM				2						2			2
4:00 PM - 5:00 PM				2						2			2
4:15 PM - 5:15 PM													
4:30 PM - 5:30 PM				1						1			1
4:45 PM - 5:45 PM				1						1			1
5:00 PM - 6:00 PM			1	2						3			3
5:15 PM - 6:15 PM			1	2						3			3
5:30 PM - 6:30 PM			1	1						2			2
5:45 PM - 6:45 PM			1	2		1				3	1		4
6:00 PM - 7:00 PM				2	1	1				2	2		4
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: N. West St. & Park Ave.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Muhamet & Mia
INPUTED BY: agan

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

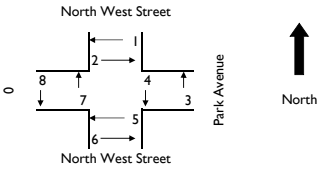
Time	Southbound North West Street					Westbound Park Avenue					Northbound North West Street					Eastbound 0					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM		4	1	5		1		2	3		8	13		21							26	3	29
6:15 AM - 6:30 AM		7		7				5	5		15	28		43							50	5	55
6:30 AM - 6:45 AM		16	2	18		1		7	8		14	41		55							73	8	81
6:45 AM - 7:00 AM		21	1	22		2		5	7		13	64		77							99	7	106
7:00 AM - 7:15 AM		17	2	19		1		18	19		14	90		104							123	19	142
7:15 AM - 7:30 AM		22	1	23				21	21		22	135		157							180	21	201
7:30 AM - 7:45 AM		37	12	49		4		28	32		41	119		160							209	32	241
7:45 AM - 8:00 AM		35	7	42		8		51	59		36	124		160							202	59	261
8:00 AM - 8:15 AM		32	2	34		5		17	22		17	91		108							142	22	164
8:15 AM - 8:30 AM		46	6	52		3		19	22		32	116		148							200	22	222
8:30 AM - 8:45 AM		38	6	44		9		25	34		26	97		123							167	34	201
8:45 AM - 9:00 AM		46	8	54		3		19	22		25	101		126							180	22	202
2:30 PM - 2:45 PM		48	5	53		5		24	29		27	47		74							127	29	156
2:45 PM - 3:00 PM		51	6	57		1		33	34		43	60		103							160	34	194
3:00 PM - 3:15 PM		52	10	62		3		24	27		54	39		93							155	27	182
3:15 PM - 3:30 PM		65	5	70		8		52	60		44	49		93							163	60	223
3:30 PM - 3:45 PM		61	2	63		5		17	22		33	49		82							145	22	167
3:45 PM - 4:00 PM		81	2	83		10		23	33		23	69		92							175	33	208
4:00 PM - 4:15 PM		88	8	96		5		34	39		34	56		90							186	39	225
4:15 PM - 4:30 PM		92	10	102		11		31	42		32	71		103							205	42	247
4:30 PM - 4:45 PM		96	3	99		4		36	40		32	58		90							189	40	229
4:45 PM - 5:00 PM		109	6	115		5		15	20		32	61		93							208	20	228
5:00 PM - 5:15 PM		111	12	123		6		26	32		36	65		101							224	32	256
5:15 PM - 5:30 PM		98	12	110		7		45	52		28	89		117							227	52	279
5:30 PM - 5:45 PM		104	9	113		7		29	36		32	86		118							231	36	267
5:45 PM - 6:00 PM		99	8	107		9		27	36		25	83		108							215	36	251
6:00 PM - 6:15 PM		102	8	110		4		35	39		32	81		113							223	39	262
6:15 PM - 6:30 PM		88	5	93		3		30	33		36	90		126							219	33	252
6:30 PM - 6:45 PM		66	3	69		4		23	27		32	81		113							182	27	209
6:45 PM - 7:00 PM		62	3	65		5		19	24		31	73		104							169	24	193
Total	0	1794	165	1959		139	0	740	879		869	2226	0	3095		0	0	0	0		5054	879	5933
One Hour Volumes																							
6:00 AM - 7:00 AM		48	4	52	0.5909	4		19	23	0.7188	50	146		196	0.6364						248	23	271
6:15 AM - 7:15 AM		61	5	66	0.75	4		35	39	0.5132	56	223		279	0.6707						345	39	384
6:30 AM - 7:30 AM		76	6	82	0.8913	4		51	55	0.6548	63	330		393	0.6258						475	55	530
6:45 AM - 7:45 AM		97	16	113	0.5765	7		72	79	0.6172	90	408		498	0.7781						611	79	690
7:00 AM - 8:00 AM		111	22	133	0.6786	13		118	131	0.5551	113	468		581	0.9078						714	131	845
7:15 AM - 8:15 AM		126	22	148	0.7551	17		117	134	0.5678	116	469		585	0.9141						733	134	867
7:30 AM - 8:30 AM		150	27	177	0.851	20		115	135	0.572	126	450		576	0.9						753	135	888
7:45 AM - 8:45 AM		151	21	172	0.8269	25		112	137	0.5805	111	428		539	0.8422						711	137	848
8:00 AM - 9:00 AM		162	22	184	0.8519	20		80	100	0.7353	100	405		505	0.853						689	100	789
2:30 PM - 3:30 PM		216	26	242	0.8643	17		133	150	0.625	168	195		363	0.8811						605	150	755
2:45 PM - 3:45 PM		229	23	252	0.9	17		126	143	0.5958	174	197		371	0.9005						623	143	766
3:00 PM - 4:00 PM		259	19	278	0.8373	26		116	142	0.5917	154	206		360	0.9677						638	142	780
3:15 PM - 4:15 PM		295	17	312	0.8125	28		126	154	0.6417	134	223		357	0.9597						669	154	823
3:30 PM - 4:30 PM		322	22	344	0.8431	31		105	136	0.8095	122	245		367	0.8908						711	136	847
3:45 PM - 4:45 PM		357	23	380	0.9314	30		124	154	0.9167	121	254		375	0.9102						755	154	909
4:00 PM - 5:00 PM		385	27	412	0.8957	25		116	141	0.8393	130	246		376	0.9126						788	141	929
4:15 PM - 5:15 PM		408	31	439	0.8923	26		108	134	0.7976	132	255		387	0.9393						826	134	960
4:30 PM - 5:30 PM		414	33	447	0.9085	22		122	144	0.6923	128	273		401	0.8568						848	144	992
4:45 PM - 5:45 PM		422	39	461	0.937	25		115	140	0.6731	128	301		429	0.9089						890	140	1030
5:00 PM - 6:00 PM		412	41	453	0.9207	29		127	156	0.75	121	323		444	0.9407						897	156	1053
5:15 PM - 6:15 PM		403	37	440	0.9735	27		136	163	0.7837	117	339		456	0.9661						896	163	1059
5:30 PM - 6:30 PM		393	30	423	0.9358	23		121	144	0.9231	125	340		465	0.9226						888	144	1032
5:45 PM - 6:45 PM		355	24	379	0.8614	20		115	135	0.8654	125	335		460	0.9127						839	135	974
6:00 PM - 7:00 PM		318	19	337	0.7659	16		107	123	0.7885	131	325		456	0.9048						793	123	916
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. West St. & Park Ave.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Muhamet
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM			1										
6:15 AM - 6:30 AM				2									
6:30 AM - 6:45 AM			2	1									
6:45 AM - 7:00 AM				1									
7:00 AM - 7:15 AM			6	5									
7:15 AM - 7:30 AM													
7:30 AM - 7:45 AM													
7:45 AM - 8:00 AM													
8:00 AM - 8:15 AM			2										
8:15 AM - 8:30 AM													
8:30 AM - 8:45 AM													
8:45 AM - 9:00 AM			2										
2:30 PM - 2:45 PM													
2:45 PM - 3:00 PM			1	2									
3:00 PM - 3:15 PM			1										
3:15 PM - 3:30 PM													
3:30 PM - 3:45 PM			3										
3:45 PM - 4:00 PM													
4:00 PM - 4:15 PM													
4:15 PM - 4:30 PM													
4:30 PM - 4:45 PM													
4:45 PM - 5:00 PM													
5:00 PM - 5:15 PM													
5:15 PM - 5:30 PM													
5:30 PM - 5:45 PM													
5:45 PM - 6:00 PM			3										
6:00 PM - 6:15 PM													
6:15 PM - 6:30 PM													
6:30 PM - 6:45 PM													
6:45 PM - 7:00 PM													
Total	0	0	21	11	0	0	0	0					
One Hour Volumes													
6:00 AM - 7:00 AM			3	4						7			7
6:15 AM - 7:15 AM			8	9						17			17
6:30 AM - 7:30 AM			8	7						15			15
6:45 AM - 7:45 AM			6	6						12			12
7:00 AM - 8:00 AM			6	5						11			11
7:15 AM - 8:15 AM			2							2			2
7:30 AM - 8:30 AM			2							2			2
7:45 AM - 8:45 AM			2							2			2
8:00 AM - 9:00 AM			4							4			4
2:30 PM - 3:30 PM			2	2						4			4
2:45 PM - 3:45 PM			5	2						7			7
3:00 PM - 4:00 PM			4							4			4
3:15 PM - 4:15 PM			3							3			3
3:30 PM - 4:30 PM			3							3			3
3:45 PM - 4:45 PM													
4:00 PM - 5:00 PM													
4:15 PM - 5:15 PM													
4:30 PM - 5:30 PM													
4:45 PM - 5:45 PM													
5:00 PM - 6:00 PM			3							3			3
5:15 PM - 6:15 PM			3							3			3
5:30 PM - 6:30 PM			3							3			3
5:45 PM - 6:45 PM			3							3			3
6:00 PM - 7:00 PM													
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: W. Broad St. & N. Spring St.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Alba & Jacelin
INPUTED BY: agan

SOUTHBOUND ROAD: North Spring Street
NORTHBOUND ROAD: North Spring Street
WESTBOUND ROAD: West Broad Street - 7
EASTBOUND ROAD: West Broad Street - 7

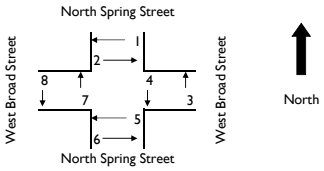
Time	Southbound North Spring Street					Westbound West Broad Street - 7					Northbound North Spring Street					Eastbound West Broad Street - 7					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM						1	39		40		1			1		1	64		65		1	105	106
6:15 AM - 6:30 AM						6	68		74		4	4		8		2	96	4	102		8	176	184
6:30 AM - 6:45 AM						5	121	1	127		2	3	1	6			187	3	190		6	317	323
6:45 AM - 7:00 AM						1	113		114		1	1	1	3			133		133		3	247	250
7:00 AM - 7:15 AM						2	138	2	142		3	4	6	13		1	164		165		13	307	320
7:15 AM - 7:30 AM						1	159	2	162		7	8	1	16		6	224	5	235		16	397	413
7:30 AM - 7:45 AM						9	193	3	205		7	33	7	47		2	207	9	218		47	423	470
7:45 AM - 8:00 AM						16	250	9	275		5	17	4	26		1	227	12	240		26	515	541
8:00 AM - 8:15 AM						7	217	1	225		3	5		8		4	212	8	224		8	449	457
8:15 AM - 8:30 AM						7	185	1	193		4	13	4	21		4	247	6	257		21	450	471
8:30 AM - 8:45 AM						4	205	4	213		5	15	4	24		1	212	4	217		24	430	454
8:45 AM - 9:00 AM						6	196	4	206		8	3	7	18		1	220	4	225		18	431	449
2:30 PM - 2:45 PM						13	237	7	257		2	2	3	7		4	156	30	190		7	447	454
2:45 PM - 3:00 PM						9	235	4	248		2	2	3	7		2	221	6	229		7	477	484
3:00 PM - 3:15 PM						9	178	2	189		3	5	1	9		1	184	6	191		9	380	389
3:15 PM - 3:30 PM						8	215	11	234		5	3	5	13			230	4	234		13	468	481
3:30 PM - 3:45 PM						8	248	5	261		11	1	2	14		4	218	5	227		14	488	502
3:45 PM - 4:00 PM						8	193	6	207		8	2		10		4	270	7	281		10	488	498
4:00 PM - 4:15 PM						9	248	10	267		5	2	1	8		6	275	6	287		8	554	562
4:15 PM - 4:30 PM						5	210	4	219		5	5	3	13		1	257	4	262		13	481	494
4:30 PM - 4:45 PM						14	256	10	280		7			7		5	259	7	271		7	551	558
4:45 PM - 5:00 PM						6	196	13	215		4	1	3	8		2	265	2	269		8	484	492
5:00 PM - 5:15 PM						9	202	5	216		9	3	3	15		8	273	8	289		15	505	520
5:15 PM - 5:30 PM						7	230	8	245		3	4	1	8		5	249	6	260		8	505	513
5:30 PM - 5:45 PM						5	262	8	275		3		1	4		4	294	5	303		4	578	582
5:45 PM - 6:00 PM						9	217	12	238		6	2	5	13		5	299	7	311		13	549	562
6:00 PM - 6:15 PM						6	250	9	265		7	2	4	13		4	275	5	284		13	549	562
6:15 PM - 6:30 PM						4	208	10	222		4	1	2	7		6	262	2	270		7	492	499
6:30 PM - 6:45 PM						5	190	6	201		9	2	1	12		6	285	7	298		12	499	511
6:45 PM - 7:00 PM						13	228	8	249		5	5	1	11		4	304	6	314		11	563	574
Total	0	0	0	0		212	5887	165	6264		148	148	74	370		94	6769	178	7041		370	13305	13675
One Hour Volumes																							
6:00 AM - 7:00 AM						13	341	1	355	0.6988	8	8	2	18	0.5625	3	480	7	490	0.6447	18	845	863
6:15 AM - 7:15 AM						14	440	3	457	0.8046	10	12	8	30	0.5769	3	580	7	590	0.7763	30	1047	1077
6:30 AM - 7:30 AM						9	531	5	545	0.841	13	16	9	38	0.5938	7	708	8	723	0.7691	38	1268	1306
6:45 AM - 7:45 AM						13	603	7	623	0.7598	18	46	15	79	0.4202	9	728	14	751	0.7989	79	1374	1453
7:00 AM - 8:00 AM						28	740	16	784	0.7127	22	62	18	102	0.5426	10	822	26	858	0.8938	102	1642	1744
7:15 AM - 8:15 AM						33	819	15	867	0.7882	22	63	12	97	0.516	13	870	34	917	0.9552	97	1784	1881
7:30 AM - 8:30 AM						39	845	14	898	0.8164	19	68	15	102	0.5426	11	893	35	939	0.9134	102	1837	1939
7:45 AM - 8:45 AM						34	857	15	906	0.8236	17	50	12	79	0.7596	10	898	30	938	0.9125	79	1844	1923
8:00 AM - 9:00 AM						24	803	10	837	0.93	20	36	15	71	0.7396	10	891	22	923	0.8979	71	1760	1831
2:30 PM - 3:30 PM						39	865	24	928	0.9027	12	12	12	36	0.6923	7	791	46	844	0.9017	36	1772	1808
2:45 PM - 3:45 PM						34	876	22	932	0.8927	21	11	11	43	0.7679	7	853	21	881	0.9412	43	1813	1856
3:00 PM - 4:00 PM						33	834	24	891	0.8534	27	11	8	46	0.8214	9	902	22	933	0.8301	46	1824	1870
3:15 PM - 4:15 PM						33	904	32	969	0.9073	29	8	8	45	0.8036	14	993	22	1029	0.8963	45	1998	2043
3:30 PM - 4:30 PM						30	899	25	954	0.8933	29	10	6	45	0.8036	15	1020	22	1057	0.9207	45	2011	2056
3:45 PM - 4:45 PM						36	907	30	973	0.8688	25	9	4	38	0.7308	16	1061	24	1101	0.9591	38	2074	2112
4:00 PM - 5:00 PM						34	910	37	981	0.8759	21	8	7	36	0.6923	14	1056	19	1089	0.9486	36	2070	2106
4:15 PM - 5:15 PM						34	864	32	930	0.8304	25	9	9	43	0.7167	16	1054	21	1091	0.9438	43	2021	2064
4:30 PM - 5:30 PM						36	884	36	956	0.8536	23	8	7	38	0.6333	20	1046	23	1089	0.942	38	2045	2083
4:45 PM - 5:45 PM						27	890	34	951	0.8645	19	8	8	35	0.5833	19	1081	21	1121	0.9249	35	2072	2107
5:00 PM - 6:00 PM						30	911	33	974	0.8855	21	9	10	40	0.6667	22	1115	26	1163	0.9349	40	2137	2177
5:15 PM - 6:15 PM						27	959	37	1023	0.93	19	8	11	38	0.7308	18	1117	23	1158	0.9309	38	2181	2219
5:30 PM - 6:30 PM						24	937	39	1000	0.9091	20	5	12	37	0.7115	19	1130	19	1168	0.9389	37	2168	2205
5:45 PM - 6:45 PM						24	865	37	926	0.8736	26	7	12	45	0.8654	21	1121	21	1163	0.9349	45	2089	2134
6:00 PM - 7:00 PM						28	876	33	937	0.884	25	10	8	43	0.8269	20	1126	20	1166	0.9283	43	2103	2146
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: W. Broad St. & N. Spring St.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Jacelin
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM							1						
6:15 AM - 6:30 AM			1				1	2					
6:30 AM - 6:45 AM	2				2		1						
6:45 AM - 7:00 AM	3		3		1	1	1	1					
7:00 AM - 7:15 AM					1	1	1	1					
7:15 AM - 7:30 AM	2		2		1		1						
7:30 AM - 7:45 AM	7	2		1	2	4	4	3					
7:45 AM - 8:00 AM			6			2	3	3					
8:00 AM - 8:15 AM													
8:15 AM - 8:30 AM		1	1	1	3	2		2					
8:30 AM - 8:45 AM							1	1					
8:45 AM - 9:00 AM			2			1		1					
2:30 PM - 2:45 PM					1								
2:45 PM - 3:00 PM				2									
3:00 PM - 3:15 PM	2		2			4							
3:15 PM - 3:30 PM		2	2	2		4		6					
3:30 PM - 3:45 PM	4	3	2	3	1	6		6					
3:45 PM - 4:00 PM				4				2					
4:00 PM - 4:15 PM	1	1		2	1		1	1					
4:15 PM - 4:30 PM					3	3							
4:30 PM - 4:45 PM	1			1			1						
4:45 PM - 5:00 PM													
5:00 PM - 5:15 PM					1	2							
5:15 PM - 5:30 PM	1		1		1		1						
5:30 PM - 5:45 PM					1	1							
5:45 PM - 6:00 PM			1	1				1					
6:00 PM - 6:15 PM				1			1						
6:15 PM - 6:30 PM				1		1							
6:30 PM - 6:45 PM				1		3							
6:45 PM - 7:00 PM	1					1		1					
Total	24	9	23	20	19	36	18	31					
One Hour Volumes													
6:00 AM - 7:00 AM	5		4		3	1	4	3	5	4	4	7	20
6:15 AM - 7:15 AM	5		4		4	2	4	4	5	4	6	8	23
6:30 AM - 7:30 AM	7		5		5	2	4	2	7	5	7	6	25
6:45 AM - 7:45 AM	12	2	5	1	5	6	7	5	14	6	11	12	43
7:00 AM - 8:00 AM	9	2	8	1	4	7	9	7	11	9	11	16	47
7:15 AM - 8:15 AM	9	2	8	1	3	6	8	6	11	9	9	14	43
7:30 AM - 8:30 AM	7	3	7	2	5	8	7	8	10	9	13	15	47
7:45 AM - 8:45 AM		1	7	1	3	4	4	6	1	8	7	10	26
8:00 AM - 9:00 AM		1	3	1	3	3	1	4	1	4	6	5	16
2:30 PM - 3:30 PM	2	2	4	4	1	8		6	4	8	9	6	27
2:45 PM - 3:45 PM	6	5	6	7	1	14		12	11	13	15	12	51
3:00 PM - 4:00 PM	6	5	6	9	1	14		14	11	15	15	14	55
3:15 PM - 4:15 PM	5	6	4	11	2	10	1	15	11	15	12	16	54
3:30 PM - 4:30 PM	5	4	2	9	5	9	1	9	9	11	14	10	44
3:45 PM - 4:45 PM	2	1		7	4	3	2	3	3	7	7	5	22
4:00 PM - 5:00 PM	2	1		3	4	3	2	1	3	3	7	3	16
4:15 PM - 5:15 PM	1			1	4	5	1		1	1	9	1	12
4:30 PM - 5:30 PM	2		1	1	2	2	2		2	2	4	2	10
4:45 PM - 5:45 PM	1		1		3	3	1		1	1	6	1	9
5:00 PM - 6:00 PM	1		2	1	3	3	1	1	1	3	6	2	12
5:15 PM - 6:15 PM	1		2	2	2	1	2	1	1	4	3	3	11
5:30 PM - 6:30 PM			1	3	1	2	1	1		4	3	2	9
5:45 PM - 6:45 PM			1	4		4	1	1		5	4	2	11
6:00 PM - 7:00 PM	1			3		5	1	1	1	3	5	2	11
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: N. Spring St. & Park Ave.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Edvin
INPUTED BY: agan

SOUTHBOUND ROAD: North Spring Street
NORTHBOUND ROAD: North Spring Street
WESTBOUND ROAD: Park Avenue
EASTBOUND ROAD: Park Avenue

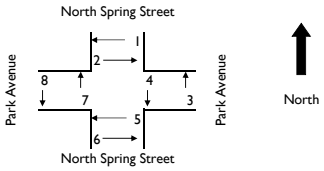
Time	Southbound North Spring Street					Westbound Park Avenue					Northbound North Spring Street					Eastbound Park Avenue					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM							5		5			2		2			5		5		2	10	12
6:15 AM - 6:30 AM	1			1			2		2		4	1	1	6			8	3	11		7	13	20
6:30 AM - 6:45 AM							3		3		1	3	3	7			16		16		7	19	26
6:45 AM - 7:00 AM	2		1	3		1	4		5		2	1		3			11	3	14		6	19	25
7:00 AM - 7:15 AM			1	1			15		15		4	5	2	11			17	2	19		12	34	46
7:15 AM - 7:30 AM	1		1	2		1	13		14		5	12	3	20			21	3	24		22	38	60
7:30 AM - 7:45 AM	2		13	15		6	33		39		44	6	3	53			50	1	51		68	90	158
7:45 AM - 8:00 AM	4		5	9		5	40		45		41	15	9	65			34	3	37		74	82	156
8:00 AM - 8:15 AM	6			6		2	14		16		4	10	4	18			13	6	19		24	35	59
8:15 AM - 8:30 AM	6		2	8		3	15		18		7	12	3	22			31	4	35		30	53	83
8:30 AM - 8:45 AM	8		1	9		2	21		23		6	7	5	18			28	2	30		27	53	80
8:45 AM - 9:00 AM	3		5	8		4	14		18		2	7	4	13			30	4	34		21	52	73
2:30 PM - 2:45 PM	2		1	3			26		26		11	4	3	18			31	1	32		21	58	79
2:45 PM - 3:00 PM	1			1		1	33		34		10	3	2	15			54	2	56		16	90	106
3:00 PM - 3:15 PM			1	1		2	22		24		18	5	1	24			53	1	54		25	78	103
3:15 PM - 3:30 PM	5		2	7		15	56		71		11	3		14			38	7	45		21	116	137
3:30 PM - 3:45 PM	3		1	4			23		23		9	2		11			33	1	34		15	57	72
3:45 PM - 4:00 PM							33		33		12	3	2	17			25	2	27		17	60	77
4:00 PM - 4:15 PM	2		3	5		3	30		33		9	2	1	12			38	1	39		17	72	89
4:15 PM - 4:30 PM	5		3	8		1	37		38		7	3		10			41	1	42		18	80	98
4:30 PM - 4:45 PM	1		5	6		8	16		24		6	21	3	30			15	3	18		36	42	78
4:45 PM - 5:00 PM	3		2	5		3	19		22		6	3		9			32	2	34		14	56	70
5:00 PM - 5:15 PM	4		5	9			28		28		6	7	3	16			46	7	53		25	81	106
5:15 PM - 5:30 PM	7		4	11		2	40		42		3	5	2	10			37	4	41		21	83	104
5:30 PM - 5:45 PM	4		7	11		3	20		23		1	3	3	7			27	4	31		18	54	72
5:45 PM - 6:00 PM	3		4	7		1	28		29		4	3	5	12			25	3	28		19	57	76
6:00 PM - 6:15 PM	2		4	6		3	33		36		2	3	8	13			36	2	38		19	74	93
6:15 PM - 6:30 PM	1			1			26		26		1	1	3	5			36	1	37		6	63	69
6:30 PM - 6:45 PM	2		1	3		6	12		18		4	2	4	10			30		30		13	48	61
6:45 PM - 7:00 PM	1		4	5		1	29		30		12	3	1	16			31	2	33		21	63	84
Total	79	0	76	155		73	690	0	763		252	157	78	487		0	892	75	967		642	1730	2372
One Hour Volumes																							
6:00 AM - 7:00 AM	3		1	4	0.3333	1	14		15	0.75	7	7	4	18	0.6429		40	6	46	0.7188	22	61	83
6:15 AM - 7:15 AM	3		2	5	0.4167	1	24		25	0.4167	11	10	6	27	0.6136		52	8	60	0.7895	32	85	117
6:30 AM - 7:30 AM	3		3	6	0.5	2	35		37	0.6167	12	21	8	41	0.5125		65	8	73	0.7604	47	110	157
6:45 AM - 7:45 AM	5		16	21	0.35	8	65		73	0.4679	55	24	8	87	0.4104		99	9	108	0.5294	108	181	289
7:00 AM - 8:00 AM	7		20	27	0.45	12	101		113	0.6278	94	38	17	149	0.5731		122	9	131	0.6422	176	244	420
7:15 AM - 8:15 AM	13		19	32	0.5333	14	100		114	0.6333	94	43	19	156	0.6		118	13	131	0.6422	188	245	433
7:30 AM - 8:30 AM	18		20	38	0.6333	16	102		118	0.6556	96	43	19	158	0.6077		128	14	142	0.6961	196	260	456
7:45 AM - 8:45 AM	24		8	32	0.8889	12	90		102	0.5667	58	44	21	123	0.4731		106	15	121	0.8176	155	223	378
8:00 AM - 9:00 AM	23		8	31	0.8611	11	64		75	0.8152	19	36	16	71	0.8068		102	16	118	0.8429	102	193	295
2:30 PM - 3:30 PM	8		4	12	0.4286	18	137		155	0.5458	50	15	6	71	0.7396		176	11	187	0.8348	83	342	425
2:45 PM - 3:45 PM	9		4	13	0.4643	18	134		152	0.5352	48	13	3	64	0.6667		178	11	189	0.8438	77	341	418
3:00 PM - 4:00 PM	8		4	12	0.4286	17	134		151	0.5317	50	13	3	66	0.6875		149	11	160	0.7407	78	311	389
3:15 PM - 4:15 PM	10		6	16	0.5714	18	142		160	0.5634	41	10	3	54	0.7941		134	11	145	0.8056	70	305	375
3:30 PM - 4:30 PM	10		7	17	0.5313	4	123		127	0.8355	37	10	3	50	0.7353		137	5	142	0.8452	67	269	336
3:45 PM - 4:45 PM	8		11	19	0.5938	12	116		128	0.8421	34	29	6	69	0.575		119	7	126	0.75	88	254	342
4:00 PM - 5:00 PM	11		13	24	0.75	15	102		117	0.7697	28	29	4	61	0.5083		126	7	133	0.7917	85	250	335
4:15 PM - 5:15 PM	13		15	28	0.7778	12	100		112	0.7368	25	34	6	65	0.5417		134	13	147	0.6934	93	259	352
4:30 PM - 5:30 PM	15		16	31	0.7045	13	103		116	0.6905	21	36	8	65	0.5417		130	16	146	0.6887	96	262	358
4:45 PM - 5:45 PM	18		18	36	0.8182	8	107		115	0.6845	16	18	8	42	0.6563		142	17	159	0.75	78	274	352
5:00 PM - 6:00 PM	18		20	38	0.8636	6	116		122	0.7262	14	18	13	45	0.7031		135	18	153	0.7217	83	275	358
5:15 PM - 6:15 PM	16		19	35	0.7955	9	121		130	0.7738	10	14	18	42	0.8077		125	13	138	0.8415	77	268	345
5:30 PM - 6:30 PM	10		15	25	0.5682	7	107		114	0.7917	8	10	19	37	0.7115		124	10	134	0.8816	62	248	310
5:45 PM - 6:45 PM	8		9	17	0.6071	10	99		109	0.7569	11	9	20	40	0.7692		127	6	133	0.875	57	242	299
6:00 PM - 7:00 PM	6		9	15	0.625	10	100		110	0.7639	19	9	16	44	0.6875		133	5	138	0.9079	59	248	307
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. Spring St. & Park Ave.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Edvin
INPUTED BY: agan



Time Period		Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes														
6:00 AM	- 6:15 AM					1								
6:15 AM	- 6:30 AM	1		2				1	5					
6:30 AM	- 6:45 AM	1	2			1	3	1						
6:45 AM	- 7:00 AM	1	1	1		3	1	3	2					
7:00 AM	- 7:15 AM					8	4	2	1					
7:15 AM	- 7:30 AM			1	2	1		1						
7:30 AM	- 7:45 AM					1								
7:45 AM	- 8:00 AM	2	2			1	5	2	6					
8:00 AM	- 8:15 AM	1		1		2	1	1	2					
8:15 AM	- 8:30 AM	2		3	1	7		4	1					
8:30 AM	- 8:45 AM						3		3					
8:45 AM	- 9:00 AM		2	2		2	2	1	2					
2:30 PM	- 2:45 PM	1	1		1			1						
2:45 PM	- 3:00 PM		1			1								
3:00 PM	- 3:15 PM	5	2					1	5					
3:15 PM	- 3:30 PM	3	10	2	3	2		18	3					
3:30 PM	- 3:45 PM		2	1			1	1	4					
3:45 PM	- 4:00 PM		5					3	1					
4:00 PM	- 4:15 PM	2	2						4					
4:15 PM	- 4:30 PM		1				1	1	1					
4:30 PM	- 4:45 PM													
4:45 PM	- 5:00 PM	1												
5:00 PM	- 5:15 PM		2											
5:15 PM	- 5:30 PM													
5:30 PM	- 5:45 PM	1												
5:45 PM	- 6:00 PM					1	1		2					
6:00 PM	- 6:15 PM													
6:15 PM	- 6:30 PM		1				1							
6:30 PM	- 6:45 PM								1					
6:45 PM	- 7:00 PM	1												
Total		22	34	13	7	31	23	41	43					
One Hour Volumes														
6:00 AM	- 7:00 AM	3	3	3		5	4	5	7	6	3	9	12	30
6:15 AM	- 7:15 AM	3	3	3		12	8	7	8	6	3	20	15	44
6:30 AM	- 7:30 AM	2	3	2	2	13	8	7	3	5	4	21	10	40
6:45 AM	- 7:45 AM	1	1	2	2	13	5	6	3	2	4	18	9	33
7:00 AM	- 8:00 AM	2	2	1	2	11	9	5	7	4	3	20	12	39
7:15 AM	- 8:15 AM	3	2	2	2	5	6	4	8	5	4	11	12	32
7:30 AM	- 8:30 AM	5	2	4	1	11	6	7	9	7	5	17	16	45
7:45 AM	- 8:45 AM	5	2	4	1	10	9	7	12	7	5	19	19	50
8:00 AM	- 9:00 AM	3	2	6	1	11	6	6	8	5	7	17	14	43
2:30 PM	- 3:30 PM	9	14	2	4	3		20	8	23	6	3	28	60
2:45 PM	- 3:45 PM	8	15	3	3	3	1	20	12	23	6	4	32	65
3:00 PM	- 4:00 PM	8	19	3	3	2	1	23	13	27	6	3	36	72
3:15 PM	- 4:15 PM	5	19	3	3	2	1	22	12	24	6	3	34	67
3:30 PM	- 4:30 PM	2	10	1			2	5	10	12	1	2	15	30
3:45 PM	- 4:45 PM	2	8				1	4	6	10		1	10	21
4:00 PM	- 5:00 PM	3	3				1	1	5	6		1	6	13
4:15 PM	- 5:15 PM	1	3				1	1	1	4		1	2	7
4:30 PM	- 5:30 PM	1	2							3				3
4:45 PM	- 5:45 PM	2	2							4				4
5:00 PM	- 6:00 PM	1	2			1	1		2	3		2	2	7
5:15 PM	- 6:15 PM	1				1	1		2	1		2	2	5
5:30 PM	- 6:30 PM	1	1			1	2		2	2		3	2	7
5:45 PM	- 6:45 PM		1			1	2		3	1		3	3	7
6:00 PM	- 7:00 PM	1	1				1		1	2		1	1	4
	-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: N. West St. & Lincoln Ave.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Camil & Dragan
INPUTED BY: agan

SOUTHBOUND ROAD: North West Street
NORTHBOUND ROAD: North West Street
WESTBOUND ROAD: Lincoln Avenue
EASTBOUND ROAD: Lincoln Avenue

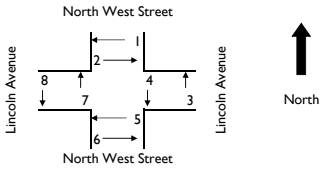
Time	Southbound North West Street					Westbound Lincoln Avenue					Northbound North West Street					Eastbound Lincoln Avenue					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM		5		5		1		2	3		4	11	1	16							21	3	24
6:15 AM - 6:30 AM		4		4				3	3		17	11		28							32	3	35
6:30 AM - 6:45 AM		13	1	14				3	3		12	29	1	42		1			1		56	4	60
6:45 AM - 7:00 AM		14		14				5	5		19	45		64			1		1		78	6	84
7:00 AM - 7:15 AM	1	13	2	16				6	6		33	58	3	94		2	1		3		110	9	119
7:15 AM - 7:30 AM		20	3	23			1	5	6		56	82	2	140			1		1		163	7	170
7:30 AM - 7:45 AM		37	1	38		2		12	14		51	71		122		2			2		160	16	176
7:45 AM - 8:00 AM		32	4	36		1	3	13	17		49	75		124		1	1		2		160	19	179
8:00 AM - 8:15 AM		28	5	33		4	1	10	15		47	63		110		1	2		3		143	18	161
8:15 AM - 8:30 AM	1	37	1	39				9	9		47	68	1	116		3	2		5		155	14	169
8:30 AM - 8:45 AM		41	2	43				8	8		39	64	1	104		1	1		2		147	10	157
8:45 AM - 9:00 AM		38	2	40		3	1	17	21		47	60	2	109		1	1		2		149	23	172
2:30 PM - 2:45 PM		36	1	37			1	18	19		16	43	1	60							97	19	116
2:45 PM - 3:00 PM		47		47		3	1	14	18		12	47	1	60							107	18	125
3:00 PM - 3:15 PM		44	3	47			2	21	23		9	31	1	41		2	1		3		88	26	114
3:15 PM - 3:30 PM		45		45		4		25	29		15	34	5	54							99	29	128
3:30 PM - 3:45 PM	1	45		46		1		19	20		18	35	3	56		2	2		4		102	24	126
3:45 PM - 4:00 PM	3	59		62			4	24	28		27	48	1	76		1		1	2		138	30	168
4:00 PM - 4:15 PM	2	67	1	70			3	34	37		21	46		67		2			2		137	39	176
4:15 PM - 4:30 PM		75	4	79		2	2	32	36		24	62		86		1	1		2		165	38	203
4:30 PM - 4:45 PM	1	69	4	74		1	1	28	30		13	47	1	61		2			2		135	32	167
4:45 PM - 5:00 PM		81	2	83		1	1	36	38		23	44	2	69		1	4		5		152	43	195
5:00 PM - 5:15 PM	1	75	3	79		1	5	39	45		22	42	3	67		5	2		7		146	52	198
5:15 PM - 5:30 PM		78	3	81			2	31	33		36	61	1	98		2	2		4		179	37	216
5:30 PM - 5:45 PM		77	8	85		4	2	37	43		31	64	1	96		1	3		4		181	47	228
5:45 PM - 6:00 PM		79	5	84		1	2	36	39		30	62	3	95		1	6		7		179	46	225
6:00 PM - 6:15 PM		77		77		2		38	40		34	37	5	76			1		1		153	41	194
6:15 PM - 6:30 PM		63	1	64		1	1	31	33		41	51	2	94		1	2		3		158	36	194
6:30 PM - 6:45 PM	1	47	3	51		1	3	26	30		37	54	1	92		1	3		4		143	34	177
6:45 PM - 7:00 PM		42	3	45		2	3	26	31		29	50	3	82		1	2		3		127	34	161
Total	11	1388	62	1461		35	39	608	682		859	1495	45	2399		35	39	1	75		3860	757	4617
One Hour Volumes																							
6:00 AM - 7:00 AM		36	1	37	0.6607	1		13	14	0.7	52	96	2	150	0.5859	1	1		2	0.5	187	16	203
6:15 AM - 7:15 AM	1	44	3	48	0.75			17	17	0.7083	81	143	4	228	0.6064	3	2		5	0.4167	276	22	298
6:30 AM - 7:30 AM	1	60	6	67	0.7283		1	19	20	0.8333	120	214	6	340	0.6071	3	3		6	0.5	407	26	433
6:45 AM - 7:45 AM	1	84	6	91	0.5987	2	1	28	31	0.5536	159	256	5	420	0.75	4	3		7	0.5833	511	38	549
7:00 AM - 8:00 AM	1	102	10	113	0.7434	3	4	36	43	0.6324	189	286	5	480	0.8571	5	3		8	0.6667	593	51	644
7:15 AM - 8:15 AM		117	13	130	0.8553	7	5	40	52	0.7647	203	291	2	496	0.8857	4	4		8	0.6667	626	60	686
7:30 AM - 8:30 AM	1	134	11	146	0.9359	7	4	44	55	0.8088	194	277	1	472	0.9516	7	5		12	0.6	618	67	685
7:45 AM - 8:45 AM	1	138	12	151	0.8779	5	4	40	49	0.7206	182	270	2	454	0.9153	6	6		12	0.6	605	61	666
8:00 AM - 9:00 AM	1	144	10	155	0.9012	7	2	44	53	0.631	180	255	4	439	0.9461	6	6		12	0.6	594	65	659
2:30 PM - 3:30 PM		172	4	176	0.9362	7	4	78	89	0.7672	52	155	8	215	0.8958	2	1		3	0.25	391	92	483
2:45 PM - 3:45 PM	1	181	3	185	0.984	8	3	79	90	0.7759	54	147	10	211	0.8792	4	3		7	0.4375	396	97	493
3:00 PM - 4:00 PM	4	193	3	200	0.8065	5	6	89	100	0.8621	69	148	10	227	0.7467	5	3	1	9	0.5625	427	109	536
3:15 PM - 4:15 PM	6	216	1	223	0.7964	5	7	102	114	0.7703	81	163	9	253	0.8322	5	2	1	8	0.5	476	122	598
3:30 PM - 4:30 PM	6	246	5	257	0.8133	3	9	109	121	0.8176	90	191	4	285	0.8285	6	3	1	10	0.625	542	131	673
3:45 PM - 4:45 PM	6	270	9	285	0.9019	3	10	118	131	0.8851	85	203	2	290	0.843	6	1	1	8	1	575	139	714
4:00 PM - 5:00 PM	3	292	11	306	0.9217	4	7	130	141	0.9276	81	199	3	283	0.8227	6	5		11	0.55	589	152	741
4:15 PM - 5:15 PM	2	300	13	315	0.9488	5	9	135	149	0.8278	82	195	6	283	0.8227	9	7		16	0.5714	598	165	763
4:30 PM - 5:30 PM	2	303	12	317	0.9548	3	9	134	146	0.8111	94	194	7	295	0.7526	10	8		18	0.6429	612	164	776
4:45 PM - 5:45 PM	1	311	16	328	0.9647	6	10	143	159	0.8833	112	211	7	330	0.8418	9	11		20	0.7143	658	179	837
5:00 PM - 6:00 PM	1	309	19	329	0.9676	6	11	143	160	0.8889	119	229	8	356	0.9082	9	13		22	0.7857	685	182	867
5:15 PM - 6:15 PM		311	16	327	0.9618	7	6	142	155	0.9012	131	224	10	365	0.9311	4	12		16	0.5714	692	171	863
5:30 PM - 6:30 PM		296	14	310	0.9118	8	5	142	155	0.9012	136	214	11	361	0.9401	3	12		15	0.5357	671	170	841
5:45 PM - 6:45 PM	1	266	9	276	0.8214	5	6	131	142	0.8875	142	204	11	357	0.9395	3	12		15	0.5357	633	157	790
6:00 PM - 7:00 PM	1	229	7	237	0.7695	6	7	121	134	0.8375	141	192	11	344	0.9149	3	8		11	0.6875	581	145	726
-																							

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. West St. & Lincoln Ave.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Camil
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM													
6:15 AM - 6:30 AM				1									
6:30 AM - 6:45 AM				3			1						
6:45 AM - 7:00 AM			2			2							
7:00 AM - 7:15 AM			3		1								
7:15 AM - 7:30 AM			1	2		2		3					
7:30 AM - 7:45 AM			3	3		2		3					
7:45 AM - 8:00 AM				4									
8:00 AM - 8:15 AM			1	6	1			6					
8:15 AM - 8:30 AM			2	2		1		3					
8:30 AM - 8:45 AM			3	1				1					
8:45 AM - 9:00 AM			1		2			1					
2:30 PM - 2:45 PM			3										
2:45 PM - 3:00 PM					2		1						
3:00 PM - 3:15 PM			1					1					
3:15 PM - 3:30 PM			1		1			1					
3:30 PM - 3:45 PM			1		2								
3:45 PM - 4:00 PM				1				1					
4:00 PM - 4:15 PM			1										
4:15 PM - 4:30 PM			2										
4:30 PM - 4:45 PM													
4:45 PM - 5:00 PM			1										
5:00 PM - 5:15 PM			1										
5:15 PM - 5:30 PM													
5:30 PM - 5:45 PM			2	1		1							
5:45 PM - 6:00 PM			2		5	2							
6:00 PM - 6:15 PM			1			1							
6:15 PM - 6:30 PM			1			1							
6:30 PM - 6:45 PM													
6:45 PM - 7:00 PM					1	1							
Total	0	0	36	24	15	13	2	20					
One Hour Volumes													
6:00 AM - 7:00 AM			2	4		2	1			6	2	1	9
6:15 AM - 7:15 AM			5	4	1	2	1			9	3	1	13
6:30 AM - 7:30 AM			6	5	1	4	1	3		11	5	4	20
6:45 AM - 7:45 AM			9	5	1	6		6		14	7	6	27
7:00 AM - 8:00 AM			7	9	1	4		6		16	5	6	27
7:15 AM - 8:15 AM			5	15	1	4		12		20	5	12	37
7:30 AM - 8:30 AM			6	15	1	3		12		21	4	12	37
7:45 AM - 8:45 AM			6	13	1	1		10		19	2	10	31
8:00 AM - 9:00 AM			7	9	3	1		11		16	4	11	31
2:30 PM - 3:30 PM			5		3		1	2		5	3	3	11
2:45 PM - 3:45 PM			3		5		1	2		3	5	3	11
3:00 PM - 4:00 PM			3	1	3			3		4	3	3	10
3:15 PM - 4:15 PM			3	1	3			2		4	3	2	9
3:30 PM - 4:30 PM			4	1	2			1		5	2	1	8
3:45 PM - 4:45 PM			3	1				1		4		1	5
4:00 PM - 5:00 PM			4							4			4
4:15 PM - 5:15 PM			4							4			4
4:30 PM - 5:30 PM			2							2			2
4:45 PM - 5:45 PM			4	1		1				5	1		6
5:00 PM - 6:00 PM			5	1	5	3				6	8		14
5:15 PM - 6:15 PM			5	1	5	4				6	9		15
5:30 PM - 6:30 PM			6	1	5	5				7	10		17
5:45 PM - 6:45 PM			4		5	4				4	9		13
6:00 PM - 7:00 PM			2		1	3				2	4		6
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	Grove Avenue
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	Grove Avenue
INTERSECTION:	Grove Ave. & W & OD Trail	**WEATHER:**	clear	**WESTBOUND ROAD:**	W & OD Trail
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Tyler	**EASTBOUND ROAD:**	W & OD Trail
		INPUTED BY:	agan		

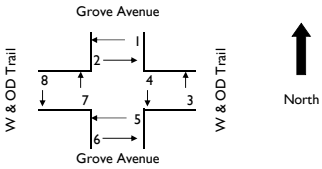
Time Period	Southbound Grove Avenue				Westbound W & OD Trail				Northbound Grove Avenue				Eastbound W & OD Trail				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:00 AM - 6:15 AM						3		3						6		6		9	9
6:15 AM - 6:30 AM						2		2						6		6		8	8
6:30 AM - 6:45 AM						1		1						11		11		12	12
6:45 AM - 7:00 AM						3		3						20		20		23	23
7:00 AM - 7:15 AM						13		13						11		11		24	24
7:15 AM - 7:30 AM						11		11						9		9		20	20
7:30 AM - 7:45 AM						16		16						18		18		34	34
7:45 AM - 8:00 AM						15		15						11		11		26	26
8:00 AM - 8:15 AM						6		6						12		12		18	18
8:15 AM - 8:30 AM						10		10						11		11		21	21
8:30 AM - 8:45 AM						7		7						9		9		16	16
8:45 AM - 9:00 AM						6		6						10		10		16	16
2:30 PM - 2:45 PM						2		2						1		1		3	3
2:45 PM - 3:00 PM						1		1						0				1	1
3:00 PM - 3:15 PM						2		2						9		9		11	11
3:15 PM - 3:30 PM						1		1						2		2		3	3
3:30 PM - 3:45 PM						4		4						2		2		6	6
3:45 PM - 4:00 PM						3		3						2		2		5	5
4:00 PM - 4:15 PM						7		7						2		2		9	9
4:15 PM - 4:30 PM						5		5						9		9		14	14
4:30 PM - 4:45 PM						5		5						2		2		7	7
4:45 PM - 5:00 PM						2		2						0				2	2
5:00 PM - 5:15 PM						5		5						0				5	5
5:15 PM - 5:30 PM						5		5						2		2		7	7
5:30 PM - 5:45 PM						7		7						5		5		12	12
5:45 PM - 6:00 PM						10		10						5		5		15	15
6:00 PM - 6:15 PM						13		13						0				13	13
6:15 PM - 6:30 PM						12		12						5		5		17	17
6:30 PM - 6:45 PM						6		6						3		3		9	9
6:45 PM - 7:00 PM						9		9						6		6		15	15
Total	0	0	0	0	0	192	0	192	0	0	0	0	0	189	0	189	0	381	381
One Hour Volumes																			
6:00 AM - 7:00 AM						9		9						43		43		52	52
6:15 AM - 7:15 AM						19		19						48		48		67	67
6:30 AM - 7:30 AM						28		28						51		51		79	79
6:45 AM - 7:45 AM						43		43						58		58		101	101
7:00 AM - 8:00 AM						55		55						49		49		104	104
7:15 AM - 8:15 AM						48		48						50		50		98	98
7:30 AM - 8:30 AM						47		47						52		52		99	99
7:45 AM - 8:45 AM						38		38						43		43		81	81
8:00 AM - 9:00 AM						29		29						42		42		71	71
2:30 PM - 3:30 PM						6		6						12		12		18	18
2:45 PM - 3:45 PM						8		8						13		13		21	21
3:00 PM - 4:00 PM						10		10						15		15		25	25
3:15 PM - 4:15 PM						15		15						8		8		23	23
3:30 PM - 4:30 PM						19		19						15		15		34	34
3:45 PM - 4:45 PM						20		20						15		15		35	35
4:00 PM - 5:00 PM						19		19						13		13		32	32
4:15 PM - 5:15 PM						17		17						11		11		28	28
4:30 PM - 5:30 PM						17		17						4		4		21	21
4:45 PM - 5:45 PM						19		19						7		7		26	26
5:00 PM - 6:00 PM						27		27						12		12		39	39
5:15 PM - 6:15 PM						35		35						12		12		47	47
5:30 PM - 6:30 PM						42		42						15		15		57	57
5:45 PM - 6:45 PM						41		41						13		13		54	54
6:00 PM - 7:00 PM						40		40						14		14		54	54
-																			

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: Grove Ave. & W & OD Trail
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Tyler
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM	7	3											
6:15 AM - 6:30 AM	10	17											
6:30 AM - 6:45 AM	9	11											
6:45 AM - 7:00 AM	10	5											
7:00 AM - 7:15 AM	20	9											
7:15 AM - 7:30 AM	6	8											
7:30 AM - 7:45 AM	10	9											
7:45 AM - 8:00 AM	7	7											
8:00 AM - 8:15 AM	4	6											
8:15 AM - 8:30 AM	10	3											
8:30 AM - 8:45 AM	7	6											
8:45 AM - 9:00 AM	3	8											
2:30 PM - 2:45 PM	3	1											
2:45 PM - 3:00 PM	0	4											
3:00 PM - 3:15 PM	2	4											
3:15 PM - 3:30 PM	4	9											
3:30 PM - 3:45 PM	3	4											
3:45 PM - 4:00 PM	1	3											
4:00 PM - 4:15 PM	24	23											
4:15 PM - 4:30 PM	2	3											
4:30 PM - 4:45 PM	1	0											
4:45 PM - 5:00 PM	0	0											
5:00 PM - 5:15 PM	0	0											
5:15 PM - 5:30 PM	0	0											
5:30 PM - 5:45 PM	1	0											
5:45 PM - 6:00 PM	4	2											
6:00 PM - 6:15 PM	2	0											
6:15 PM - 6:30 PM	1	2											
6:30 PM - 6:45 PM	1	2											
6:45 PM - 7:00 PM	0	0											
Total	152	149	0	0	0	0	0	0					
One Hour Volumes													
6:00 AM - 7:00 AM	36	36							72				72
6:15 AM - 7:15 AM	49	42							91				91
6:30 AM - 7:30 AM	45	33							78				78
6:45 AM - 7:45 AM	46	31							77				77
7:00 AM - 8:00 AM	43	33							76				76
7:15 AM - 8:15 AM	27	30							57				57
7:30 AM - 8:30 AM	31	25							56				56
7:45 AM - 8:45 AM	28	22							50				50
8:00 AM - 9:00 AM	24	23							47				47
2:30 PM - 3:30 PM	9	18							27				27
2:45 PM - 3:45 PM	9	21							30				30
3:00 PM - 4:00 PM	10	20							30				30
3:15 PM - 4:15 PM	32	39							71				71
3:30 PM - 4:30 PM	30	33							63				63
3:45 PM - 4:45 PM	28	29							57				57
4:00 PM - 5:00 PM	27	26							53				53
4:15 PM - 5:15 PM	3	3							6				6
4:30 PM - 5:30 PM	1								1				1
4:45 PM - 5:45 PM	1								1				1
5:00 PM - 6:00 PM	5	2							7				7
5:15 PM - 6:15 PM	7	2							9				9
5:30 PM - 6:30 PM	8	4							12				12
5:45 PM - 6:45 PM	8	6							14				14
6:00 PM - 7:00 PM	4	4							8				8
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	North West & West Broad	**DATE:**	9/14/2013	**SOUTHBOUND ROAD:**	Grove Avenue
W+A JOB NO:	5897	**DAY:**	Saturday	**NORTHBOUND ROAD:**	Grove Avenue
INTERSECTION:	Grove Ave. & W & OD Trail	**WEATHER:**	clear	**WESTBOUND ROAD:**	W & OD Trail
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Tyler	**EASTBOUND ROAD:**	W & OD Trail
		INPUTED BY:	agan		

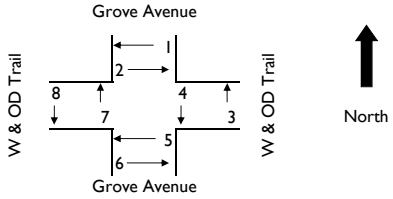
Time	Southbound Grove Avenue				Westbound W & OD Trail				Northbound Grove Avenue				Eastbound W & OD Trail				North & South	East & West	Total
Period	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
10:00 AM - 10:15 AM						17		17						16		16		33	33
10:15 AM - 10:30 AM						40		40						18		18		58	58
10:30 AM - 10:45 AM						28		28						22		22		50	50
10:45 AM - 11:00 AM						20		20						19		19		39	39
11:00 AM - 11:15 AM						32		32						17		17		49	49
11:15 AM - 11:30 AM						20		20						16		16		36	36
11:30 AM - 11:45 AM						21		21						26		26		47	47
11:45 AM - 12:00 PM						25		25						27		27		52	52
12:00 PM - 12:15 PM						15		15						33		33		48	48
12:15 PM - 12:30 PM						26		26						25		25		51	51
12:30 PM - 12:45 PM						14		14						25		25		39	39
12:45 PM - 1:00 PM						28		28						19		19		47	47
1:00 PM - 1:15 PM						17		17						25		25		42	42
1:15 PM - 1:30 PM						18		18						26		26		44	44
1:30 PM - 1:45 PM						34		34						31		31		65	65
1:45 PM - 2:00 PM						16		16						27		27		43	43
2:00 PM - 2:15 PM						39		39						26		26		65	65
2:15 PM - 2:30 PM						27		27						41		41		68	68
2:30 PM - 2:45 PM						19		19						23		23		42	42
2:45 PM - 3:00 PM						25		25						33		33		58	58
Total	0	0	0	0	0	481	0	481	0	0	0	0	0	495	0	495	0	976	976
One Hour Volumes																			
10:00 AM - 11:00 AM						105		105						75		75		180	180
10:15 AM - 11:15 AM						120		120						76		76		196	196
10:30 AM - 11:30 AM						100		100						74		74		174	174
10:45 AM - 11:45 AM						93		93						78		78		171	171
11:00 AM - 12:00 PM						98		98						86		86		184	184
11:15 AM - 12:15 PM						81		81						102		102		183	183
11:30 AM - 12:30 PM						87		87						111		111		198	198
11:45 AM - 12:45 PM						80		80						110		110		190	190
12:00 PM - 1:00 PM						83		83						102		102		185	185
12:15 PM - 1:15 PM						85		85						94		94		179	179
12:30 PM - 1:30 PM						77		77						95		95		172	172
12:45 PM - 1:45 PM						97		97						101		101		198	198
1:00 PM - 2:00 PM						85		85						109		109		194	194
1:15 PM - 2:15 PM						107		107						110		110		217	217
1:30 PM - 2:30 PM						116		116						125		125		241	241
1:45 PM - 2:45 PM						101		101						117		117		218	218
2:00 PM - 3:00 PM						110		110						123		123		233	233

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: Grove Ave. & W & OD Trail
LOCATION: Fairfax County,VA
DATE: 9/14/2013
DAY: Saturday
WEATHER: clear
COUNTED BY: Tyler
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
10:00 AM - 10:15 AM	15	25											
10:15 AM - 10:30 AM	23	17											
10:30 AM - 10:45 AM	13	19											
10:45 AM - 11:00 AM	13	25											
11:00 AM - 11:15 AM	17	18											
11:15 AM - 11:30 AM	18	13											
11:30 AM - 11:45 AM	10	17											
11:45 AM - 12:00 PM	7	9											
12:00 PM - 12:15 PM	12	12											
12:15 PM - 12:30 PM	15	15											
12:30 PM - 12:45 PM	14	7											
12:45 PM - 1:00 PM	3	12											
1:00 PM - 1:15 PM	5	9											
1:15 PM - 1:30 PM	9	6											
1:30 PM - 1:45 PM	6	4											
1:45 PM - 2:00 PM	6	10											
2:00 PM - 2:15 PM	4	6											
2:15 PM - 2:30 PM	7	5											
2:30 PM - 2:45 PM	12	19											
2:45 PM - 3:00 PM	4	5											
Total	213	253	0	0	0	0	0	0					
One Hour Volumes													
10:00 AM - 11:00 AM	64	86							150				150
10:15 AM - 11:15 AM	66	79							145				145
10:30 AM - 11:30 AM	61	75							136				136
10:45 AM - 11:45 AM	58	73							131				131
11:00 AM - 12:00 PM	52	57							109				109
11:15 AM - 12:15 PM	47	51							98				98
11:30 AM - 12:30 PM	44	53							97				97
11:45 AM - 12:45 PM	48	43							91				91
12:00 PM - 1:00 PM	44	46							90				90
12:15 PM - 1:15 PM	37	43							80				80
12:30 PM - 1:30 PM	31	34							65				65
12:45 PM - 1:45 PM	23	31							54				54
1:00 PM - 2:00 PM	26	29							55				55
1:15 PM - 2:15 PM	25	26							51				51
1:30 PM - 2:30 PM	23	25							48				48
1:45 PM - 2:45 PM	29	40							69				69
2:00 PM - 3:00 PM	27	35							62				62

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & W & OD Trail	**WEATHER:**	clear	**WESTBOUND ROAD:**	W & OD Trail
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Amela	**EASTBOUND ROAD:**	W & OD Trail
		INPUTED BY:	agan		

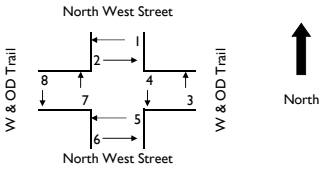
Time Period	Southbound North West Street				Westbound W & OD Trail				Northbound North West Street				Eastbound W & OD Trail				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
6:00 AM - 6:15 AM						3		3						7		7		10	10
6:15 AM - 6:30 AM						3		3						8		8		11	11
6:30 AM - 6:45 AM						1		1						12		12		13	13
6:45 AM - 7:00 AM						5		5						19		19		24	24
7:00 AM - 7:15 AM						13		13						11		11		24	24
7:15 AM - 7:30 AM						11		11						10		10		21	21
7:30 AM - 7:45 AM						15		15						17		17		32	32
7:45 AM - 8:00 AM						12		12						14		14		26	26
8:00 AM - 8:15 AM						8		8						13		13		21	21
8:15 AM - 8:30 AM						9		9						9		9		18	18
8:30 AM - 8:45 AM						7		7						12		12		19	19
8:45 AM - 9:00 AM						6		6						10		10		16	16
2:30 PM - 2:45 PM						2		2						1		1		3	3
2:45 PM - 3:00 PM						1		1						2		2		3	3
3:00 PM - 3:15 PM						1		1						9		9		10	10
3:15 PM - 3:30 PM						2		2						3		3		5	5
3:30 PM - 3:45 PM						6		6						2		2		8	8
3:45 PM - 4:00 PM						3		3						3		3		6	6
4:00 PM - 4:15 PM						7		7						2		2		9	9
4:15 PM - 4:30 PM						3		3						9		9		12	12
4:30 PM - 4:45 PM						8		8						3		3		11	11
4:45 PM - 5:00 PM						4		4						1		1		5	5
5:00 PM - 5:15 PM						4		4						0				4	4
5:15 PM - 5:30 PM						7		7						3		3		10	10
5:30 PM - 5:45 PM						6		6						4		4		10	10
5:45 PM - 6:00 PM						11		11						5		5		16	16
6:00 PM - 6:15 PM						17		17						0				17	17
6:15 PM - 6:30 PM						7		7						4		4		11	11
6:30 PM - 6:45 PM						7		7						3		3		10	10
6:45 PM - 7:00 PM						9		9						5		5		14	14
Total	0	0	0	0	0	198	0	198	0	0	0	0	0	201	0	201	0	399	399
One Hour Volumes																			
6:00 AM - 7:00 AM						12		12						46		46		58	58
6:15 AM - 7:15 AM						22		22						50		50		72	72
6:30 AM - 7:30 AM						30		30						52		52		82	82
6:45 AM - 7:45 AM						44		44						57		57		101	101
7:00 AM - 8:00 AM						51		51						52		52		103	103
7:15 AM - 8:15 AM						46		46						54		54		100	100
7:30 AM - 8:30 AM						44		44						53		53		97	97
7:45 AM - 8:45 AM						36		36						48		48		84	84
8:00 AM - 9:00 AM						30		30						44		44		74	74
2:30 PM - 3:30 PM						6		6						15		15		21	21
2:45 PM - 3:45 PM						10		10						16		16		26	26
3:00 PM - 4:00 PM						12		12						17		17		29	29
3:15 PM - 4:15 PM						18		18						10		10		28	28
3:30 PM - 4:30 PM						19		19						16		16		35	35
3:45 PM - 4:45 PM						21		21						17		17		38	38
4:00 PM - 5:00 PM						22		22						15		15		37	37
4:15 PM - 5:15 PM						19		19						13		13		32	32
4:30 PM - 5:30 PM						23		23						7		7		30	30
4:45 PM - 5:45 PM						21		21						8		8		29	29
5:00 PM - 6:00 PM						28		28						12		12		40	40
5:15 PM - 6:15 PM						41		41						12		12		53	53
5:30 PM - 6:30 PM						41		41						13		13		54	54
5:45 PM - 6:45 PM						42		42						12		12		54	54
6:00 PM - 7:00 PM						40		40						12		12		52	52
-																			

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. West St. & W & OD Trail
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Amela
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM	5	4											
6:15 AM - 6:30 AM	11	19											
6:30 AM - 6:45 AM	9	10											
6:45 AM - 7:00 AM	13	6											
7:00 AM - 7:15 AM	15	10											
7:15 AM - 7:30 AM	5	6											
7:30 AM - 7:45 AM	12	9											
7:45 AM - 8:00 AM	4	6											
8:00 AM - 8:15 AM	6	4											
8:15 AM - 8:30 AM	10	8											
8:30 AM - 8:45 AM	7	5											
8:45 AM - 9:00 AM	5	7											
2:30 PM - 2:45 PM	2	2											
2:45 PM - 3:00 PM	0	9											
3:00 PM - 3:15 PM	2	3											
3:15 PM - 3:30 PM	1	7											
3:30 PM - 3:45 PM	5	3											
3:45 PM - 4:00 PM	2	2											
4:00 PM - 4:15 PM	25	25											
4:15 PM - 4:30 PM	2	1											
4:30 PM - 4:45 PM	1	0											
4:45 PM - 5:00 PM	0	0											
5:00 PM - 5:15 PM	0	0											
5:15 PM - 5:30 PM	0	1											
5:30 PM - 5:45 PM	2	0											
5:45 PM - 6:00 PM	1	2											
6:00 PM - 6:15 PM	0	0											
6:15 PM - 6:30 PM	1	2											
6:30 PM - 6:45 PM	1	1											
6:45 PM - 7:00 PM	0	0											
Total	147	152	0	0	0	0	0	0					
One Hour Volumes													
6:00 AM - 7:00 AM	38	39							77				77
6:15 AM - 7:15 AM	48	45							93				93
6:30 AM - 7:30 AM	42	32							74				74
6:45 AM - 7:45 AM	45	31							76				76
7:00 AM - 8:00 AM	36	31							67				67
7:15 AM - 8:15 AM	27	25							52				52
7:30 AM - 8:30 AM	32	27							59				59
7:45 AM - 8:45 AM	27	23							50				50
8:00 AM - 9:00 AM	28	24							52				52
2:30 PM - 3:30 PM	5	21							26				26
2:45 PM - 3:45 PM	8	22							30				30
3:00 PM - 4:00 PM	10	15							25				25
3:15 PM - 4:15 PM	33	37							70				70
3:30 PM - 4:30 PM	34	31							65				65
3:45 PM - 4:45 PM	30	28							58				58
4:00 PM - 5:00 PM	28	26							54				54
4:15 PM - 5:15 PM	3	1							4				4
4:30 PM - 5:30 PM	1	1							2				2
4:45 PM - 5:45 PM	2	1							3				3
5:00 PM - 6:00 PM	3	3							6				6
5:15 PM - 6:15 PM	3	3							6				6
5:30 PM - 6:30 PM	4	4							8				8
5:45 PM - 6:45 PM	3	5							8				8
6:00 PM - 7:00 PM	2	3							5				5
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT:	North West & West Broad	**DATE:**	9/14/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Saturday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & W & OD Trail	**WEATHER:**	clear	**WESTBOUND ROAD:**	W & OD Trail
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Farid	**EASTBOUND ROAD:**	W & OD Trail
		INPUTED BY:	agan		

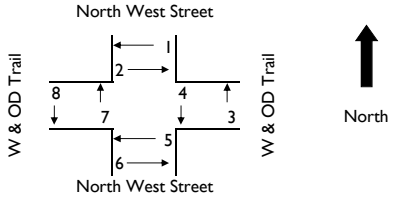
Time	Southbound North West Street				Westbound W & OD Trail				Northbound North West Street				Eastbound W & OD Trail				North & South	East & West	Total
Period	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
10:00 AM - 10:15 AM						17		17						11		11		28	28
10:15 AM - 10:30 AM						37		37						15		15		52	52
10:30 AM - 10:45 AM						25		25						23		23		48	48
10:45 AM - 11:00 AM						16		16						20		20		36	36
11:00 AM - 11:15 AM						25		25						14		14		39	39
11:15 AM - 11:30 AM						10		10						13		13		23	23
11:30 AM - 11:45 AM						17		17						25		25		42	42
11:45 AM - 12:00 PM						17		17						23		23		40	40
12:00 PM - 12:15 PM						13		13						26		26		39	39
12:15 PM - 12:30 PM						31		31						25		25		56	56
12:30 PM - 12:45 PM						13		13						17		17		30	30
12:45 PM - 1:00 PM						21		21						17		17		38	38
1:00 PM - 1:15 PM						16		16						18		18		34	34
1:15 PM - 1:30 PM						17		17						20		20		37	37
1:30 PM - 1:45 PM						17		17						24		24		41	41
1:45 PM - 2:00 PM						5		5						18		18		23	23
2:00 PM - 2:15 PM						33		33						16		16		49	49
2:15 PM - 2:30 PM						18		18						29		29		47	47
2:30 PM - 2:45 PM						20		20						15		15		35	35
2:45 PM - 3:00 PM						17		17						21		21		38	38
Total	0	0	0	0	0	385	0	385	0	0	0	0	0	390	0	390	0	775	775
One Hour Volumes																			
10:00 AM - 11:00 AM						95		95						69		69		164	164
10:15 AM - 11:15 AM						103		103						72		72		175	175
10:30 AM - 11:30 AM						76		76						70		70		146	146
10:45 AM - 11:45 AM						68		68						72		72		140	140
11:00 AM - 12:00 PM						69		69						75		75		144	144
11:15 AM - 12:15 PM						57		57						87		87		144	144
11:30 AM - 12:30 PM						78		78						99		99		177	177
11:45 AM - 12:45 PM						74		74						91		91		165	165
12:00 PM - 1:00 PM						78		78						85		85		163	163
12:15 PM - 1:15 PM						81		81						77		77		158	158
12:30 PM - 1:30 PM						67		67						72		72		139	139
12:45 PM - 1:45 PM						71		71						79		79		150	150
1:00 PM - 2:00 PM						55		55						80		80		135	135
1:15 PM - 2:15 PM						72		72						78		78		150	150
1:30 PM - 2:30 PM						73		73						87		87		160	160
1:45 PM - 2:45 PM						76		76						78		78		154	154
2:00 PM - 3:00 PM						88		88						81		81		169	169

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: N. West St. & W & OD Trail
LOCATION: Fairfax County,VA
DATE: 9/14/2013
DAY: Saturday
WEATHER: clear
COUNTED BY: Farid
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
10:00 AM - 10:15 AM	23	15											
10:15 AM - 10:30 AM	16	19											
10:30 AM - 10:45 AM	14	17											
10:45 AM - 11:00 AM	15	28											
11:00 AM - 11:15 AM	12	16											
11:15 AM - 11:30 AM	14	9											
11:30 AM - 11:45 AM	9	17											
11:45 AM - 12:00 PM	6	4											
12:00 PM - 12:15 PM	9	9											
12:15 PM - 12:30 PM	14	15											
12:30 PM - 12:45 PM	14	4											
12:45 PM - 1:00 PM	5	8											
1:00 PM - 1:15 PM	9	9											
1:15 PM - 1:30 PM	6	3											
1:30 PM - 1:45 PM	12	3											
1:45 PM - 2:00 PM	7	4											
2:00 PM - 2:15 PM	5	3											
2:15 PM - 2:30 PM	4	4											
2:30 PM - 2:45 PM	5	14											
2:45 PM - 3:00 PM	4	5											
Total	203	206	0	0	0	0	0	0					
One Hour Volumes													
10:00 AM - 11:00 AM	68	79							147				147
10:15 AM - 11:15 AM	57	80							137				137
10:30 AM - 11:30 AM	55	70							125				125
10:45 AM - 11:45 AM	50	70							120				120
11:00 AM - 12:00 PM	41	46							87				87
11:15 AM - 12:15 PM	38	39							77				77
11:30 AM - 12:30 PM	38	45							83				83
11:45 AM - 12:45 PM	43	32							75				75
12:00 PM - 1:00 PM	42	36							78				78
12:15 PM - 1:15 PM	42	36							78				78
12:30 PM - 1:30 PM	34	24							58				58
12:45 PM - 1:45 PM	32	23							55				55
1:00 PM - 2:00 PM	34	19							53				53
1:15 PM - 2:15 PM	30	13							43				43
1:30 PM - 2:30 PM	28	14							42				42
1:45 PM - 2:45 PM	21	25							46				46
2:00 PM - 3:00 PM	18	26							44				44

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: North West & West Broad
W+A JOB NO: 5897
INTERSECTION: W. Broad St. & Birch St.
LOCATION: Fairfax County,VA

DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Majda & Luz
INPUTED BY: agan

SOUTHBOUND ROAD: Birch Street
NORTHBOUND ROAD: 0
WESTBOUND ROAD: West Broad Street - 7
EASTBOUND ROAD: West Broad Street - 7

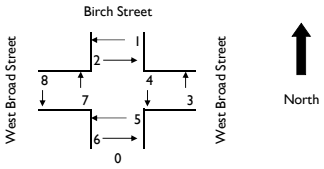
Time	Southbound Birch Street					Westbound West Broad Street - 7					Northbound 0					Eastbound West Broad Street - 7					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM	4		3	7		1	55		56								93	5	98		7	154	161
6:15 AM - 6:30 AM	8		5	13	`	2	91		93								132	8	140		13	233	246
6:30 AM - 6:45 AM	5		12	17		6	141		147								225	10	235		17	382	399
6:45 AM - 7:00 AM	3		5	8		8	154		162								181	4	185		8	347	355
7:00 AM - 7:15 AM	4		6	10		10	227		237								218	11	229		10	466	476
7:15 AM - 7:30 AM	11		11	22		13	249		262								325	17	342		22	604	626
7:30 AM - 7:45 AM	5		13	18		21	285		306								385	18	403		18	709	727
7:45 AM - 8:00 AM	13		15	28		13	365		378								297	19	316		28	694	722
8:00 AM - 8:15 AM	7		17	24		16	281		297								297	22	319		24	616	640
8:15 AM - 8:30 AM	11		16	27		8	270		278								285	16	301		27	579	606
8:30 AM - 8:45 AM	14		13	27		10	304		314								274	7	281		27	595	622
8:45 AM - 9:00 AM	8		15	23		12	269		281								266	13	279		23	560	583
2:30 PM - 2:45 PM	10		23	33		13	242		255								247	20	267		33	522	555
2:45 PM - 3:00 PM	11		26	37		14	231		245								279	29	308		37	553	590
3:00 PM - 3:15 PM	8		44	52		15	242		257								251	21	272		52	529	581
3:15 PM - 3:30 PM	10		30	40		11	247		258								269	27	296		40	554	594
3:30 PM - 3:45 PM	12		21	33		12	249		261								263	19	282		33	543	576
3:45 PM - 4:00 PM	14		24	38		18	253		271								395	26	421		38	692	730
4:00 PM - 4:15 PM	21		24	45		17	280		297								349	19	368		45	665	710
4:15 PM - 4:30 PM	8		38	46		9	252		261								338	41	379		46	640	686
4:30 PM - 4:45 PM	18		27	45		19	275		294								329	17	346		45	640	685
4:45 PM - 5:00 PM	8		29	37		10	259		269								382	27	409		37	678	715
5:00 PM - 5:15 PM	13		34	47		12	267		279								357	31	388		47	667	714
5:15 PM - 5:30 PM	10		27	37		6	251		257								321	21	342		37	599	636
5:30 PM - 5:45 PM	16		18	34		16	265		281								360	16	376		34	657	691
5:45 PM - 6:00 PM	27		32	59		7	261		268								327	27	354		59	622	681
6:00 PM - 6:15 PM	11		32	43		14	284		298								341	20	361		43	659	702
6:15 PM - 6:30 PM	20		27	47		17	233		250								325	26	351		47	601	648
6:30 PM - 6:45 PM	25		21	46		19	203		222								352	29	381		46	603	649
6:45 PM - 7:00 PM	14		20	34		14	243		257								340	32	372		34	629	663
Total	349	0	628	977		363	7228	0	7591		0	0	0	0		0	8803	598	9401		977	16992	17969
One Hour Volumes																							
6:00 AM - 7:00 AM	20		25	45	0.6618	17	441		458	0.7068							631	27	658	0.7	45	1116	1161
6:15 AM - 7:15 AM	20		28	48	0.7059	26	613		639	0.6741							756	33	789	0.8394	48	1428	1476
6:30 AM - 7:30 AM	23		34	57	0.6477	37	771		808	0.771							949	42	991	0.7244	57	1799	1856
6:45 AM - 7:45 AM	23		35	58	0.6591	52	915		967	0.79							1109	50	1159	0.719	58	2126	2184
7:00 AM - 8:00 AM	33		45	78	0.6964	57	1126		1183	0.7824							1225	65	1290	0.8002	78	2473	2551
7:15 AM - 8:15 AM	36		56	92	0.8214	63	1180		1243	0.8221							1304	76	1380	0.8561	92	2623	2715
7:30 AM - 8:30 AM	36		61	97	0.8661	58	1201		1259	0.8327							1264	75	1339	0.8306	97	2598	2695
7:45 AM - 8:45 AM	45		61	106	0.9464	47	1220		1267	0.838							1153	64	1217	0.9538	106	2484	2590
8:00 AM - 9:00 AM	40		61	101	0.9352	46	1124		1170	0.9315							1122	58	1180	0.9248	101	2350	2451
2:30 PM - 3:30 PM	39		123	162	0.7788	53	962		1015	0.9835							1046	97	1143	0.9278	162	2158	2320
2:45 PM - 3:45 PM	41		121	162	0.7788	52	969		1021	0.978							1062	96	1158	0.9399	162	2179	2341
3:00 PM - 4:00 PM	44		119	163	0.7837	56	991		1047	0.9659							1178	93	1271	0.7548	163	2318	2481
3:15 PM - 4:15 PM	57		99	156	0.8667	58	1029		1087	0.915							1276	91	1367	0.8118	156	2454	2610
3:30 PM - 4:30 PM	55		107	162	0.8804	56	1034		1090	0.9175							1345	105	1450	0.861	162	2540	2702
3:45 PM - 4:45 PM	61		113	174	0.9457	63	1060		1123	0.9453							1411	103	1514	0.899	174	2637	2811
4:00 PM - 5:00 PM	55		118	173	0.9402	55	1066		1121	0.9436							1398	104	1502	0.9181	173	2623	2796
4:15 PM - 5:15 PM	47		128	175	0.9309	50	1053		1103	0.9379							1406	116	1522	0.9303	175	2625	2800
4:30 PM - 5:30 PM	49		117	166	0.883	47	1052		1099	0.9345							1389	96	1485	0.9077	166	2584	2750
4:45 PM - 5:45 PM	47		108	155	0.8245	44	1042		1086	0.9662							1420	95	1515	0.926	155	2601	2756
5:00 PM - 6:00 PM	66		111	177	0.75	41	1044		1085	0.9653							1365	95	1460	0.9407	177	2545	2722
5:15 PM - 6:15 PM	64		109	173	0.7331	43	1061		1104	0.9262							1349	84	1433	0.9528	173	2537	2710
5:30 PM - 6:30 PM	74		109	183	0.7754	54	1043		1097	0.9203							1353	89	1442	0.9588	183	2539	2722
5:45 PM - 6:45 PM	83		112	195	0.8263	57	981		1038	0.8708							1345	102	1447	0.9495	195	2485	2680
6:00 PM - 7:00 PM	70		100	170	0.9043	64	963		1027	0.8616							1358	107	1465	0.9613	170	2492	2662
-																							

Wells + Associates, Inc.

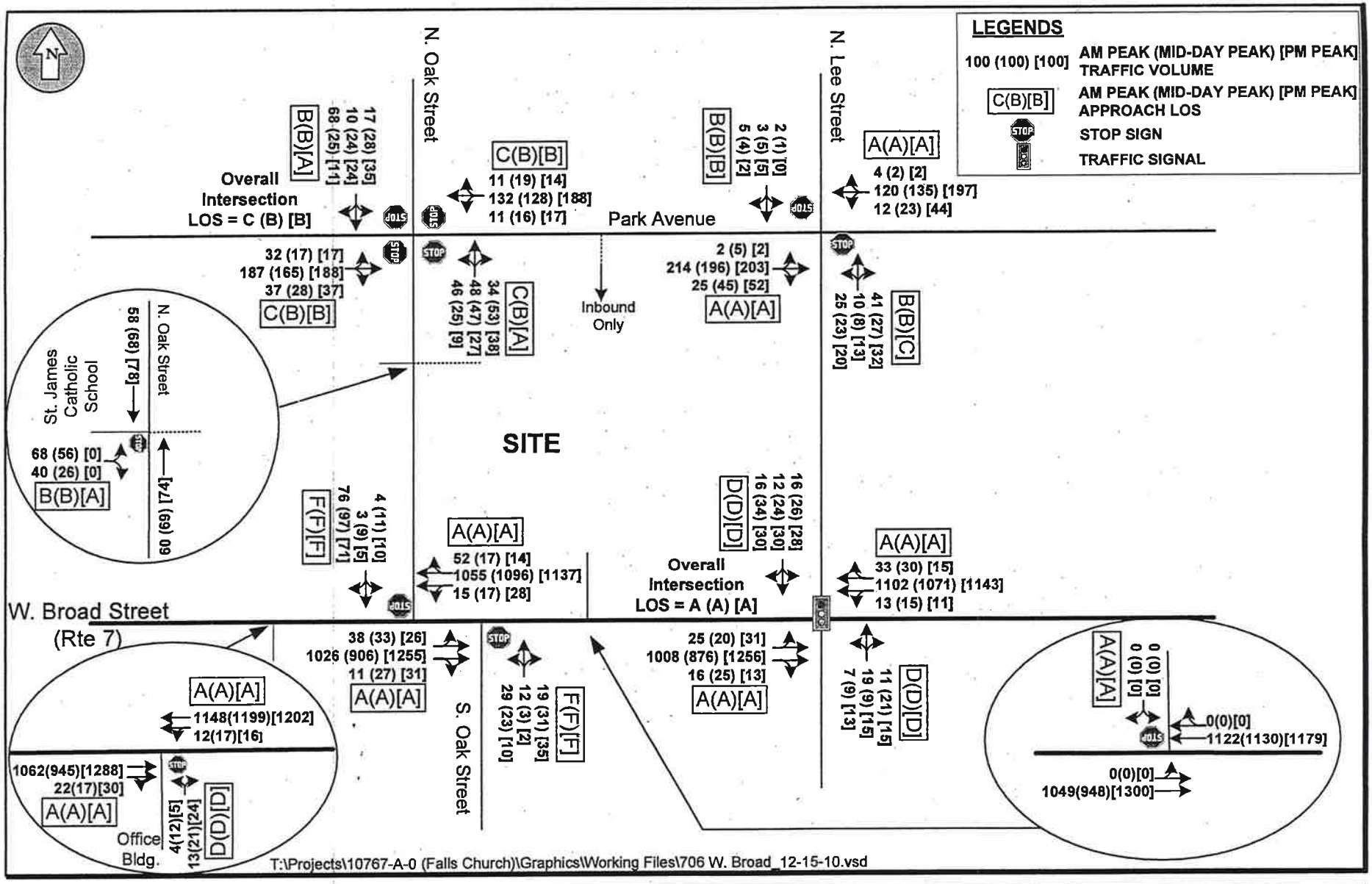
McLean, Virginia

Pedestrian Volume Survey

PROJECT: North West & West Broad
W + A JOB NO: 5897
INTERSECTION: W. Broad St. & Birch St.
LOCATION: Fairfax County,VA
DATE: 9/12/2013
DAY: Thursday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15 Minute Volumes													
6:00 AM - 6:15 AM	1							1					
6:15 AM - 6:30 AM	1					4							
6:30 AM - 6:45 AM	2	1				3	1						
6:45 AM - 7:00 AM	1					3							
7:00 AM - 7:15 AM	2	4			5	1	5						
7:15 AM - 7:30 AM		1			3	3							
7:30 AM - 7:45 AM		2			3	5	1	2					
7:45 AM - 8:00 AM					3	5	4	1					
8:00 AM - 8:15 AM	1		1		2	6	2	1					
8:15 AM - 8:30 AM		1		2	2	4	3	4					
8:30 AM - 8:45 AM					1	1	4						
8:45 AM - 9:00 AM	1	1		3	2	2	3	3					
2:30 PM - 2:45 PM	2				3	4	2						
2:45 PM - 3:00 PM	1				3	3	1	1					
3:00 PM - 3:15 PM	1				4	4		6					
3:15 PM - 3:30 PM	2				5	3	2	1					
3:30 PM - 3:45 PM	1				3	3	1	2					
3:45 PM - 4:00 PM	1				3	2	4						
4:00 PM - 4:15 PM		1	1	2	2	4	1	1					
4:15 PM - 4:30 PM	1				1	2	1	4					
4:30 PM - 4:45 PM					3	1	1						
4:45 PM - 5:00 PM	1				5								
5:00 PM - 5:15 PM	1				2	1	2						
5:15 PM - 5:30 PM		1			1		1						
5:30 PM - 5:45 PM	1				2	1	1	1					
5:45 PM - 6:00 PM	1				1	1	3	1					
6:00 PM - 6:15 PM	1	1			3			1					
6:15 PM - 6:30 PM	1	1			4	1	1						
6:30 PM - 6:45 PM	1				1	1	1						
6:45 PM - 7:00 PM					1	2		2					
Total	25	14	2	7	68	70	45	32					
One Hour Volumes													
6:00 AM - 7:00 AM	5	1				10	1	1	6		10	2	18
6:15 AM - 7:15 AM	6	5			5	11	6		11		16	6	33
6:30 AM - 7:30 AM	5	6			8	10	6		11		18	6	35
6:45 AM - 7:45 AM	3	7			11	12	6	2	10		23	8	41
7:00 AM - 8:00 AM	2	7			14	14	10	3	9		28	13	50
7:15 AM - 8:15 AM	1	3	1		11	19	7	4	4	1	30	11	46
7:30 AM - 8:30 AM	1	3	1	2	10	20	10	8	4	3	30	18	55
7:45 AM - 8:45 AM	1	1	1	2	8	16	13	6	2	3	24	19	48
8:00 AM - 9:00 AM	2	2	1	5	7	13	12	8	4	6	20	20	50
2:30 PM - 3:30 PM	6				15	14	5	8	6		29	13	48
2:45 PM - 3:45 PM	5				15	13	4	10	5		28	14	47
3:00 PM - 4:00 PM	5				15	12	7	9	5		27	16	48
3:15 PM - 4:15 PM	4	1	1	2	13	12	8	4	5	3	25	12	45
3:30 PM - 4:30 PM	3	1	1	2	9	11	7	7	4	3	20	14	41
3:45 PM - 4:45 PM	2	1	1	2	9	9	7	5	3	3	18	12	36
4:00 PM - 5:00 PM	2	1	1	2	11	7	3	5	3	3	18	8	32
4:15 PM - 5:15 PM	3				11	4	4	4	3		15	8	26
4:30 PM - 5:30 PM	2	1			11	2	4		3		13	4	20
4:45 PM - 5:45 PM	3	1			10	2	4	1	4		12	5	21
5:00 PM - 6:00 PM	3	1			6	3	7	2	4		9	9	22
5:15 PM - 6:15 PM	3	2			7	2	5	3	5		9	8	22
5:30 PM - 6:30 PM	4	2			10	3	5	3	6		13	8	27
5:45 PM - 6:45 PM	4	2			9	3	5	2	6		12	7	25
6:00 PM - 7:00 PM	3	2			9	4	2	3	5		13	5	23
-													



PHR+A

706 W. Broad Street
Traffic Impact Study

Existing Traffic Conditions (2010)

Figure 3
Revised December 2010
10767-A-0

Patton Harris Rust & Associates
14532 Lee Road
Chantilly, VA 20151
Engineers, Surveyors, Planners, Landscape Architects

Park Avenue & N Oak Street
Location: City of Falls Church, VA
Time: Weekday AM Peak
Analyst: PHR+A

File Name : Park Avenue & N Oak Street_AM
Site Code : 1076780
Start Date : 11/30/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	2	0	2	0	4	0	8	0	0	8	1	0	1	0	2	1	15	0	0	16	30
06:45 AM	1	3	5	0	9	1	15	1	0	17	3	2	1	0	6	0	10	1	0	11	43
Total	3	3	7	0	13	1	23	1	0	25	4	2	2	0	8	1	25	1	0	27	73
07:00 AM	3	2	5	0	10	2	12	0	0	14	1	4	2	0	7	3	20	4	0	27	58
07:15 AM	3	1	8	0	12	3	11	3	0	17	4	8	7	0	19	7	22	2	0	31	79
07:30 AM	2	2	16	0	20	2	28	0	1	31	11	14	11	0	36	6	42	4	0	52	139
07:45 AM	2	4	43	0	49	3	51	2	3	59	31	23	19	0	73	21	57	20	0	98	279
Total	10	9	72	0	91	10	102	5	4	121	47	49	39	0	135	37	141	30	0	208	555
08:00 AM	7	2	3	1	13	1	22	9	2	34	2	7	2	0	11	2	43	8	5	58	116
08:15 AM	6	2	6	0	14	5	31	0	2	38	2	4	2	0	8	3	20	5	0	28	88
08:30 AM	5	4	5	0	14	3	25	0	0	28	1	9	8	0	18	2	29	5	0	36	96
08:45 AM	4	5	1	0	10	3	24	6	2	35	0	3	5	1	9	2	35	9	5	51	105
Total	22	13	15	1	51	12	102	15	6	135	5	23	17	1	46	9	127	27	10	173	405
Grand Total	35	25	94	1	155	23	227	21	10	281	56	74	58	1	189	47	293	58	10	408	1033
Apprch %	22.6	16.1	60.6	0.6		8.2	80.8	7.5	3.6		29.6	39.2	30.7	0.5		11.5	71.8	14.2	2.5		
Total %	3.4	2.4	9.1	0.1	15	2.2	22	2	1	27.2	5.4	7.2	5.6	0.1	18.3	4.5	28.4	5.6	1	39.5	
Cars	34	25	94	1	154	23	224	20	10	277	56	74	57	1	188	47	293	58	10	408	1027
% Cars	97.1	100	100	100	99.4	100	98.7	95.2	100	98.6	100	100	98.3	100	99.5	100	100	100	100	100	99.4
Bus	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	5
% Bus	2.9	0	0	0	0.6	0	1.3	4.8	0	1.4	0	0	0	0	0	0	0	0	0	0	0.5
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	1.7	0	0.5	0	0	0	0	0	0.1

Patton Harris Rust & Associates
14532 Lee Road
Chantilly, VA 20151
Engineers, Surveyors, Planners, Landscape Architects

Park Avenue & N Oak Street
Location: City of Falls Church, VA
Time: Weekday AM Peak
Analyst: PHR+A

File Name : Park Avenue & N Oak Street_AM
Site Code : 1076780
Start Date : 11/30/2010
Page No : 2

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	2	16	0	20	2	28	0	1	31	11	14	11	0	36	6	42	4	0	52	139
07:45 AM	2	4	43	0	49	3	51	2	3	59	31	23	19	0	73	21	57	20	0	98	279
08:00 AM	7	2	3	1	13	1	22	9	2	34	2	7	2	0	11	2	43	8	5	58	116
08:15 AM	6	2	6	0	14	5	31	0	2	38	2	4	2	0	8	3	20	5	0	28	88
Total Volume	17	10	68	1	96	11	132	11	8	162	46	48	34	0	128	32	162	37	5	236	622
% App. Total	17.7	10.4	70.8	1		6.8	81.5	6.8	4.9		35.9	37.5	26.6	0		13.6	68.6	15.7	2.1		
PHF	.607	.625	.395	.250	.490	.550	.647	.306	.667	.686	.371	.522	.447	.000	.438	.381	.711	.463	.250	.602	.557
Cars	16	10	68	1	95	11	129	10	8	158	46	48	34	0	128	32	162	37	5	236	617
% Cars	94.1	100	100	100	99.0	100	97.7	90.9	100	97.5	100	100	100	0	100	100	100	100	100	100	99.2
Bus	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	5
% Bus	5.9	0	0	0	1.0	0	2.3	9.1	0	2.5	0	0	0	0	0	0	0	0	0	0	0.8
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Park Avenue & N Oak Street
Location: City of Falls Church, VA
Time: Weekday 2.00-4.00 PM
Analyst: PHR+A

File Name : Park Avenue & N Oak Street_Mid-day
Site Code : 1076780
Start Date : 11/30/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	3	6	0	0	9	5	28	2	0	35	4	3	9	1	17	1	24	5	0	30	91
02:15 PM	3	1	3	0	7	7	22	3	0	32	1	8	1	0	10	2	22	3	0	27	76
02:30 PM	3	4	2	0	9	4	30	5	0	39	6	2	2	1	11	0	29	2	1	32	91
02:45 PM	7	5	8	4	24	4	44	7	3	58	6	6	5	0	17	4	24	7	0	35	134
Total	16	16	13	4	49	20	124	17	3	164	17	19	17	2	55	7	99	17	1	124	392
03:00 PM	7	7	12	2	28	4	36	4	2	46	16	25	35	30	106	7	62	9	13	91	271
03:15 PM	8	5	2	0	15	6	26	5	2	39	2	8	7	0	17	3	35	8	2	48	119
03:30 PM	6	7	3	0	16	2	22	3	0	27	1	8	6	4	19	3	44	4	2	53	115
03:45 PM	9	7	4	0	20	4	32	0	0	36	3	7	6	0	16	2	42	8	5	57	129
Total	30	26	21	2	79	16	116	12	4	148	22	48	54	34	158	15	183	29	22	249	634
Grand Total	46	42	34	6	128	36	240	29	7	312	39	67	71	36	213	22	282	46	23	373	1026
Apprch %	35.9	32.8	26.6	4.7		11.5	76.9	9.3	2.2		18.3	31.5	33.3	16.9		5.9	75.6	12.3	6.2		
Total %	4.5	4.1	3.3	0.6	12.5	3.5	23.4	2.8	0.7	30.4	3.8	6.5	6.9	3.5	20.8	2.1	27.5	4.5	2.2	36.4	
Cars	45	42	34	6	127	36	239	28	7	310	39	67	70	36	212	22	280	46	23	371	1020
% Cars	97.8	100	100	100	99.2	100	99.6	96.6	100	99.4	100	100	98.6	100	99.5	100	99.3	100	100	99.5	99.4
Bus	1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	2	0	0	2	5
% Bus	2.2	0	0	0	0.8	0	0	3.4	0	0.3	0	0	1.4	0	0.5	0	0.7	0	0	0.5	0.5
Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0.4	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0.1

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:45 PM																					
02:45 PM	7	5	8	4	24	4	44	7	3	58	6	6	5	0	17	4	24	7	0	35	134
03:00 PM	7	7	12	2	28	4	36	4	2	46	16	25	35	30	106	7	62	9	13	91	271
03:15 PM	8	5	2	0	15	6	26	5	2	39	2	8	7	0	17	3	35	8	2	48	119
03:30 PM	6	7	3	0	16	2	22	3	0	27	1	8	6	4	19	3	44	4	2	53	115
Total Volume	28	24	25	6	83	16	128	19	7	170	25	47	53	34	159	17	165	28	17	227	639
% App. Total	33.7	28.9	30.1	7.2		9.4	75.3	11.2	4.1		15.7	29.6	33.3	21.4		7.5	72.7	12.3	7.5		
PHF	.875	.857	.521	.375	.741	.667	.727	.679	.583	.733	.391	.470	.379	.283	.375	.607	.665	.778	.327	.624	.589
Cars	28	24	25	6	83	16	128	18	7	169	25	47	52	34	158	17	165	28	17	227	637
% Cars	100	100	100	100	100	100	100	94.7	100	99.4	100	100	98.1	100	99.4	100	100	100	100	100	99.7
Bus	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	2
% Bus	0	0	0	0	0	0	0	5.3	0	0.6	0	0	1.9	0	0.6	0	0	0	0	0	0.3
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Patton Harris Rust & Associates
14532 Lee Road
Chantilly, VA 20151
Engineers, Surveyors, Planners, Landscape Architects

Park Avenue & N Oak Street
Location: City of Falls Church, VA
Time: Weekday PM Peak
Analyst: PHR+A

File Name : Park Avenue & N Oak Street_PM
Site Code : 1076780
Start Date : 12/1/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	7	3	0	2	12	4	26	5	1	36	0	2	5	0	7	3	37	7	0	47	102
04:15 PM	7	6	2	0	15	9	24	1	3	37	3	2	5	1	11	4	51	3	1	59	122
04:30 PM	10	9	0	0	19	6	33	8	1	48	2	7	4	1	14	3	41	8	2	54	135
04:45 PM	10	6	2	0	18	3	31	6	1	41	3	6	11	0	20	3	37	9	4	53	132
Total	34	24	4	2	64	22	114	20	6	162	8	17	25	2	52	13	166	27	7	213	491
05:00 PM	7	2	4	1	14	4	49	5	4	62	2	8	10	0	20	3	48	5	0	56	152
05:15 PM	9	8	5	0	22	4	40	3	1	48	2	6	8	0	16	5	41	11	1	58	144
05:30 PM	9	8	0	0	17	6	53	0	1	60	2	7	9	0	18	6	62	12	1	81	176
05:45 PM	12	8	2	2	24	2	24	3	3	32	0	8	1	0	9	3	46	4	2	55	120
Total	37	26	11	3	77	16	166	11	9	202	6	29	28	0	63	17	197	32	4	250	592
06:00 PM	5	4	0	0	9	3	25	7	0	35	3	4	2	0	9	2	47	4	2	55	108
06:15 PM	9	11	1	0	21	6	26	5	1	38	0	0	1	1	2	1	38	4	1	44	105
Grand Total	85	65	16	5	171	47	331	43	16	437	17	50	56	3	126	33	448	67	14	562	1296
Apprch %	49.7	38	9.4	2.9		10.8	75.7	9.8	3.7		13.5	39.7	44.4	2.4		5.9	79.7	11.9	2.5		
Total %	6.6	5	1.2	0.4	13.2	3.6	25.5	3.3	1.2	33.7	1.3	3.9	4.3	0.2	9.7	2.5	34.6	5.2	1.1	43.4	
Cars	85	64	16	5	170	47	331	43	16	437	17	50	55	3	125	33	448	67	14	562	1294
% Cars	100	98.5	100	100	99.4	100	100	100	100	100	100	100	98.2	100	99.2	100	100	100	100	100	99.8
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
% Trucks	0	1.5	0	0	0.6	0	0	0	0	0	0	0	1.8	0	0.8	0	0	0	0	0	0.2

	N Oak Street Southbound					Park Avenue Westbound					N Oak Street Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	10	6	2	0	18	3	31	6	1	41	3	6	11	0	20	3	37	9	4	53	132
05:00 PM	7	2	4	1	14	4	49	5	4	62	2	8	10	0	20	3	48	5	0	56	152
05:15 PM	9	8	5	0	22	4	40	3	1	48	2	6	8	0	16	5	41	11	1	58	144
05:30 PM	9	8	0	0	17	6	53	0	1	60	2	7	9	0	18	6	62	12	1	81	176
Total Volume	35	24	11	1	71	17	173	14	7	211	9	27	38	0	74	17	188	37	6	248	604
% App. Total	49.3	33.8	15.5	1.4		8.1	82	6.6	3.3		12.2	36.5	51.4	0		6.9	75.8	14.9	2.4		
PHF	.875	.750	.550	.250	.807	.708	.816	.583	.438	.851	.750	.844	.864	.000	.925	.708	.758	.771	.375	.765	.858
Cars	35	24	11	1	71	17	173	14	7	211	9	27	38	0	74	17	188	37	6	248	604
% Cars	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

14532 Lee Road
Chantilly, VA 20151
Engineers, Surveyors, Planners, Landscape Architects

W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday AM Peak
Analyst: PHR+A

File Name : Route 7 & N Oak Street_AM
Site Code : 1076780
Start Date : 11/30/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	108	0	2	110	2	0	1	1	4	3	151	0	0	154	268
06:45 AM	0	0	2	0	2	3	163	2	0	168	6	0	4	0	10	4	157	3	0	164	344
Total	0	0	2	0	2	3	271	2	2	278	8	0	5	1	14	7	308	3	0	318	612
07:00 AM	0	0	6	0	6	0	174	3	0	177	6	3	5	0	14	0	176	1	0	177	374
07:15 AM	1	0	4	0	5	4	181	5	1	191	6	3	8	1	18	7	216	3	2	228	442
07:30 AM	0	1	18	1	20	3	244	7	0	254	9	5	3	0	17	8	243	4	0	255	546
07:45 AM	3	1	39	0	43	0	255	35	1	291	13	4	7	0	24	20	241	2	1	264	622
Total	4	2	67	1	74	7	854	50	2	913	34	15	23	1	73	35	876	10	3	924	1984
08:00 AM	0	0	13	1	14	4	254	4	1	263	5	1	5	0	11	4	219	3	1	227	515
08:15 AM	1	1	6	0	8	8	262	6	1	277	2	2	4	0	8	6	253	2	1	262	555
08:30 AM	0	0	6	0	6	7	265	11	3	286	4	2	5	1	12	7	231	1	3	242	546
08:45 AM	2	1	10	0	13	6	285	3	1	295	2	2	4	0	8	6	232	11	1	250	566
Total	3	2	35	1	41	25	1066	24	6	1121	13	7	18	1	39	23	935	17	6	981	2182
Grand Total	7	4	104	2	117	35	2191	76	10	2312	55	22	46	3	126	65	2119	30	9	2223	4778
Apprch %	6	3.4	88.9	1.7		1.5	94.8	3.3	0.4		43.7	17.5	36.5	2.4		2.9	95.3	1.3	0.4		
Total %	0.1	0.1	2.2	0	2.4	0.7	45.9	1.6	0.2	48.4	1.2	0.5	1	0.1	2.6	1.4	44.3	0.6	0.2	46.5	
Cars	7	4	104	2	117	35	2154	76	10	2275	55	22	46	3	126	64	2085	27	9	2185	4703
% Cars	100	100	100	100	100	100	98.3	100	100	98.4	100	100	100	100	100	98.5	98.4	90	100	98.3	98.4
Bus	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	1	20	3	0	24	49
% Bus	0	0	0	0	0	0	1.1	0	0	1.1	0	0	0	0	0	1.5	0.9	10	0	1.1	1
Trucks	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	14	0	0	14	26
% Trucks	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0	0	0	0	0.7	0	0	0.6	0.5

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14532 Lee Road
Chantilly, VA 20151
Engineers, Surveyors, Planners, Landscape Architects

W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday AM Peak
Analyst: PHR+A

File Name : Route 7 & N Oak Street_AM
Site Code : 1076780
Start Date : 11/30/2010
Page No : 2

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	1	18	1	20	3	244	7	0	254	9	5	3	0	17	8	243	4	0	255	546
07:45 AM	3	1	39	0	43	0	255	35	1	291	13	4	7	0	24	20	241	2	1	264	622
08:00 AM	0	0	13	1	14	4	254	4	1	263	5	1	5	0	11	4	219	3	1	227	515
08:15 AM	1	1	6	0	8	8	262	6	1	277	2	2	4	0	8	6	253	2	1	262	555
Total Volume	4	3	76	2	85	15	1015	52	3	1085	29	12	19	0	60	38	956	11	3	1008	2238
% App. Total	4.7	3.5	89.4	2.4		1.4	93.5	4.8	0.3		48.3	20	31.7	0		3.8	94.8	1.1	0.3		
PHF	.333	.750	.487	.500	.494	.469	.969	.371	.750	.932	.558	.600	.679	.000	.625	.475	.945	.688	.750	.955	.900
Cars	4	3	76	2	85	15	993	52	3	1063	29	12	19	0	60	38	939	10	3	990	2198
% Cars	100	100	100	100	100	100	97.8	100	100	98.0	100	100	100	0	100	100	98.2	90.9	100	98.2	98.2
Bus	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	10	1	0	11	24
% Bus	0	0	0	0	0	0	1.3	0	0	1.2	0	0	0	0	0	0	1.0	9.1	0	1.1	1.1
Trucks	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	7	0	0	7	16
% Trucks	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0	0.7	0	0	0.7	0.7

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W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday 2.00 - 4.00 PM
Analyst: PHR+A

File Name : Route 7 & N Oak Street_Mid-day
Site Code : 1076780
Start Date : 11/30/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
02:00 PM	2	0	9	2	13	2	176	4	1	183	5	1	6	0	12	6	180	3	1	190	398
02:15 PM	4	1	8	1	14	5	205	3	3	216	3	2	6	2	13	5	213	10	2	230	473
02:30 PM	1	1	8	0	10	3	202	16	1	222	7	3	7	0	17	4	214	11	0	229	478
02:45 PM	2	0	13	0	15	7	256	15	5	283	6	1	4	0	11	16	192	8	0	216	525
Total	9	2	38	3	52	17	839	38	10	904	21	7	23	2	53	31	799	32	3	865	1874
03:00 PM	0	5	56	0	61	5	257	4	4	270	5	1	11	0	17	6	208	7	3	224	572
03:15 PM	5	2	15	3	25	3	279	8	2	292	7	1	4	0	12	8	235	7	1	251	580
03:30 PM	4	0	13	1	18	6	288	3	3	300	3	1	6	0	10	13	225	7	8	253	581
03:45 PM	2	2	13	0	17	3	272	2	2	279	8	0	10	0	18	6	238	6	3	253	567
Total	11	9	97	4	121	17	1096	17	11	1141	23	3	31	0	57	33	906	27	15	981	2300
Grand Total	20	11	135	7	173	34	1935	55	21	2045	44	10	54	2	110	64	1705	59	18	1846	4174
Apprch %	11.6	6.4	78	4		1.7	94.6	2.7	1		40	9.1	49.1	1.8		3.5	92.4	3.2	1		
Total %	0.5	0.3	3.2	0.2	4.1	0.8	46.4	1.3	0.5	49	1.1	0.2	1.3	0	2.6	1.5	40.8	1.4	0.4	44.2	
Cars	20	11	135	7	173	34	1916	54	21	2025	44	10	53	2	109	64	1692	57	18	1831	4138
% Cars	100	100	100	100	100	100	99	98.2	100	99	100	100	98.1	100	99.1	100	99.2	96.6	100	99.2	99.1
Bus	0	0	0	0	0	0	8	1	0	9	0	0	1	0	1	0	8	2	0	10	20
% Bus	0	0	0	0	0	0	0.4	1.8	0	0.4	0	0	1.9	0	0.9	0	0.5	3.4	0	0.5	0.5
Trucks	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	5	0	0	5	16
% Trucks	0	0	0	0	0	0	0.6	0	0	0.5	0	0	0	0	0	0	0.3	0	0	0.3	0.4

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W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday 2.00 - 4.00 PM
Analyst: PHR+A

File Name : Route 7 & N Oak Street_Mid-day
Site Code : 1076780
Start Date : 11/30/2010
Page No : 2

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	5	56	0	61	5	257	4	4	270	5	1	11	0	17	6	208	7	3	224	572
03:15 PM	5	2	15	3	25	3	279	8	2	292	7	1	4	0	12	8	235	7	1	251	580
03:30 PM	4	0	13	1	18	6	288	3	3	300	3	1	6	0	10	13	225	7	8	253	581
03:45 PM	2	2	13	0	17	3	272	2	2	279	8	0	10	0	18	6	238	6	3	253	567
Total Volume	11	9	97	4	121	17	1096	17	11	1141	23	3	31	0	57	33	906	27	15	981	2300
% App. Total	9.1	7.4	80.2	3.3		1.5	96.1	1.5	1		40.4	5.3	54.4	0		3.4	92.4	2.8	1.5		
PHF	.550	.450	.433	.333	.496	.708	.951	.531	.688	.951	.719	.750	.705	.000	.792	.635	.952	.964	.469	.969	.990
Cars	11	9	97	4	121	17	1086	16	11	1130	23	3	30	0	56	33	897	25	15	970	2277
% Cars	100	100	100	100	100	100	99.1	94.1	100	99.0	100	100	96.8	0	98.2	100	99.0	92.6	100	98.9	99.0
Bus	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	6	2	0	8	12
% Bus	0	0	0	0	0	0	0.2	5.9	0	0.3	0	0	3.2	0	1.8	0	0.7	7.4	0	0.8	0.5
Trucks	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	3	0	0	3	11
% Trucks	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0	0.3	0	0	0.3	0.5

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W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday PM Peak
Analyst: PHR+A

File Name : Route 7 & N Oak Street_PM
Site Code : 1076780
Start Date : 12/1/2010
Page No : 1

Groups Printed- Cars - Bus - Trucks

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	2	1	15	0	18	10	208	2	1	221	4	0	4	0	8	5	221	8	2	236	483
04:15 PM	2	0	17	0	19	9	230	2	2	243	4	0	0	0	4	5	209	10	3	227	493
04:30 PM	4	0	20	0	24	6	257	2	3	268	3	0	7	0	10	5	237	11	8	261	563
04:45 PM	2	2	14	0	18	12	213	2	1	228	4	0	7	0	11	4	246	11	3	264	521
Total	10	3	66	0	79	37	908	8	7	960	15	0	18	0	33	19	913	40	16	988	2060
05:00 PM	2	1	18	0	21	5	245	5	6	261	0	1	7	0	8	7	284	6	4	301	591
05:15 PM	3	0	12	0	15	6	265	2	2	275	5	0	13	0	18	8	273	7	6	294	602
05:30 PM	2	2	24	0	28	9	218	3	1	231	1	1	7	0	9	4	291	6	4	305	573
05:45 PM	3	2	17	0	22	8	239	4	7	258	4	0	8	0	12	7	287	12	1	307	599
Total	10	5	71	0	86	28	967	14	16	1025	10	2	35	0	47	26	1135	31	15	1207	2365
06:00 PM	0	0	19	0	19	6	232	1	2	241	1	2	7	1	11	2	297	5	1	305	576
06:15 PM	1	1	12	1	15	4	196	1	3	204	3	1	3	0	7	4	269	7	3	283	509
Grand Total	21	9	168	1	199	75	2303	24	28	2430	29	5	63	1	98	51	2614	83	35	2783	5510
Apprch %	10.6	4.5	84.4	0.5		3.1	94.8	1	1.2		29.6	5.1	64.3	1		1.8	93.9	3	1.3		
Total %	0.4	0.2	3	0	3.6	1.4	41.8	0.4	0.5	44.1	0.5	0.1	1.1	0	1.8	0.9	47.4	1.5	0.6	50.5	
Cars	21	9	168	1	199	75	2288	24	28	2415	29	5	63	1	98	51	2590	83	35	2759	5471
% Cars	100	100	100	100	100	100	99.3	100	100	99.4	100	100	100	100	100	100	99.1	100	100	99.1	99.3
Bus	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	18	0	0	18	27
% Bus	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	0.7	0	0	0.6	0.5
Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	12
% Trucks	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.2	0.2

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W Broad Street & N/S Oak Street
Location: City of Falls Church, VA
Time: Weekday PM Peak
Analyst: PHR+A

File Name : Route 7 & N Oak Street_PM
Site Code : 1076780
Start Date : 12/1/2010

	N Oak Street Southbound					W Broad Street (Route 7) Westbound					S Oak Street Northbound					W Broad Street (Route 7) Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	1	18	0	21	5	245	5	6	261	0	1	7	0	8	7	284	6	4	301	591
05:15 PM	3	0	12	0	15	6	265	2	2	275	5	0	13	0	18	8	273	7	6	294	602
05:30 PM	2	2	24	0	28	9	218	3	1	231	1	1	7	0	9	4	291	6	4	305	573
05:45 PM	3	2	17	0	22	8	239	4	7	258	4	0	8	0	12	7	287	12	1	307	599
Total Volume	10	5	71	0	86	28	967	14	16	1025	10	2	35	0	47	26	1135	31	15	1207	2365
% App. Total	11.6	5.8	82.6	0		2.7	94.3	1.4	1.6		21.3	4.3	74.5	0		2.2	94	2.6	1.2		
PHF	.833	.625	.740	.000	.768	.778	.912	.700	.571	.932	.500	.500	.673	.000	.653	.813	.975	.646	.625	.983	.982
Cars	10	5	71	0	86	28	960	14	16	1018	10	2	35	0	47	26	1126	31	15	1198	2349
% Cars	100	100	100	0	100	100	99.3	100	100	99.3	100	100	100	0	100	100	99.2	100	100	99.3	99.3
Bus	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	10
% Bus	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	0.5	0	0	0.5	0.4
Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
% Trucks	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.3	0	0	0.2	0.3

Appendix D

Existing Conditions Synchro Analysis

Queues
1: Route 7 & N West St.

4/15/2015

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	253	1044	36	1049	254	345	155	160
v/c Ratio	0.99	0.65	0.15	0.75	0.72	0.93	0.52	0.33
Control Delay	70.3	23.1	20.1	40.2	57.0	79.6	50.5	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	23.1	20.1	40.2	57.0	79.6	50.5	15.2
Queue Length 50th (ft)	~135	358	15	0	184	261	105	35
Queue Length 95th (ft)	#300	454	m27	527	260	#400	161	80
Internal Link Dist (ft)		1468		871		431	199	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	255	1605	291	1403	356	372	370	484
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.65	0.12	0.75	0.71	0.93	0.42	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	906	54	33	906	48	216	260	33	37	94	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3238		1710	3237		1711	1767			1775	1531
Flt Permitted	0.12	1.00		0.17	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	214	3238		309	3237		1711	1767			1775	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	253	985	59	36	996	53	254	306	39	44	111	160
RTOR Reduction (vph)	0	3	0	0	3	0	0	4	0	0	0	71
Lane Group Flow (vph)	253	1041	0	36	1046	0	254	341	0	0	155	89
Confl. Peds. (#/hr)	8		2	2		8	7		2	2		7
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	62.9	54.5		52.8	48.9		22.8	22.8			18.3	32.8
Effective Green, g (s)	64.4	57.5		55.8	51.9		24.8	24.8			20.3	32.8
Actuated g/C Ratio	0.54	0.48		0.46	0.43		0.21	0.21			0.17	0.27
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	252	1552		207	1400		354	365			300	418
v/s Ratio Prot	c0.09	0.32		0.01	0.32		0.15	c0.19			c0.09	0.06
v/s Ratio Perm	c0.45			0.07								
v/c Ratio	1.00	0.67		0.17	0.75		0.72	0.93			0.52	0.21
Uniform Delay, d1	27.0	24.0		19.1	28.6		44.3	46.8			45.4	33.6
Progression Factor	0.72	0.85		1.29	1.23		1.00	1.00			1.00	1.00
Incremental Delay, d2	53.2	2.0		0.1	3.1		5.7	30.3			0.6	0.1
Delay (s)	72.7	22.4		24.8	38.4		50.0	77.1			46.0	33.7
Level of Service	E	C		C	D		D	E			D	C
Approach Delay (s)		32.2			37.9			65.6			39.8	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	62	22	9	485	246	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.89	0.89	0.88	0.88
Hourly flow rate (vph)	73	26	10	545	280	62
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279	784	
pX, platoon unblocked	0.75					
vC, conflicting volume	876	172	342			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665	172	342			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	97	99			
cM capacity (veh/h)	291	841	1214			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	99	555	186	156
Volume Left	73	10	0	0
Volume Right	26	0	0	62
cSH	352	1214	1700	1700
Volume to Capacity	0.28	0.01	0.11	0.09
Queue Length 95th (ft)	28	1	0	0
Control Delay (s)	19.2	0.2	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.2	0.2	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	172	33	450	126	27	158
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.90	0.90	0.85	0.85
Hourly flow rate (vph)	202	39	500	140	32	186
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			580			483
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	821	572			642	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	338			426	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	39	93			96	
cM capacity (veh/h)	334	561			904	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	241	640	218
Volume Left	202	0	32
Volume Right	39	140	0
cSH	357	1700	904
Volume to Capacity	0.68	0.38	0.04
Queue Length 95th (ft)	118	0	3
Control Delay (s)	33.7	0.0	1.6
Lane LOS	D		A
Approach Delay (s)	33.7	0.0	1.6
Approach LOS	D		

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1105	1228	120
v/c Ratio	0.53	0.55	0.27
Control Delay	15.3	6.8	16.5
Queue Delay	0.0	0.0	0.0
Total Delay	15.3	6.8	16.5
Queue Length 50th (ft)	419	77	32
Queue Length 95th (ft)	m508	174	56
Internal Link Dist (ft)	871	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2099	2227	638
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.53	0.55	0.19

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	949	22	14	985	45	15	68	19	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.98				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3252			3243			1970				
Flt Permitted		0.88			0.94			0.99				
Satd. Flow (perm)		2868			3038			1970				
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	38	1043	24	16	1159	53	18	80	22	0	0	0
RTOR Reduction (vph)	0	2	0	0	4	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1103	0	0	1224	0	0	104	0	0	0	0
Confl. Peds. (#/hr)	10		13	13		10	15		9	9		15
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		39.1			39.1			8.9				
Effective Green, g (s)		42.1			42.1			11.9				
Actuated g/C Ratio		0.70			0.70			0.20				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2012			2132			391				
v/s Ratio Prot												
v/s Ratio Perm		0.38			c0.40			0.05				
v/c Ratio		0.55			0.57			0.27				
Uniform Delay, d1		4.3			4.5			20.4				
Progression Factor		2.76			1.00			1.00				
Incremental Delay, d2		0.8			1.1			0.1				
Delay (s)		12.8			5.6			20.5				
Level of Service		B			A			C				
Approach Delay (s)		12.8			5.6			20.5			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	128	0	0	191	30	19	43	95	20	0	18
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	16	151	0	0	225	35	22	51	112	24	0	21

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	167	260	185	45
Volume Left (vph)	16	0	22	24
Volume Right (vph)	0	35	112	21
Hadj (s)	0.05	-0.05	-0.30	-0.14
Departure Headway (s)	4.8	4.6	4.7	5.1
Degree Utilization, x	0.22	0.34	0.24	0.06
Capacity (veh/h)	692	735	707	632
Control Delay (s)	9.3	10.0	9.2	8.4
Approach Delay (s)	9.3	10.0	9.2	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.4		
HCM Level of Service	A		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	14	65	314	211	159
v/c Ratio	0.09	0.31	0.20	0.16	0.11
Control Delay	29.6	39.4	3.7	1.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	39.4	3.7	1.1	3.5
Queue Length 50th (ft)	4	34	31	0	14
Queue Length 95th (ft)	21	68	115	23	59
Internal Link Dist (ft)	413	1025	252		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	361	533	1536	1283	1491
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.12	0.20	0.16	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	7	44	4	7	1	288	194	11	134	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.96			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.92			0.98			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1657			1761			1862	1530		1853	
Flt Permitted		1.00			0.96			1.00	1.00		0.97	
Satd. Flow (perm)		1657			1761			1862	1530		1810	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	6	8	52	5	8	1	313	211	12	146	1
RTOR Reduction (vph)	0	8	0	0	6	0	0	0	51	0	0	0
Lane Group Flow (vph)	0	6	0	0	59	0	0	314	160	0	159	0
Confl. Peds. (#/hr)			4	4			12		21	21		12
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		1.5			7.7			72.8	72.8		72.8	
Effective Green, g (s)		4.5			10.7			75.8	75.8		75.8	
Actuated g/C Ratio		0.04			0.11			0.76	0.76		0.76	
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		75			188			1411	1160		1372	
v/s Ratio Prot		c0.00			c0.03							
v/s Ratio Perm								0.17	0.10		0.09	
v/c Ratio		0.08			0.31			0.22	0.14		0.12	
Uniform Delay, d1		45.8			41.3			3.5	3.3		3.2	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.5			1.0			0.4	0.2		0.2	
Delay (s)		46.3			42.2			3.9	3.5		3.4	
Level of Service		D			D			A	A		A	
Approach Delay (s)		46.3			42.2			3.7			3.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	64	0	0	84	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	70	0	0	91	0
Pedestrians								25			31	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	192	161	116	186	161	101	91			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	161	116	186	161	101	91			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	748	731	916	759	731	930	1504			1531		

Direction, Lane #	NB 1	SB 1
Volume Total	70	91
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.04	0.05
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	7.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	483	0	0	185	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	525	0	0	201	0
Pedestrians								27			32	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								731			332	
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	758	726	228	753	726	557	201			525		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747	714	228	742	714	543	201			510		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	316	351	793	319	351	518	1371			1039		

Direction, Lane #	NB 1	SB 1
Volume Total	525	201
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.31	0.12
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	88	1487	1481	111
v/c Ratio	0.30	0.56	0.63	0.40
Control Delay	6.1	6.2	9.8	38.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.1	6.2	9.8	38.9
Queue Length 50th (ft)	15	235	487	59
Queue Length 95th (ft)	27	256	506	109
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	333	2665	2338	369
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.56	0.63	0.30

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	75	1264	1201	58	61	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.98	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3353		1689	
Flt Permitted	0.12	1.00	1.00		0.97	
Satd. Flow (perm)	224	3347	3353		1689	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.87	0.87
Adj. Flow (vph)	88	1487	1413	68	70	41
RTOR Reduction (vph)	0	0	2	0	19	0
Lane Group Flow (vph)	88	1487	1479	0	92	0
Confl. Peds. (#/hr)	4			4	3	18
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	92.6	92.6	80.6		15.4	
Effective Green, g (s)	95.6	95.6	83.6		18.4	
Actuated g/C Ratio	0.80	0.80	0.70		0.15	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	294	2666	2336		259	
v/s Ratio Prot	0.02	c0.44	c0.44		c0.05	
v/s Ratio Perm	0.22					
v/c Ratio	0.30	0.56	0.63		0.36	
Uniform Delay, d1	7.0	4.5	9.9		45.5	
Progression Factor	1.00	1.00	0.78		1.00	
Incremental Delay, d2	0.2	0.8	1.0		0.3	
Delay (s)	7.2	5.3	8.7		45.8	
Level of Service	A	A	A		D	
Approach Delay (s)		5.4	8.7		45.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	1026	11	15	1055	63	29	14	19	4	3	76
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.85	0.85	0.92	0.92	0.92	0.85	0.92	0.85
Hourly flow rate (vph)	42	1127	12	16	1241	74	32	15	21	5	3	89
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	1315			1139			1961	2565	570	1986	2534	658
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1315			937			1848	2517	305	1876	2483	658
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			98			0	32	97	71	86	78
cM capacity (veh/h)	522			656			27	22	623	16	24	407

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	605	576	637	695	67	97
Volume Left	42	0	16	0	32	5
Volume Right	0	12	0	74	21	89
cSH	522	1700	656	1700	36	150
Volume to Capacity	0.08	0.34	0.02	0.41	1.89	0.65
Queue Length 95th (ft)	6	0	2	0	185	90
Control Delay (s)	2.3	0.0	0.7	0.0	662.0	65.4
Lane LOS	A		A		F	F
Approach Delay (s)	1.2		0.3		662.0	65.4
Approach LOS					F	F

Intersection Summary			
Average Delay	19.7		
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	32	187	49	13	132	11	46	48	34	17	13	68
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	38	220	58	15	155	13	54	56	40	20	15	80

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	315	184	151	115
Volume Left (vph)	38	15	54	20
Volume Right (vph)	58	13	40	80
Hadj (s)	-0.05	0.01	-0.05	-0.35
Departure Headway (s)	4.8	5.0	5.3	5.0
Degree Utilization, x	0.42	0.26	0.22	0.16
Capacity (veh/h)	706	662	609	632
Control Delay (s)	11.3	9.8	9.7	9.0
Approach Delay (s)	11.3	9.8	9.7	9.0
Approach LOS	B	A	A	A

Intersection Summary			
Delay	10.3		
HCM Level of Service	B		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	99	91	75	55
Average Queue (ft)	41	45	46	25
95th Queue (ft)	71	72	69	46
Link Distance (ft)	113	530	202	303
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	125	82	75	67
Average Queue (ft)	52	41	41	33
95th Queue (ft)	88	63	65	54
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	248	1218	96	996	160	244	422	239
v/c Ratio	0.90	0.82	0.48	0.70	0.54	0.78	1.18	0.50
Control Delay	61.6	30.9	29.5	30.5	55.0	66.0	150.8	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	30.9	29.5	30.5	55.0	66.0	150.8	11.9
Queue Length 50th (ft)	0	482	40	283	121	185	~425	16
Queue Length 95th (ft)	#287	#638	86	307	192	278	#632	94
Internal Link Dist (ft)		1468		871		431	199	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	277	1491	231	1427	342	355	358	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.82	0.42	0.70	0.47	0.69	1.18	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	228	1027	94	82	831	15	147	168	56	48	340	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3233		1711	3255		1711	1726			1790	1510
Flt Permitted	0.14	1.00		0.09	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	253	3233		168	3255		1711	1726			1790	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	1116	102	96	978	18	160	183	61	52	370	239
RTOR Reduction (vph)	0	5	0	0	1	0	0	10	0	0	0	173
Lane Group Flow (vph)	248	1213	0	96	995	0	160	234	0	0	422	66
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6								4
Actuated Green, G (s)	67.6	56.8		62.0	54.0		20.7	20.7			24.0	24.0
Effective Green, g (s)	70.6	59.8		65.0	57.0		22.7	22.7			26.0	26.0
Actuated g/C Ratio	0.54	0.46		0.50	0.44		0.17	0.17			0.20	0.20
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	275	1487		197	1427		299	301			358	302
v/s Ratio Prot	c0.09	0.38		0.04	0.31		0.09	c0.14			c0.24	
v/s Ratio Perm	c0.40			0.21								0.04
v/c Ratio	0.90	0.82		0.49	0.70		0.54	0.78			1.18	0.22
Uniform Delay, d1	22.4	30.3		22.7	29.5		48.8	51.2			52.0	43.5
Progression Factor	1.73	0.84		1.44	0.92		1.00	1.00			1.00	1.00
Incremental Delay, d2	26.0	4.3		0.6	2.5		0.9	10.9			105.7	0.1
Delay (s)	64.8	29.6		33.2	29.5		49.8	62.2			157.7	43.6
Level of Service	E	C		C	C		D	E			F	D
Approach Delay (s)		35.6			29.8			57.3			116.4	
Approach LOS		D			C			E			F	

Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	83	22	33	365	570	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89
Hourly flow rate (vph)	90	24	36	397	640	57
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279	784	
pX, platoon unblocked	0.81					
vC, conflicting volume	1141	349	698			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1056	349	698			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	96	96			
cM capacity (veh/h)	171	647	894			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	114	433	427	271
Volume Left	90	36	0	0
Volume Right	24	0	0	57
cSH	202	894	1700	1700
Volume to Capacity	0.56	0.04	0.25	0.16
Queue Length 95th (ft)	76	3	0	0
Control Delay (s)	43.7	1.2	0.0	0.0
Lane LOS	E	A		
Approach Delay (s)	43.7	1.2	0.0	
Approach LOS	E			

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	159	29	349	121	41	474
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	187	34	379	132	45	515
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			580			483
pX, platoon unblocked	0.89	0.90			0.90	
vC, conflicting volume	1052	448			514	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	740	329			402	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	43	95			96	
cM capacity (veh/h)	326	638			1036	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	221	511	560
Volume Left	187	0	45
Volume Right	34	132	0
cSH	353	1700	1036
Volume to Capacity	0.63	0.30	0.04
Queue Length 95th (ft)	101	0	3
Control Delay (s)	30.9	0.0	1.2
Lane LOS	D		A
Approach Delay (s)	30.9	0.0	1.2
Approach LOS	D		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1301	1232	48
v/c Ratio	0.52	0.52	0.21
Control Delay	2.1	4.0	30.9
Queue Delay	0.0	0.0	0.0
Total Delay	2.1	4.0	30.9
Queue Length 50th (ft)	23	147	17
Queue Length 95th (ft)	m27	180	51
Internal Link Dist (ft)	871	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2521	2356	449
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.52	0.52	0.11

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1160	11	37	1021	38	10	9	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.93				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3257			3246			1860				
Flt Permitted		0.89			0.84			0.99				
Satd. Flow (perm)		2914			2722			1860				
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	28	1261	12	42	1147	43	12	11	25	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	1301	0	0	1231	0	0	26	0	0	0	0
Confl. Peds. (#/hr)	1		6	6		1	2		3	3		2
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		107.6			107.6			10.4				
Effective Green, g (s)		110.6			110.6			13.4				
Actuated g/C Ratio		0.85			0.85			0.10				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2479			2316			192				
v/s Ratio Prot												
v/s Ratio Perm		0.45			c0.45			0.01				
v/c Ratio		0.52			0.53			0.13				
Uniform Delay, d1		2.6			2.6			53.0				
Progression Factor		0.53			1.00			1.00				
Incremental Delay, d2		0.5			0.9			0.1				
Delay (s)		1.9			3.5			53.1				
Level of Service		A			A			D				
Approach Delay (s)		1.9			3.5			53.1			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	3.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	162	0	0	178	9	13	18	36	20	0	18
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
Hourly flow rate (vph)	21	191	0	0	209	11	15	21	42	23	0	21

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	212	220	79	44
Volume Left (vph)	21	0	15	23
Volume Right (vph)	0	11	42	21
Hadj (s)	0.05	0.01	-0.25	-0.14
Departure Headway (s)	4.5	4.5	4.7	4.9
Degree Utilization, x	0.27	0.27	0.10	0.06
Capacity (veh/h)	771	774	696	665
Control Delay (s)	9.1	9.1	8.2	8.2
Approach Delay (s)	9.1	9.1	8.2	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.9		
HCM Level of Service	A		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	27	199	276	140	397
v/c Ratio	0.08	0.34	0.40	0.21	0.57
Control Delay	22.8	27.0	24.7	4.4	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	27.0	24.7	4.4	28.6
Queue Length 50th (ft)	8	94	126	0	198
Queue Length 95th (ft)	29	153	197	38	295
Internal Link Dist (ft)	413	1025	252		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	354	587	698	672	691
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.34	0.40	0.21	0.57

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	13	10	160	11	6	8	243	127	19	345	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.94			1.00			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1720			1774			1860	1539		1857	
Flt Permitted		1.00			0.96			0.99	1.00		0.98	
Satd. Flow (perm)		1720			1774			1836	1539		1816	
Peak-hour factor, PHF	0.85	0.85	0.85	0.89	0.89	0.89	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	0	15	12	180	12	7	9	267	140	21	375	1
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	87	0	0	0
Lane Group Flow (vph)	0	17	0	0	198	0	0	276	53	0	397	0
Confl. Peds. (#/hr)			8	8					6	6		
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		17.5			30.5			35.5	35.5		35.5	
Effective Green, g (s)		20.0			33.0			38.0	38.0		38.0	
Actuated g/C Ratio		0.20			0.33			0.38	0.38		0.38	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		344			585			698	585		690	
v/s Ratio Prot		c0.01			c0.11							
v/s Ratio Perm								0.15	0.03		c0.22	
v/c Ratio		0.05			0.34			0.40	0.09		0.58	
Uniform Delay, d1		32.3			25.3			22.6	19.9		24.6	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.3			1.6			1.7	0.3		3.5	
Delay (s)		32.6			26.8			24.3	20.2		28.1	
Level of Service		C			C			C	C		C	
Approach Delay (s)		32.6			26.8			22.9			28.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	84	0	0	105	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	91	0	0	114	0
Pedestrians								2			5	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	210	205	116	207	205	96	114			91		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	210	205	116	207	205	96	114			91		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	744	691	935	749	691	956	1475			1504		

Direction, Lane #	NB 1	SB 1
Volume Total	91	114
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.05	0.07
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	8.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	378	0	0	515	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	411	0	0	560	0
Pedestrians								3			3	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								731			332	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	974	971	563	974	971	414	560			411		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	870	866	378	870	866	414	374			411		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	227	243	557	227	243	637	989			1148		

Direction, Lane #	NB 1	SB 1
Volume Total	411	560
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.24	0.33
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	103	1484	1180	209
v/c Ratio	0.28	0.57	0.51	0.68
Control Delay	5.8	7.2	20.2	55.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.8	7.2	20.2	55.4
Queue Length 50th (ft)	18	234	360	147
Queue Length 95th (ft)	39	343	470	206
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	455	2619	2307	447
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.57	0.51	0.47

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	95	1365	1044	41	111	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3356		1697	
Flt Permitted	0.18	1.00	1.00		0.97	
Satd. Flow (perm)	342	3347	3356		1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.85	0.85
Adj. Flow (vph)	103	1484	1135	45	131	78
RTOR Reduction (vph)	0	0	2	0	18	0
Lane Group Flow (vph)	103	1484	1178	0	191	0
Confl. Peds. (#/hr)	4			4		9
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	98.7	98.7	86.3		19.3	
Effective Green, g (s)	101.7	101.7	89.3		22.3	
Actuated g/C Ratio	0.78	0.78	0.69		0.17	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	371	2618	2305		291	
v/s Ratio Prot	0.02	c0.44	0.35		c0.11	
v/s Ratio Perm	0.20					
v/c Ratio	0.28	0.57	0.51		0.66	
Uniform Delay, d1	5.6	5.5	9.8		50.3	
Progression Factor	1.00	1.00	1.82		1.00	
Incremental Delay, d2	0.1	0.9	0.6		4.0	
Delay (s)	5.7	6.4	18.5		54.3	
Level of Service	A	A	B		D	
Approach Delay (s)		6.4	18.5		54.3	
Approach LOS		A	B		D	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	26	1255	31	28	1137	35	10	6	35	10	5	71
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.85	0.92	0.85
Hourly flow rate (vph)	28	1364	34	30	1278	39	11	7	38	12	5	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.91			0.91	0.91	0.91	0.91	0.91	
vC, conflicting volume	1317			1398			2223	2815	699	2138	2812	658
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1317			1239			2147	2797	471	2053	2794	658
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			94			16	56	92	28	63	79
cM capacity (veh/h)	521			508			13	15	490	16	15	407

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	710	716	669	678	55	101
Volume Left	28	0	30	0	11	12
Volume Right	0	34	0	39	38	84
cSH	521	1700	508	1700	41	78
Volume to Capacity	0.05	0.42	0.06	0.40	1.36	1.30
Queue Length 95th (ft)	4	0	5	0	139	194
Control Delay (s)	1.6	0.0	1.7	0.0	420.0	295.4
Lane LOS	A		A		F	F
Approach Delay (s)	0.8		0.9		420.0	295.4
Approach LOS					F	F

Intersection Summary			
Average Delay	18.9		
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	188	37	17	188	14	9	27	38	35	24	11
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
Hourly flow rate (vph)	20	221	44	20	221	16	11	32	45	41	28	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	285	258	87	81
Volume Left (vph)	20	20	11	41
Volume Right (vph)	44	16	45	13
Hadj (s)	-0.04	0.01	-0.25	0.04
Departure Headway (s)	4.6	4.7	5.1	5.4
Degree Utilization, x	0.37	0.34	0.12	0.12
Capacity (veh/h)	738	727	622	597
Control Delay (s)	10.3	10.1	8.8	9.1
Approach Delay (s)	10.3	10.1	8.8	9.1
Approach LOS	B	B	A	A

Intersection Summary			
Delay	9.9		
HCM Level of Service	A		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	77	90	52	52
Average Queue (ft)	47	39	26	21
95th Queue (ft)	80	64	47	48
Link Distance (ft)	113	530	202	303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	98	147	56	56
Average Queue (ft)	49	58	34	27
95th Queue (ft)	74	97	49	49
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Appendix E

Descriptions of Level of Service

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Table 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2000. Transportation Research Board, National Research Council

Appendix F

Individual Pipeline Development Trip Assignments

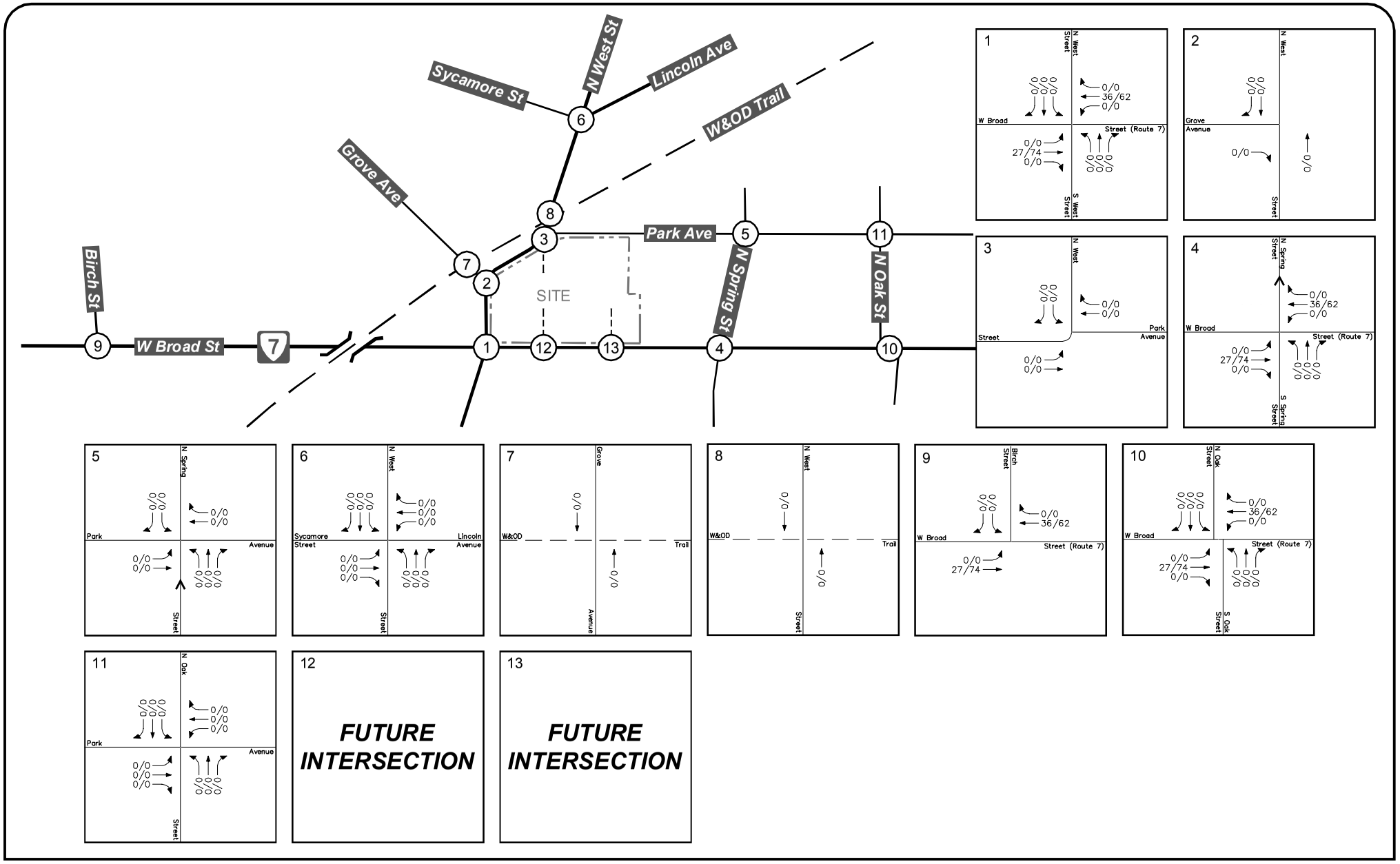

Figure F–1
301 W Broad Street Pipeline Trip Assignments

AM PEAK HOUR
PM PEAK HOUR
000/000

North

Mason Row
City of Falls Church, Virginia

Wells + Associates, Inc.

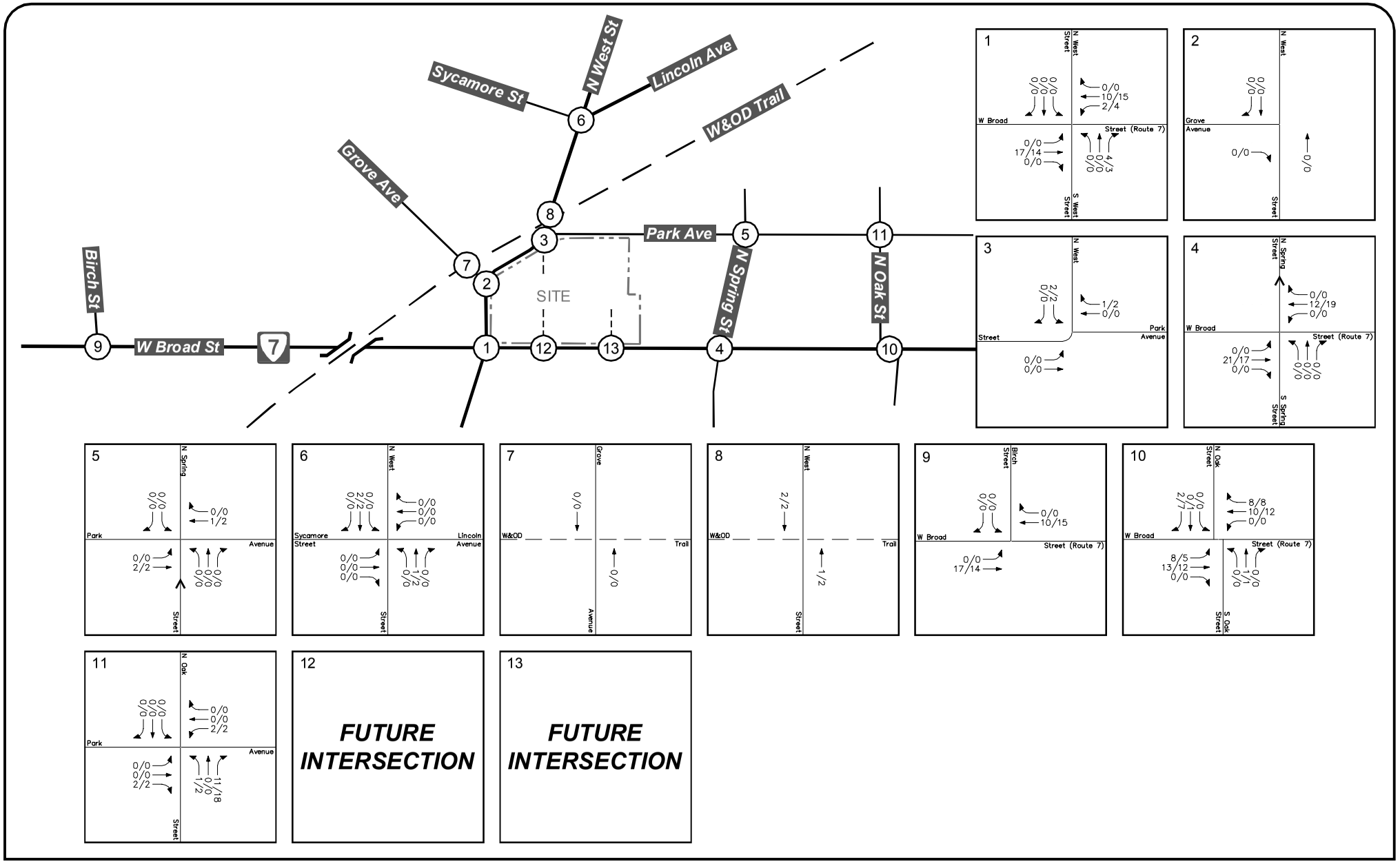

Figure F–2
706 W Broad Street/707 Park Avenue Pipeline Trip Assignments

AM PEAK HOUR
PM PEAK HOUR
000/000

North

Mason Row
City of Falls Church, Virginia

Wells + Associates, Inc.

Appendix G

Background Future Conditions Synchro Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	268	1155	40	1151	249	342	151	157
v/c Ratio	1.17	0.74	0.20	0.82	0.71	0.93	0.50	0.33
Control Delay	132.5	26.7	20.8	42.9	56.4	78.9	50.1	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.5	26.7	20.8	42.9	56.4	78.9	50.1	15.6
Queue Length 50th (ft)	~199	417	17	501	180	258	102	35
Queue Length 95th (ft)	#366	526	m30	#591	274	#438	168	90
Internal Link Dist (ft)		1468		871		431	199	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	229	1554	254	1408	356	372	370	480
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.74	0.16	0.82	0.70	0.92	0.41	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	247	1006	57	37	1008	51	229	276	39	39	100	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3239		1711	3239		1711	1764			1776	1531
Flt Permitted	0.09	1.00		0.13	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	159	3239		225	3239		1711	1764			1776	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	1093	62	40	1096	55	249	300	42	42	109	157
RTOR Reduction (vph)	0	3	0	0	3	0	0	4	0	0	0	68
Lane Group Flow (vph)	268	1152	0	40	1148	0	249	338	0	0	151	89
Confl. Peds. (#/hr)	8		2	2		8	7		2	2		7
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	63.1	53.6		54.1	49.1		22.7	22.7			18.2	32.7
Effective Green, g (s)	64.6	56.6		57.1	52.1		24.7	24.7			20.2	32.7
Actuated g/C Ratio	0.54	0.47		0.48	0.43		0.21	0.21			0.17	0.27
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	228	1528		188	1406		352	363			299	417
v/s Ratio Prot	c0.11	0.36		0.01	0.35		0.15	c0.19			c0.09	0.06
v/s Ratio Perm	c0.53			0.09								
v/c Ratio	1.18	0.75		0.21	0.82		0.71	0.93			0.51	0.21
Uniform Delay, d1	32.6	26.0		19.7	29.8		44.3	46.8			45.4	33.7
Progression Factor	0.79	0.86		1.30	1.23		1.00	1.00			1.00	1.00
Incremental Delay, d2	110.7	3.0		0.2	4.5		5.2	29.9			0.5	0.1
Delay (s)	136.4	25.3		25.7	41.2		49.5	76.7			45.8	33.8
Level of Service	F	C		C	D		D	E			D	C
Approach Delay (s)		46.2			40.6			65.2			39.7	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	46.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	62	22	9	515	261	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	24	10	560	284	60
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279	784	
pX, platoon unblocked	0.74					
vC, conflicting volume	893	173	343			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	680	173	343			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	97	99			
cM capacity (veh/h)	282	840	1212			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	91	570	189	154
Volume Left	67	10	0	0
Volume Right	24	0	0	60
cSH	342	1212	1700	1700
Volume to Capacity	0.27	0.01	0.11	0.09
Queue Length 95th (ft)	26	1	0	0
Control Delay (s)	19.3	0.2	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.3	0.2	0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	172	34	478	126	29	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	187	37	520	137	32	183
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			580			483
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	836	590			659	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	658	347			434	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	43	93			96	
cM capacity (veh/h)	326	548			887	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	224	657	214
Volume Left	187	0	32
Volume Right	37	137	0
cSH	349	1700	887
Volume to Capacity	0.64	0.39	0.04
Queue Length 95th (ft)	106	0	3
Control Delay (s)	32.0	0.0	1.7
Lane LOS	D		A
Approach Delay (s)	32.0	0.0	1.7
Approach LOS	D		

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1209	1253	111
v/c Ratio	0.57	0.56	0.25
Control Delay	17.8	6.9	16.3
Queue Delay	0.0	0.0	0.0
Total Delay	17.8	6.9	16.3
Queue Length 50th (ft)	484	78	29
Queue Length 95th (ft)	m561	202	56
Internal Link Dist (ft)	871	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2111	2229	637
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.57	0.56	0.17

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1055	22	14	1094	45	15	68	19	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.97				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3252			3245			1969				
Flt Permitted		0.88			0.94			0.99				
Satd. Flow (perm)		2878			3039			1969				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1147	24	15	1189	49	16	74	21	0	0	0
RTOR Reduction (vph)	0	2	0	0	4	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1207	0	0	1249	0	0	95	0	0	0	0
Confl. Peds. (#/hr)	10		13	13		10	15		9	9		15
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		39.2			39.2			8.8				
Effective Green, g (s)		42.2			42.2			11.8				
Actuated g/C Ratio		0.70			0.70			0.20				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2024			2137			387				
v/s Ratio Prot												
v/s Ratio Perm		c0.42			0.41			0.05				
v/c Ratio		0.60			0.58			0.25				
Uniform Delay, d1		4.5			4.5			20.3				
Progression Factor		3.05			1.00			1.00				
Incremental Delay, d2		0.9			1.2			0.1				
Delay (s)		14.8			5.7			20.5				
Level of Service		B			A			C				
Approach Delay (s)		14.8			5.7			20.5			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	130	0	0	192	30	19	43	95	20	0	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	141	0	0	209	33	21	47	103	22	0	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	157	241	171	41
Volume Left (vph)	15	0	21	22
Volume Right (vph)	0	33	103	20
Hadj (s)	0.05	-0.05	-0.30	-0.14
Departure Headway (s)	4.8	4.6	4.6	4.9
Degree Utilization, x	0.21	0.31	0.22	0.06
Capacity (veh/h)	706	747	724	651
Control Delay (s)	9.0	9.6	8.9	8.2
Approach Delay (s)	9.0	9.6	8.9	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.1		
HCM Level of Service	A		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	13	63	335	224	171
v/c Ratio	0.08	0.30	0.22	0.17	0.11
Control Delay	28.8	39.3	3.8	1.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	39.3	3.8	1.0	3.4
Queue Length 50th (ft)	3	33	33	0	15
Queue Length 95th (ft)	21	71	122	24	63
Internal Link Dist (ft)	413	1025	252		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	358	533	1538	1286	1490
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.12	0.22	0.17	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	7	47	4	7	1	307	206	12	144	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.96			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.92			0.98			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1641			1760			1862	1530		1853	
Flt Permitted		1.00			0.96			1.00	1.00		0.97	
Satd. Flow (perm)		1641			1760			1862	1530		1806	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	8	51	4	8	1	334	224	13	157	1
RTOR Reduction (vph)	0	8	0	0	6	0	0	0	54	0	0	0
Lane Group Flow (vph)	0	5	0	0	57	0	0	335	170	0	171	0
Confl. Peds. (#/hr)			4	4			12		21	21		12
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		1.5			7.6			72.9	72.9		72.9	
Effective Green, g (s)		4.5			10.6			75.9	75.9		75.9	
Actuated g/C Ratio		0.04			0.11			0.76	0.76		0.76	
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		74			187			1413	1161		1371	
v/s Ratio Prot		c0.00			c0.03							
v/s Ratio Perm								0.18	0.11		0.09	
v/c Ratio		0.07			0.30			0.24	0.15		0.12	
Uniform Delay, d1		45.8			41.3			3.5	3.3		3.2	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.4			0.9			0.4	0.3		0.2	
Delay (s)		46.2			42.2			3.9	3.5		3.4	
Level of Service		D			D			A	A		A	
Approach Delay (s)		46.2			42.2			3.8			3.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	64	0	0	84	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	70	0	0	91	0
Pedestrians								25			31	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	192	161	116	186	161	101	91			70		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	161	116	186	161	101	91			70		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	748	731	916	759	731	930	1504			1531		

Direction, Lane #	NB 1	SB 1
Volume Total	70	91
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.04	0.05
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	7.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	484	0	0	187	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	526	0	0	203	0
Pedestrians								27			32	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								2			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								731			332	
pX, platoon unblocked												
vC, conflicting volume	761	729	230	756	729	558	203			526		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	761	729	230	756	729	558	203			526		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	313	350	791	317	350	515	1368			1041		

Direction, Lane #	NB 1	SB 1
Volume Total	526	203
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.31	0.12
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	82	1507	1499	105
v/c Ratio	0.28	0.56	0.62	0.38
Control Delay	5.9	6.3	8.4	37.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.9	6.3	8.4	37.9
Queue Length 50th (ft)	14	241	508	55
Queue Length 95th (ft)	27	293	575	107
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	332	2669	2408	370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.56	0.62	0.28

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	75	1386	1321	58	61	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.98	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3355		1689	
Flt Permitted	0.12	1.00	1.00		0.97	
Satd. Flow (perm)	222	3347	3355		1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1507	1436	63	66	39
RTOR Reduction (vph)	0	0	2	0	19	0
Lane Group Flow (vph)	82	1507	1497	0	86	0
Confl. Peds. (#/hr)	4			4	3	18
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	92.7	92.7	81.8		15.3	
Effective Green, g (s)	95.7	95.7	84.8		18.3	
Actuated g/C Ratio	0.80	0.80	0.71		0.15	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	279	2669	2371		258	
v/s Ratio Prot	0.02	c0.45	c0.45		c0.05	
v/s Ratio Perm	0.21					
v/c Ratio	0.29	0.56	0.63		0.33	
Uniform Delay, d1	6.8	4.5	9.3		45.4	
Progression Factor	1.00	1.00	0.71		1.00	
Incremental Delay, d2	0.2	0.9	0.8		0.3	
Delay (s)	7.0	5.3	7.4		45.7	
Level of Service	A	A	A		D	
Approach Delay (s)		5.4	7.4		45.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	1129	11	15	1166	71	29	15	19	4	3	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	1227	12	16	1267	77	32	16	21	4	3	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.87			0.87	0.87	0.87	0.87	0.87	
vC, conflicting volume	1345			1239			2086	2710	620	2081	2678	672
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1345			969			1945	2666	254	1940	2628	672
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			0	3	97	0	82	79
cM capacity (veh/h)	508			613			21	17	646	4	18	398

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	664	626	650	711	68	92
Volume Left	50	0	16	0	32	4
Volume Right	0	12	0	77	21	85
cSH	508	1700	613	1700	27	58
Volume to Capacity	0.10	0.37	0.03	0.42	2.52	1.60
Queue Length 95th (ft)	8	0	2	0	207	211
Control Delay (s)	2.8	0.0	0.7	0.0	997.0	451.3
Lane LOS	A		A		F	F
Approach Delay (s)	1.4		0.4		997.0	451.3
Approach LOS					F	F

Intersection Summary			
Average Delay	40.0		
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	32	187	51	15	132	11	47	48	45	17	13	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	203	55	16	143	12	51	52	49	18	14	74

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	293	172	152	107
Volume Left (vph)	35	16	51	18
Volume Right (vph)	55	12	49	74
Hadj (s)	-0.06	0.01	-0.09	-0.35
Departure Headway (s)	4.8	5.0	5.1	4.9
Degree Utilization, x	0.39	0.24	0.22	0.15
Capacity (veh/h)	714	672	640	648
Control Delay (s)	10.7	9.5	9.5	8.8
Approach Delay (s)	10.7	9.5	9.5	8.8
Approach LOS	B	A	A	A

Intersection Summary			
Delay	9.9		
HCM Level of Service	A		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	128	91	67	55
Average Queue (ft)	49	43	43	26
95th Queue (ft)	90	69	63	48
Link Distance (ft)	113	530	202	303
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	124	101	75	67
Average Queue (ft)	53	43	40	34
95th Queue (ft)	85	69	63	57
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queues
1: Route 7 & N West St.

4/15/2015

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	263	1389	99	1059	170	260	447	254
v/c Ratio	1.02	0.94	0.54	0.75	0.55	0.82	1.25	0.53
Control Delay	94.6	40.5	35.8	32.9	55.4	68.8	176.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.6	40.5	35.8	32.9	55.4	68.8	176.0	13.8
Queue Length 50th (ft)	~161	599	49	301	129	200	~469	27
Queue Length 95th (ft)	#350	#800	109	361	204	#305	#679	110
Internal Link Dist (ft)		1468		871		431	199	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	257	1474	215	1414	342	354	358	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.94	0.46	0.75	0.50	0.73	1.25	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	1178	100	91	959	16	156	178	62	51	361	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3235		1711	3256		1711	1724			1790	1510
Flt Permitted	0.12	1.00		0.07	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	210	3235		131	3256		1711	1724			1790	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	263	1280	109	99	1042	17	170	193	67	55	392	254
RTOR Reduction (vph)	0	4	0	0	1	0	0	10	0	0	0	173
Lane Group Flow (vph)	263	1385	0	99	1058	0	170	250	0	0	447	81
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2			6								4
Actuated Green, G (s)	66.9	56.1		61.5	53.4		21.3	21.3			24.0	24.0
Effective Green, g (s)	69.9	59.1		64.5	56.4		23.3	23.3			26.0	26.0
Actuated g/C Ratio	0.54	0.45		0.50	0.43		0.18	0.18			0.20	0.20
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	255	1471		182	1413		307	309			358	302
v/s Ratio Prot	c0.10	0.43		0.04	0.33		0.10	c0.15			c0.25	
v/s Ratio Perm	c0.46			0.23								0.05
v/c Ratio	1.03	0.94		0.54	0.75		0.55	0.81			1.25	0.27
Uniform Delay, d1	30.1	33.8		26.0	30.9		48.6	51.2			52.0	44.0
Progression Factor	1.67	0.84		1.37	0.94		1.00	1.00			1.00	1.00
Incremental Delay, d2	58.3	10.9		1.5	3.1		1.2	13.7			133.1	0.2
Delay (s)	108.5	39.2		37.0	32.0		49.8	64.9			185.1	44.1
Level of Service	F	D		D	C		D	E			F	D
Approach Delay (s)		50.2			32.4			58.9			134.0	
Approach LOS		D			C			E			F	

Intersection Summary			
HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	83	22	33	387	605	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	24	36	421	658	55
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279	784	
pX, platoon unblocked	0.79					
vC, conflicting volume	1181	357	713			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1097	357	713			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	43	96	96			
cM capacity (veh/h)	157	640	883			

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total	114	457	438	275
Volume Left	90	36	0	0
Volume Right	24	0	0	55
cSH	187	883	1700	1700
Volume to Capacity	0.61	0.04	0.26	0.16
Queue Length 95th (ft)	86	3	0	0
Control Delay (s)	50.6	1.2	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	50.6	1.2	0.0	
Approach LOS	F			

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	159	31	370	121	43	503
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	173	34	402	132	47	547
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			580			483
pX, platoon unblocked	0.89	0.88			0.88	
vC, conflicting volume	1111	471			537	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	758	330			405	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	46	95			95	
cM capacity (veh/h)	317	624			1012	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	207	534	593
Volume Left	173	0	47
Volume Right	34	132	0
cSH	345	1700	1012
Volume to Capacity	0.60	0.31	0.05
Queue Length 95th (ft)	92	0	4
Control Delay (s)	29.9	0.0	1.2
Lane LOS	D		A
Approach Delay (s)	29.9	0.0	1.2
Approach LOS	D		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1477	1347	44
v/c Ratio	0.59	0.58	0.19
Control Delay	3.7	4.5	30.8
Queue Delay	0.0	0.0	0.0
Total Delay	3.7	4.5	30.8
Queue Length 50th (ft)	28	175	16
Queue Length 95th (ft)	m83	220	52
Internal Link Dist (ft)	871	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2515	2341	447
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.59	0.58	0.10

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1322	11	37	1165	38	10	9	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			1.00			0.93				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3257			3248			1859				
Flt Permitted		0.89			0.83			0.99				
Satd. Flow (perm)		2909			2706			1859				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1437	12	40	1266	41	11	10	23	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1477	0	0	1346	0	0	23	0	0	0	0
Confl. Peds. (#/hr)	1		6	6		1	2		3	3		2
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		107.6			107.6			10.4				
Effective Green, g (s)		110.6			110.6			13.4				
Actuated g/C Ratio		0.85			0.85			0.10				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2475			2302			192				
v/s Ratio Prot												
v/s Ratio Perm		c0.51			0.50			0.01				
v/c Ratio		0.60			0.58			0.12				
Uniform Delay, d1		2.9			2.9			53.0				
Progression Factor		0.92			1.00			1.00				
Incremental Delay, d2		0.5			1.1			0.1				
Delay (s)		3.2			4.0			53.1				
Level of Service		A			A			D				
Approach Delay (s)		3.2			4.0			53.1			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	4.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	164	0	0	180	9	13	18	36	20	0	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	178	0	0	196	10	14	20	39	22	0	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	198	205	73	41
Volume Left (vph)	20	0	14	22
Volume Right (vph)	0	10	39	20
Hadj (s)	0.05	0.01	-0.25	-0.14
Departure Headway (s)	4.5	4.4	4.6	4.8
Degree Utilization, x	0.25	0.25	0.09	0.05
Capacity (veh/h)	780	783	710	680
Control Delay (s)	8.9	8.9	8.1	8.1
Approach Delay (s)	8.9	8.9	8.1	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	25	204	292	147	423
v/c Ratio	0.07	0.35	0.42	0.22	0.61
Control Delay	23.2	27.2	25.2	4.4	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	27.2	25.2	4.4	29.7
Queue Length 50th (ft)	7	97	135	0	215
Queue Length 95th (ft)	30	159	209	39	317
Internal Link Dist (ft)	413	1025	252		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	353	587	698	676	690
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.35	0.42	0.22	0.61

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	13	10	170	11	6	8	260	135	20	368	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.94			1.00			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1722			1774			1860	1539		1857	
Flt Permitted		1.00			0.96			0.99	1.00		0.97	
Satd. Flow (perm)		1722			1774			1836	1539		1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	14	11	185	12	7	9	283	147	22	400	1
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	91	0	0	0
Lane Group Flow (vph)	0	16	0	0	203	0	0	292	56	0	423	0
Confl. Peds. (#/hr)			8	8					6	6		
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		17.5			30.5			35.5	35.5		35.5	
Effective Green, g (s)		20.0			33.0			38.0	38.0		38.0	
Actuated g/C Ratio		0.20			0.33			0.38	0.38		0.38	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		344			585			698	585		690	
v/s Ratio Prot		c0.01			c0.11							
v/s Ratio Perm								0.16	0.04		c0.23	
v/c Ratio		0.05			0.35			0.42	0.10		0.61	
Uniform Delay, d1		32.3			25.3			22.9	19.9		25.1	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.3			1.6			1.8	0.3		4.0	
Delay (s)		32.6			27.0			24.7	20.3		29.1	
Level of Service		C			C			C	C		C	
Approach Delay (s)		32.6			27.0			23.2			29.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	84	0	0	105	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	91	0	0	114	0
Pedestrians								2			5	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	210	205	116	207	205	96	114			91		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	210	205	116	207	205	96	114			91		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	744	691	935	749	691	956	1475			1504		

Direction, Lane #	NB 1	SB 1
Volume Total	91	114
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.05	0.07
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	8.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	380	0	0	517	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	413	0	0	562	0
Pedestrians								3			3	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								731			332	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	978	975	565	978	975	416	562			413		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	867	864	367	867	864	416	363			413		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	225	241	558	225	241	635	986			1146		

Direction, Lane #	NB 1	SB 1
Volume Total	413	562
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.24	0.33
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	103	1671	1333	193
v/c Ratio	0.31	0.63	0.57	0.65
Control Delay	6.2	7.8	21.7	54.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.2	7.8	21.7	54.4
Queue Length 50th (ft)	18	293	422	133
Queue Length 95th (ft)	37	408	542	207
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	415	2642	2333	447
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.63	0.57	0.43

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	95	1537	1185	41	111	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3358		1697	
Flt Permitted	0.15	1.00	1.00		0.97	
Satd. Flow (perm)	279	3347	3358		1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	1671	1288	45	121	72
RTOR Reduction (vph)	0	0	1	0	18	0
Lane Group Flow (vph)	103	1671	1332	0	175	0
Confl. Peds. (#/hr)	4			4		9
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	99.6	99.6	87.3		18.4	
Effective Green, g (s)	102.6	102.6	90.3		21.4	
Actuated g/C Ratio	0.79	0.79	0.69		0.16	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	327	2642	2333		279	
v/s Ratio Prot	0.02	c0.50	0.40		c0.10	
v/s Ratio Perm	0.23					
v/c Ratio	0.31	0.63	0.57		0.63	
Uniform Delay, d1	6.5	5.8	10.0		50.6	
Progression Factor	1.00	1.00	1.90		1.00	
Incremental Delay, d2	0.2	1.2	0.7		3.1	
Delay (s)	6.7	6.9	19.8		53.7	
Level of Service	A	A	B		D	
Approach Delay (s)		6.9	19.8		53.7	
Approach LOS		A	B		D	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	1418	31	28	1281	43	10	7	35	10	6	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	1541	34	30	1392	47	11	8	38	11	7	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.87			0.87	0.87	0.87	0.87	0.87	
vC, conflicting volume	1439			1575			2471	3126	788	2357	3119	720
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1439			1371			2395	3143	471	2265	3136	720
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			93			0	6	92	0	20	77
cM capacity (veh/h)	467			434			4	8	472	3	8	371

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	804	804	727	743	57	102
Volume Left	34	0	30	0	11	11
Volume Right	0	34	0	47	38	85
cSH	467	1700	434	1700	14	20
Volume to Capacity	0.07	0.47	0.07	0.44	3.97	4.99
Queue Length 95th (ft)	6	0	6	0	Err	Err
Control Delay (s)	2.2	0.0	2.2	0.0	Err	Err
Lane LOS	A		A		F	F
Approach Delay (s)	1.1		1.1		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	491.3		
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	188	39	19	188	14	11	27	56	35	24	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	204	42	21	204	15	12	29	61	38	26	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	265	240	102	76
Volume Left (vph)	18	21	12	38
Volume Right (vph)	42	15	61	12
Hadj (s)	-0.05	0.01	-0.30	0.04
Departure Headway (s)	4.6	4.7	4.9	5.3
Degree Utilization, x	0.34	0.31	0.14	0.11
Capacity (veh/h)	737	726	656	606
Control Delay (s)	10.0	9.8	8.7	9.0
Approach Delay (s)	10.0	9.8	8.7	9.0
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.6		
HCM Level of Service	A		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	77	78	28	52
Average Queue (ft)	45	37	25	24
95th Queue (ft)	75	57	38	48
Link Distance (ft)	113	530	202	303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	75	103	101	55
Average Queue (ft)	43	52	39	27
95th Queue (ft)	65	81	66	51
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Appendix H

Existing Site Driveway Traffic Counts

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	Site Driveway - A
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	0
INTERSECTION:	W. Broad St. & Driveway A	**WEATHER:**	clear	**WESTBOUND ROAD:**	West Broad Street - 7
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Eduvina	**EASTBOUND ROAD:**	West Broad Street - 7
		INPUTED BY:	agan		

Time	Southbound Site Driveway - A					Westbound West Broad Street - 7					Northbound 0					Eastbound West Broad Street - 7					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM	1			1		1			1									2	2		1	3	4
7:30 AM - 7:45 AM	3		1	4														3	3		4	3	7
7:45 AM - 8:00 AM																							
8:00 AM - 8:15 AM																							
8:15 AM - 8:30 AM																							
8:30 AM - 8:45 AM																		2	2			2	2
8:45 AM - 9:00 AM						1			1									2	2			3	3
2:30 PM - 2:45 PM	5		1	6		2			2												6	2	8
2:45 PM - 3:00 PM	9		1	10														1	1		10	1	11
3:00 PM - 3:15 PM	1			1		4			4												1	4	5
3:15 PM - 3:30 PM	3			3														1	1		3	1	4
3:30 PM - 3:45 PM	1			1		1			1												1	1	2
3:45 PM - 4:00 PM	3		1	4		1			1									2	2		4	3	7
4:00 PM - 4:15 PM	3			3		1			1									3	3		3	4	7
4:15 PM - 4:30 PM	1			1		1			1									1	1		1	2	3
4:30 PM - 4:45 PM	2			2														1	1		2	1	3
4:45 PM - 5:00 PM	1			1		2			2												1	2	3
5:00 PM - 5:15 PM						2			2													2	2
5:15 PM - 5:30 PM	5			5																	5		5
5:30 PM - 5:45 PM	1			1		1			1												1	1	2
5:45 PM - 6:00 PM	2			2		2			2												2	2	4
6:00 PM - 6:15 PM	1			1		1			1												1	1	2
6:15 PM - 6:30 PM						1			1													1	1
6:30 PM - 6:45 PM	3		1	4		3			3												4	3	7
6:45 PM - 7:00 PM	3			3		1			1									2	2		3	3	6
Total	48	0	5	53		25	0	0	25		0	0	0	0		0	0	20	20		53	45	98
One Hour Volumes																							
6:00 AM - 7:00 AM																							
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM	1			1	0.25	1			1	0.25								2	2	0.25	1	3	4
6:45 AM - 7:45 AM	4		1	5	0.3125	1			1	0.25								5	5	0.4167	5	6	11
7:00 AM - 8:00 AM	4		1	5	0.3125	1			1	0.25								5	5	0.4167	5	6	11
7:15 AM - 8:15 AM	4		1	5	0.3125	1			1	0.25								5	5	0.4167	5	6	11
7:30 AM - 8:30 AM	3		1	4	0.25													3	3	0.25	4	3	7
7:45 AM - 8:45 AM																		2	2	0.25		2	2
8:00 AM - 9:00 AM						1			1	0.25								4	4	0.5		5	5
2:30 PM - 3:30 PM	18		2	20	0.5	6			6	0.375								2	2	0.5	20	8	28
2:45 PM - 3:45 PM	14		1	15	0.375	5			5	0.3125								2	2	0.5	15	7	22
3:00 PM - 4:00 PM	8		1	9	0.5625	6			6	0.375								3	3	0.375	9	9	18
3:15 PM - 4:15 PM	10		1	11	0.6875	3			3	0.75								6	6	0.5	11	9	20
3:30 PM - 4:30 PM	8		1	9	0.5625	4			4	1								6	6	0.5	9	10	19
3:45 PM - 4:45 PM	9		1	10	0.625	3			3	0.75								7	7	0.5833	10	10	20
4:00 PM - 5:00 PM	7			7	0.5833	4			4	0.5								5	5	0.4167	7	9	16
4:15 PM - 5:15 PM	4			4	0.5	5			5	0.625								2	2	0.5	4	7	11
4:30 PM - 5:30 PM	8			8	0.4	4			4	0.5								1	1	0.25	8	5	13
4:45 PM - 5:45 PM	7			7	0.35	5			5	0.625											7	5	12
5:00 PM - 6:00 PM	8			8	0.4	5			5	0.625											8	5	13
5:15 PM - 6:15 PM	9			9	0.45	4			4	0.5											9	4	13
5:30 PM - 6:30 PM	4			4	0.5	5			5	0.625											4	5	9
5:45 PM - 6:45 PM	6		1	7	0.4375	7			7	0.5833											7	7	14
6:00 PM - 7:00 PM	7		1	8	0.5	6			6	0.5								2	2	0.25	8	8	16
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	Site Driveway - B
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	0
INTERSECTION:	W. Broad St. & Driveway B	**WEATHER:**	clear	**WESTBOUND ROAD:**	West Broad Street - 7
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Eduvina	**EASTBOUND ROAD:**	West Broad Street - 7
		INPUTED BY:	agan		

Time	Southbound Site Driveway - B					Westbound West Broad Street - 7					Northbound 0					Eastbound West Broad Street - 7					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM						1			1													1	1
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM																							
7:30 AM - 7:45 AM																							
7:45 AM - 8:00 AM																							
8:00 AM - 8:15 AM																							
8:15 AM - 8:30 AM																							
8:30 AM - 8:45 AM						2			2													2	2
8:45 AM - 9:00 AM																							
2:30 PM - 2:45 PM																		1	1			1	1
2:45 PM - 3:00 PM																							
3:00 PM - 3:15 PM	1			1																	1		1
3:15 PM - 3:30 PM																							
3:30 PM - 3:45 PM																							
3:45 PM - 4:00 PM																							
4:00 PM - 4:15 PM						2			2													2	2
4:15 PM - 4:30 PM			1	1		2			2												1	2	3
4:30 PM - 4:45 PM																							
4:45 PM - 5:00 PM						3			3													3	3
5:00 PM - 5:15 PM	1			1																	1		1
5:15 PM - 5:30 PM			1	1																	1		1
5:30 PM - 5:45 PM																							
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM			1	1		1			1												1	1	2
6:15 PM - 6:30 PM			1	1		1			1												1	1	2
6:30 PM - 6:45 PM	1			1		3			3												1	3	4
6:45 PM - 7:00 PM																							
Total	3	0	4	7		15	0	0	15		0	0	0	0		0	0	1	1		7	16	23
One Hour Volumes																							
6:00 AM - 7:00 AM						1			1	0.25												1	1
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM																							
6:45 AM - 7:45 AM																							
7:00 AM - 8:00 AM																							
7:15 AM - 8:15 AM																							
7:30 AM - 8:30 AM																							
7:45 AM - 8:45 AM						2			2	0.25												2	2
8:00 AM - 9:00 AM						2			2	0.25												2	2
2:30 PM - 3:30 PM	1			1	0.25													1	1	0.25	1	1	2
2:45 PM - 3:45 PM	1			1	0.25																1		1
3:00 PM - 4:00 PM	1			1	0.25																1		1
3:15 PM - 4:15 PM						2			2	0.25												2	2
3:30 PM - 4:30 PM			1	1	0.25	4			4	0.5											1	4	5
3:45 PM - 4:45 PM			1	1	0.25	4			4	0.5											1	4	5
4:00 PM - 5:00 PM			1	1	0.25	7			7	0.5833											1	7	8
4:15 PM - 5:15 PM	1		1	2	0.5	5			5	0.4167											2	5	7
4:30 PM - 5:30 PM	1		1	2	0.5	3			3	0.25											2	3	5
4:45 PM - 5:45 PM	1		1	2	0.5	3			3	0.25											2	3	5
5:00 PM - 6:00 PM	1		1	2	0.5																2		2
5:15 PM - 6:15 PM			2	2	0.5	1			1	0.25											2	1	3
5:30 PM - 6:30 PM			2	2	0.5	2			2	0.5											2	2	4
5:45 PM - 6:45 PM	1		2	3	0.75	5			5	0.4167											3	5	8
6:00 PM - 7:00 PM	1		2	3	0.75	5			5	0.4167											3	5	8
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	Site Driveway - C
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	0
INTERSECTION:	W. Broad St. & Driveway C	**WEATHER:**	clear	**WESTBOUND ROAD:**	West Broad Street - 7
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Victor	**EASTBOUND ROAD:**	West Broad Street - 7
		INPUTED BY:	agan		

Time Period	Southbound Site Driveway - C					Westbound West Broad Street - 7					Northbound 0					Eastbound West Broad Street - 7					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
15 Minute Volumes																							
6:00 AM - 6:15 AM						1			1													1	1
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM	1			1		1			1												1	1	2
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM	2			2		1			1												2	1	3
7:15 AM - 7:30 AM						1			1													1	1
7:30 AM - 7:45 AM	1			1																	1		1
7:45 AM - 8:00 AM	1			1																	1		1
8:00 AM - 8:15 AM																							
8:15 AM - 8:30 AM																							
8:30 AM - 8:45 AM																							
8:45 AM - 9:00 AM																							
2:30 PM - 2:45 PM						1			1													1	1
2:45 PM - 3:00 PM																							
3:00 PM - 3:15 PM																							
3:15 PM - 3:30 PM						1			1													1	1
3:30 PM - 3:45 PM																							
3:45 PM - 4:00 PM						1			1													1	1
4:00 PM - 4:15 PM	1			1																	1		1
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM	1			1																	1		1
4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM																							
5:15 PM - 5:30 PM																							
5:30 PM - 5:45 PM																							
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM																							
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM																							
6:45 PM - 7:00 PM						1			1													1	1
Total	7	0	0	7		8	0	0	8		0	0	0	0		0	0	0	0		7	8	15
One Hour Volumes																							
6:00 AM - 7:00 AM	1			1	0.25	2			2	0.5											1	2	3
6:15 AM - 7:15 AM	3			3	0.375	2			2	0.5											3	2	5
6:30 AM - 7:30 AM	3			3	0.375	3			3	0.75											3	3	6
6:45 AM - 7:45 AM	3			3	0.375	2			2	0.5											3	2	5
7:00 AM - 8:00 AM	4			4	0.5	2			2	0.5											4	2	6
7:15 AM - 8:15 AM	2			2	0.5	1			1	0.25											2	1	3
7:30 AM - 8:30 AM	2			2	0.5																2		2
7:45 AM - 8:45 AM	1			1	0.25																1		1
8:00 AM - 9:00 AM																							
2:30 PM - 3:30 PM						2			2	0.5												2	2
2:45 PM - 3:45 PM						1			1	0.25												1	1
3:00 PM - 4:00 PM						2			2	0.5												2	2
3:15 PM - 4:15 PM	1			1	0.25	2			2	0.5											1	2	3
3:30 PM - 4:30 PM	1			1	0.25	1			1	0.25											1	1	2
3:45 PM - 4:45 PM	2			2	0.5	1			1	0.25											2	1	3
4:00 PM - 5:00 PM	2			2	0.5																2		2
4:15 PM - 5:15 PM	1			1	0.25																1		1
4:30 PM - 5:30 PM	1			1	0.25																1		1
4:45 PM - 5:45 PM																							
5:00 PM - 6:00 PM																							
5:15 PM - 6:15 PM																							
5:30 PM - 6:30 PM																							
5:45 PM - 6:45 PM																							
6:00 PM - 7:00 PM						1			1	0.25												1	1
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	Site Driveway - D
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	0
INTERSECTION:	W. Broad St. & Driveway D	**WEATHER:**	clear	**WESTBOUND ROAD:**	West Broad Street - 7
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Victor	**EASTBOUND ROAD:**	West Broad Street - 7
		INPUTED BY:	agan		

Time	Southbound Site Driveway - D					Westbound West Broad Street - 7					Northbound 0					Eastbound West Broad Street - 7					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM						1			1													1	1
6:45 AM - 7:00 AM						1			1													1	1
7:00 AM - 7:15 AM						4			4													4	4
7:15 AM - 7:30 AM																							
7:30 AM - 7:45 AM						2			2													2	2
7:45 AM - 8:00 AM						7			7													7	7
8:00 AM - 8:15 AM	1			1		1			1												1	1	2
8:15 AM - 8:30 AM	1			1																	1		1
8:30 AM - 8:45 AM	2			2																	2		2
8:45 AM - 9:00 AM						2			2													2	2
2:30 PM - 2:45 PM	2			2		1			1												2	1	3
2:45 PM - 3:00 PM						1			1													1	1
3:00 PM - 3:15 PM	1			1																	1		1
3:15 PM - 3:30 PM																							
3:30 PM - 3:45 PM	1			1		1			1												1	1	2
3:45 PM - 4:00 PM						2			2													2	2
4:00 PM - 4:15 PM	1			1		5			5												1	5	6
4:15 PM - 4:30 PM						1			1													1	1
4:30 PM - 4:45 PM	1			1																	1		1
4:45 PM - 5:00 PM						1			1													1	1
5:00 PM - 5:15 PM	1			1		1			1												1	1	2
5:15 PM - 5:30 PM	3			3		1			1												3	1	4
5:30 PM - 5:45 PM	1			1																	1		1
5:45 PM - 6:00 PM						1			1													1	1
6:00 PM - 6:15 PM						3			3													3	3
6:15 PM - 6:30 PM						1			1													1	1
6:30 PM - 6:45 PM	3			3																	3		3
6:45 PM - 7:00 PM																							
Total	18	0	0	18		37	0	0	37		0	0	0	0		0	0	0	0		18	37	55
One Hour Volumes																							
6:00 AM - 7:00 AM						2			2	0.5												2	2
6:15 AM - 7:15 AM						6			6	0.375												6	6
6:30 AM - 7:30 AM						6			6	0.375												6	6
6:45 AM - 7:45 AM						7			7	0.4375												7	7
7:00 AM - 8:00 AM						13			13	0.4643												13	13
7:15 AM - 8:15 AM	1			1	0.25	10			10	0.3571											1	10	11
7:30 AM - 8:30 AM	2			2	0.5	10			10	0.3571											2	10	12
7:45 AM - 8:45 AM	4			4	0.5	8			8	0.2857											4	8	12
8:00 AM - 9:00 AM	4			4	0.5	3			3	0.375											4	3	7
2:30 PM - 3:30 PM	3			3	0.375	2			2	0.5											3	2	5
2:45 PM - 3:45 PM	2			2	0.5	2			2	0.5											2	2	4
3:00 PM - 4:00 PM	2			2	0.5	3			3	0.375											2	3	5
3:15 PM - 4:15 PM	2			2	0.5	8			8	0.4											2	8	10
3:30 PM - 4:30 PM	2			2	0.5	9			9	0.45											2	9	11
3:45 PM - 4:45 PM	2			2	0.5	8			8	0.4											2	8	10
4:00 PM - 5:00 PM	2			2	0.5	7			7	0.35											2	7	9
4:15 PM - 5:15 PM	2			2	0.5	3			3	0.75											2	3	5
4:30 PM - 5:30 PM	5			5	0.4167	3			3	0.75											5	3	8
4:45 PM - 5:45 PM	5			5	0.4167	3			3	0.75											5	3	8
5:00 PM - 6:00 PM	5			5	0.4167	3			3	0.75											5	3	8
5:15 PM - 6:15 PM	4			4	0.3333	5			5	0.4167											4	5	9
5:30 PM - 6:30 PM	1			1	0.25	5			5	0.4167											1	5	6
5:45 PM - 6:45 PM	3			3	0.25	5			5	0.4167											3	5	8
6:00 PM - 7:00 PM	3			3	0.25	4			4	0.3333											3	4	7
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & Driveway E	**WEATHER:**	clear	**WESTBOUND ROAD:**	Site Driveway E
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Roberto	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

Time	Southbound North West Street					Westbound Site Driveway E					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM					`			1	1		1			1							1	1	2
6:30 AM - 6:45 AM											1			1							1		1
6:45 AM - 7:00 AM											2			2							2		2
7:00 AM - 7:15 AM											1			1							1		1
7:15 AM - 7:30 AM											1			1							1		1
7:30 AM - 7:45 AM											1			1							1		1
7:45 AM - 8:00 AM											1			1							1		1
8:00 AM - 8:15 AM								1	1		3			3							3	1	4
8:15 AM - 8:30 AM						1			1													1	1
8:30 AM - 8:45 AM											4			4							4		4
8:45 AM - 9:00 AM											2			2							2		2
2:30 PM - 2:45 PM											1			1							1		1
2:45 PM - 3:00 PM																							
3:00 PM - 3:15 PM						1			1		2			2							2	1	3
3:15 PM - 3:30 PM											1			1							1		1
3:30 PM - 3:45 PM								1	1		1			1							1	1	2
3:45 PM - 4:00 PM																							
4:00 PM - 4:15 PM											1			1							1		1
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM																							
4:45 PM - 5:00 PM						1		1	2													2	2
5:00 PM - 5:15 PM						2			2		2			2							2	2	4
5:15 PM - 5:30 PM						1			1		4			4							4	1	5
5:30 PM - 5:45 PM						1			1		1			1							1	1	2
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM						3			3		2			2							2	3	5
6:15 PM - 6:30 PM								1	1													1	1
6:30 PM - 6:45 PM											1			1							1		1
6:45 PM - 7:00 PM											1			1							1		1
Total	0	0	0	0		10	0	5	15		34	0	0	34		0	0	0	0		34	15	49
One Hour Volumes																							
6:00 AM - 7:00 AM								1	1	0.25	4			4	0.5						4	1	5
6:15 AM - 7:15 AM								1	1	0.25	5			5	0.625						5	1	6
6:30 AM - 7:30 AM											5			5	0.625						5		5
6:45 AM - 7:45 AM											5			5	0.625						5		5
7:00 AM - 8:00 AM											4			4	1						4		4
7:15 AM - 8:15 AM								1	1	0.25	6			6	0.5						6	1	7
7:30 AM - 8:30 AM						1		1	2	0.5	5			5	0.4167						5	2	7
7:45 AM - 8:45 AM						1		1	2	0.5	8			8	0.5						8	2	10
8:00 AM - 9:00 AM						1		1	2	0.5	9			9	0.5625						9	2	11
2:30 PM - 3:30 PM						1			1	0.25	4			4	0.5						4	1	5
2:45 PM - 3:45 PM						1		1	2	0.5	4			4	0.5						4	2	6
3:00 PM - 4:00 PM						1		1	2	0.5	4			4	0.5						4	2	6
3:15 PM - 4:15 PM								1	1	0.25	3			3	0.75						3	1	4
3:30 PM - 4:30 PM								1	1	0.25	2			2	0.5						2	1	3
3:45 PM - 4:45 PM											1			1	0.25						1		1
4:00 PM - 5:00 PM						1		1	2	0.25	1			1	0.25						1	2	3
4:15 PM - 5:15 PM						3		1	4	0.5	2			2	0.25						2	4	6
4:30 PM - 5:30 PM						4		1	5	0.625	6			6	0.375						6	5	11
4:45 PM - 5:45 PM						5		1	6	0.75	7			7	0.4375						7	6	13
5:00 PM - 6:00 PM						4			4	0.5	7			7	0.4375						7	4	11
5:15 PM - 6:15 PM						5			5	0.4167	7			7	0.4375						7	5	12
5:30 PM - 6:30 PM						4		1	5	0.4167	3			3	0.375						3	5	8
5:45 PM - 6:45 PM						3		1	4	0.3333	3			3	0.375						3	4	7
6:00 PM - 7:00 PM						3		1	4	0.3333	4			4	0.5						4	4	8
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & Driveway F	**WEATHER:**	clear	**WESTBOUND ROAD:**	Site Driveway F
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Roberto	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

Time	Southbound North West Street					Westbound Site Driveway F					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM					`			1	1													1	1
6:30 AM - 6:45 AM						3		2	5		2			2							2	5	7
6:45 AM - 7:00 AM						2		2	4													4	4
7:00 AM - 7:15 AM						2		1	3													3	3
7:15 AM - 7:30 AM						2			2													2	2
7:30 AM - 7:45 AM			1	1		2		3	5		1			1							2	5	7
7:45 AM - 8:00 AM			2	2		2		4	6		1			1							3	6	9
8:00 AM - 8:15 AM						2		1	3		3			3							3	3	6
8:15 AM - 8:30 AM			2	2		3		1	4												2	4	6
8:30 AM - 8:45 AM			1	1		5			5		1			1							2	5	7
8:45 AM - 9:00 AM			2	2		3		3	6												2	6	8
2:30 PM - 2:45 PM																							
2:45 PM - 3:00 PM						1			1		1			1							1	1	2
3:00 PM - 3:15 PM																							
3:15 PM - 3:30 PM																							
3:30 PM - 3:45 PM								1	1		2			2							2	1	3
3:45 PM - 4:00 PM						2			2													2	2
4:00 PM - 4:15 PM																							
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM																							
4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM			1	1																	1		1
5:15 PM - 5:30 PM																							
5:30 PM - 5:45 PM			1	1																	1		1
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM						1		1	2													2	2
6:15 PM - 6:30 PM						1			1													1	1
6:30 PM - 6:45 PM																							
6:45 PM - 7:00 PM											1			1							1		1
Total	0	0	10	10		31	0	20	51		12	0	0	12		0	0	0	0		22	51	73
One Hour Volumes																							
6:00 AM - 7:00 AM						5		5	10	0.5	2			2	0.25						2	10	12
6:15 AM - 7:15 AM						7		6	13	0.65	2			2	0.25						2	13	15
6:30 AM - 7:30 AM						9		5	14	0.7	2			2	0.25						2	14	16
6:45 AM - 7:45 AM			1	1	0.25	8		6	14	0.7	1			1	0.25						2	14	16
7:00 AM - 8:00 AM			3	3	0.375	8		8	16	0.6667	2			2	0.5						5	16	21
7:15 AM - 8:15 AM			3	3	0.375	8		8	16	0.6667	5			5	0.4167						8	16	24
7:30 AM - 8:30 AM			5	5	0.625	9		9	18	0.75	5			5	0.4167						10	18	28
7:45 AM - 8:45 AM			5	5	0.625	12		6	18	0.75	5			5	0.4167						10	18	28
8:00 AM - 9:00 AM			5	5	0.625	13		5	18	0.75	4			4	0.3333						9	18	27
2:30 PM - 3:30 PM						1			1	0.25	1			1	0.25						1	1	2
2:45 PM - 3:45 PM						1		1	2	0.5	3			3	0.375						3	2	5
3:00 PM - 4:00 PM						2		1	3	0.375	2			2	0.25						2	3	5
3:15 PM - 4:15 PM						2		1	3	0.375	2			2	0.25						2	3	5
3:30 PM - 4:30 PM						2		1	3	0.375	2			2	0.25						2	3	5
3:45 PM - 4:45 PM						2			2	0.25												2	2
4:00 PM - 5:00 PM																							
4:15 PM - 5:15 PM			1	1	0.25																1		1
4:30 PM - 5:30 PM			1	1	0.25																1		1
4:45 PM - 5:45 PM			2	2	0.5																2		2
5:00 PM - 6:00 PM			2	2	0.5																2		2
5:15 PM - 6:15 PM			1	1	0.25	1		1	2	0.25											1	2	3
5:30 PM - 6:30 PM			1	1	0.25	2		1	3	0.375											1	3	4
5:45 PM - 6:45 PM						2		1	3	0.375												3	3
6:00 PM - 7:00 PM						2		1	3	0.375	1			1	0.25						1	3	4
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & Driveway G	**WEATHER:**	clear	**WESTBOUND ROAD:**	Site Driveway G
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Roberto	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

Time	Southbound North West Street					Westbound Site Driveway G					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM			1	1		3		6	9		13			13							14	9	23
6:15 AM - 6:30 AM								4	4		9			9							9	4	13
6:30 AM - 6:45 AM			2	2				1	1		10			10							12	1	13
6:45 AM - 7:00 AM			2	2				5	5		12			12							14	5	19
7:00 AM - 7:15 AM			1	1				2	2		8			8							9	2	11
7:15 AM - 7:30 AM			3	3		1		4	5		19			19							22	5	27
7:30 AM - 7:45 AM			3	3				1	1		22			22							25	1	26
7:45 AM - 8:00 AM			2	2		3		3	6		14			14							16	6	22
8:00 AM - 8:15 AM			2	2		1		2	3		9			9							11	3	14
8:15 AM - 8:30 AM			4	4		1		2	3		10			10							14	3	17
8:30 AM - 8:45 AM			9	9							11			11							20		20
8:45 AM - 9:00 AM			5	5		2		2	4		8			8							13	4	17
2:30 PM - 2:45 PM			3	3		6		8	14		8			8							11	14	25
2:45 PM - 3:00 PM			6	6		6		5	11		5			5							11	11	22
3:00 PM - 3:15 PM						3		2	5		4			4							4	5	9
3:15 PM - 3:30 PM			5	5		5		2	7		5			5							10	7	17
3:30 PM - 3:45 PM			2	2				2	2		1			1							3	2	5
3:45 PM - 4:00 PM			2	2		4		2	6		1			1							3	6	9
4:00 PM - 4:15 PM			3	3		2		2	4		2			2							5	4	9
4:15 PM - 4:30 PM								1	1		2			2							2	1	3
4:30 PM - 4:45 PM						2		1	3		2			2							2	3	5
4:45 PM - 5:00 PM			6	6		2		1	3		2			2							8	3	11
5:00 PM - 5:15 PM			2	2		2		6	8		1			1							3	8	11
5:15 PM - 5:30 PM								1	1		1			1							1	1	2
5:30 PM - 5:45 PM						2		3	5		3			3							3	5	8
5:45 PM - 6:00 PM						3			3		4			4							4	3	7
6:00 PM - 6:15 PM			1	1		1		1	2												1	2	3
6:15 PM - 6:30 PM											1			1							1		1
6:30 PM - 6:45 PM			2	2		3			3		3			3							5	3	8
6:45 PM - 7:00 PM			2	2		2		1	3		2			2							4	3	7
Total	0	0	68	68		54	0	70	124		192	0	0	192		0	0	0	0		260	124	384
One Hour Volumes																							
6:00 AM - 7:00 AM			5	5	0.625	3		16	19	0.5278	44			44	0.8462						49	19	68
6:15 AM - 7:15 AM			5	5	0.625			12	12	0.6	39			39	0.8125						44	12	56
6:30 AM - 7:30 AM			8	8	0.6667	1		12	13	0.65	49			49	0.6447						57	13	70
6:45 AM - 7:45 AM			9	9	0.75	1		12	13	0.65	61			61	0.6932						70	13	83
7:00 AM - 8:00 AM			9	9	0.75	4		10	14	0.5833	63			63	0.7159						72	14	86
7:15 AM - 8:15 AM			10	10	0.8333	5		10	15	0.625	64			64	0.7273						74	15	89
7:30 AM - 8:30 AM			11	11	0.6875	5		8	13	0.5417	55			55	0.625						66	13	79
7:45 AM - 8:45 AM			17	17	0.4722	5		7	12	0.5	44			44	0.7857						61	12	73
8:00 AM - 9:00 AM			20	20	0.5556	4		6	10	0.625	38			38	0.8636						58	10	68
2:30 PM - 3:30 PM			14	14	0.5833	20		17	37	0.6607	22			22	0.6875						36	37	73
2:45 PM - 3:45 PM			13	13	0.5417	14		11	25	0.5682	15			15	0.75						28	25	53
3:00 PM - 4:00 PM			9	9	0.45	12		8	20	0.7143	11			11	0.55						20	20	40
3:15 PM - 4:15 PM			12	12	0.6	11		8	19	0.6786	9			9	0.45						21	19	40
3:30 PM - 4:30 PM			7	7	0.5833	6		7	13	0.5417	6			6	0.75						13	13	26
3:45 PM - 4:45 PM			5	5	0.4167	8		6	14	0.5833	7			7	0.875						12	14	26
4:00 PM - 5:00 PM			9	9	0.375	6		5	11	0.6875	8			8	1						17	11	28
4:15 PM - 5:15 PM			8	8	0.3333	6		9	15	0.4688	7			7	0.875						15	15	30
4:30 PM - 5:30 PM			8	8	0.3333	6		9	15	0.4688	6			6	0.75						14	15	29
4:45 PM - 5:45 PM			8	8	0.3333	6		11	17	0.5313	7			7	0.5833						15	17	32
5:00 PM - 6:00 PM			2	2	0.25	7		10	17	0.5313	9			9	0.5625						11	17	28
5:15 PM - 6:15 PM			1	1	0.25	6		5	11	0.55	8			8	0.5						9	11	20
5:30 PM - 6:30 PM			1	1	0.25	6		4	10	0.5	8			8	0.5						9	10	19
5:45 PM - 6:45 PM			3	3	0.375	7		1	8	0.6667	8			8	0.5						11	8	19
6:00 PM - 7:00 PM			5	5	0.625	6		2	8	0.6667	6			6	0.5						11	8	19
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & Driveway H	**WEATHER:**	clear	**WESTBOUND ROAD:**	Site Driveway H
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Austin	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

Time	Southbound North West Street					Westbound Site Driveway H					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM								1	1		4			4							4	1	5
6:15 AM - 6:30 AM								1	1		6		3	9							9	1	10
6:30 AM - 6:45 AM								1	1		4		3	7		1			1		7	2	9
6:45 AM - 7:00 AM								3	3		10		6	16							16	3	19
7:00 AM - 7:15 AM								3	3		6		6	12							12	3	15
7:15 AM - 7:30 AM								2	2		10		6	16		1			1		16	3	19
7:30 AM - 7:45 AM								1	1		9		13	22							22	1	23
7:45 AM - 8:00 AM								3	3		8		6	14							14	3	17
8:00 AM - 8:15 AM								1	1		4		4	8							8	1	9
8:15 AM - 8:30 AM								2	2		7		10	17		1			1		17	3	20
8:30 AM - 8:45 AM								3	3		13		11	24		1			1		24	4	28
8:45 AM - 9:00 AM								1	1		8		2	10							10	1	11
2:30 PM - 2:45 PM								1	1		3		2	5		1			1		5	2	7
2:45 PM - 3:00 PM											5		3	8							8		8
3:00 PM - 3:15 PM								1	1		4			4							4	1	5
3:15 PM - 3:30 PM								2	2		2		3	5							5	2	7
3:30 PM - 3:45 PM								3	3		4		2	6		2			2		6	5	11
3:45 PM - 4:00 PM								2	2		4		2	6		1			1		6	3	9
4:00 PM - 4:15 PM								5	5		5		4	9							9	5	14
4:15 PM - 4:30 PM								6	6		9		5	14							14	6	20
4:30 PM - 4:45 PM								2	2		7		4	11		2			2		11	4	15
4:45 PM - 5:00 PM											10		4	14							14		14
5:00 PM - 5:15 PM								3	3		6		2	8							8	3	11
5:15 PM - 5:30 PM								2	2		2		2	4		1			1		4	3	7
5:30 PM - 5:45 PM								5	5		5		1	6							6	5	11
5:45 PM - 6:00 PM								1	1		9		3	12		1			1		12	2	14
6:00 PM - 6:15 PM											3		2	5							5		5
6:15 PM - 6:30 PM								2	2		5		2	7							7	2	9
6:30 PM - 6:45 PM								2	2		7		3	10							10	2	12
6:45 PM - 7:00 PM											5		2	7		1			1		7	1	8
Total	0	0	0	0		0	0	59	59		184	0	116	300		13	0	0	13		300	72	372
One Hour Volumes																							
6:00 AM - 7:00 AM								6	6	0.5	24		12	36	0.5625	1			1	0.25	36	7	43
6:15 AM - 7:15 AM								8	8	0.6667	26		18	44	0.6875	1			1	0.25	44	9	53
6:30 AM - 7:30 AM								9	9	0.75	30		21	51	0.7969	2			2	0.5	51	11	62
6:45 AM - 7:45 AM								9	9	0.75	35		31	66	0.75	1			1	0.25	66	10	76
7:00 AM - 8:00 AM								9	9	0.75	33		31	64	0.7273	1			1	0.25	64	10	74
7:15 AM - 8:15 AM								7	7	0.5833	31		29	60	0.6818	1			1	0.25	60	8	68
7:30 AM - 8:30 AM								7	7	0.5833	28		33	61	0.6932	1			1	0.25	61	8	69
7:45 AM - 8:45 AM								9	9	0.75	32		31	63	0.6563	2			2	0.5	63	11	74
8:00 AM - 9:00 AM								7	7	0.5833	32		27	59	0.6146	2			2	0.5	59	9	68
2:30 PM - 3:30 PM								4	4	0.5	14		8	22	0.6875	1			1	0.25	22	5	27
2:45 PM - 3:45 PM								6	6	0.5	15		8	23	0.7188	2			2	0.25	23	8	31
3:00 PM - 4:00 PM								8	8	0.6667	14		7	21	0.875	3			3	0.375	21	11	32
3:15 PM - 4:15 PM								12	12	0.6	15		11	26	0.7222	3			3	0.375	26	15	41
3:30 PM - 4:30 PM								16	16	0.6667	22		13	35	0.625	3			3	0.375	35	19	54
3:45 PM - 4:45 PM								15	15	0.625	25		15	40	0.7143	3			3	0.375	40	18	58
4:00 PM - 5:00 PM								13	13	0.5417	31		17	48	0.8571	2			2	0.25	48	15	63
4:15 PM - 5:15 PM								11	11	0.4583	32		15	47	0.8393	2			2	0.25	47	13	60
4:30 PM - 5:30 PM								7	7	0.5833	25		12	37	0.6607	3			3	0.375	37	10	47
4:45 PM - 5:45 PM								10	10	0.5	23		9	32	0.5714	1			1	0.25	32	11	43
5:00 PM - 6:00 PM								11	11	0.55	22		8	30	0.625	2			2	0.5	30	13	43
5:15 PM - 6:15 PM								8	8	0.4	19		8	27	0.5625	2			2	0.5	27	10	37
5:30 PM - 6:30 PM								8	8	0.4	22		8	30	0.625	1			1	0.25	30	9	39
5:45 PM - 6:45 PM								5	5	0.625	24		10	34	0.7083	1			1	0.25	34	6	40
6:00 PM - 7:00 PM								4	4	0.5	20		9	29	0.725	1			1	0.25	29	5	34
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	North West Street
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	North West Street
INTERSECTION:	N. West St. & Driveway 1	**WEATHER:**	clear	**WESTBOUND ROAD:**	Site Driveway 1
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Austin	**EASTBOUND ROAD:**	0
		INPUTED BY:	agan		

Time	Southbound North West Street					Westbound Site Driveway 1					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM								1	1													1	1
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																3			3			3	3
6:45 AM - 7:00 AM																4			4			4	4
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM											1		1	2		1			1		2	1	3
7:30 AM - 7:45 AM											3		1	4							4		4
7:45 AM - 8:00 AM								1	1							1			1			2	2
8:00 AM - 8:15 AM											1		1	2		1			1		2	1	3
8:15 AM - 8:30 AM													1	1							1		1
8:30 AM - 8:45 AM																							
8:45 AM - 9:00 AM													1	1							1		1
2:30 PM - 2:45 PM								1	1							2			2			3	3
2:45 PM - 3:00 PM													1	1							1		1
3:00 PM - 3:15 PM								1	1							2			2			3	3
3:15 PM - 3:30 PM								1	1				3	3		1			1		3	2	5
3:30 PM - 3:45 PM											1			1							1		1
3:45 PM - 4:00 PM								1	1		1		1	2		1			1		2	2	4
4:00 PM - 4:15 PM													1	1		1			1		1	1	2
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM																2			2			2	2
4:45 PM - 5:00 PM								3	3				1	1							1	3	4
5:00 PM - 5:15 PM											2		1	3							3		3
5:15 PM - 5:30 PM											1		1	2							2		2
5:30 PM - 5:45 PM													1	1							1		1
5:45 PM - 6:00 PM													1	1		1			1		1	1	2
6:00 PM - 6:15 PM													2	2		1			1		2	1	3
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM																1			1			1	1
6:45 PM - 7:00 PM													1	1							1		1
Total	0	0	0	0		0	0	9	9		10	0	19	29		22	0	0	22		29	31	60
One Hour Volumes																							
6:00 AM - 7:00 AM								1	1	0.25						7			7	0.4375		8	8
6:15 AM - 7:15 AM																7			7	0.4375		7	7
6:30 AM - 7:30 AM											1		1	2	0.25	8			8	0.5	2	8	10
6:45 AM - 7:45 AM											4		2	6	0.375	5			5	0.3125	6	5	11
7:00 AM - 8:00 AM								1	1	0.25	4		2	6	0.375	2			2	0.5	6	3	9
7:15 AM - 8:15 AM								1	1	0.25	5		3	8	0.5	3			3	0.75	8	4	12
7:30 AM - 8:30 AM								1	1	0.25	4		3	7	0.4375	2			2	0.5	7	3	10
7:45 AM - 8:45 AM								1	1	0.25	1		2	3	0.375	2			2	0.5	3	3	6
8:00 AM - 9:00 AM											1		3	4	0.5	1			1	0.25	4	1	5
2:30 PM - 3:30 PM								3	3	0.75			4	4	0.3333	5			5	0.625	4	8	12
2:45 PM - 3:45 PM								2	2	0.5	1		4	5	0.4167	3			3	0.375	5	5	10
3:00 PM - 4:00 PM								3	3	0.75	2		4	6	0.5	4			4	0.5	6	7	13
3:15 PM - 4:15 PM								2	2	0.5	2		5	7	0.5833	3			3	0.75	7	5	12
3:30 PM - 4:30 PM								1	1	0.25	2		2	4	0.5	2			2	0.5	4	3	7
3:45 PM - 4:45 PM								1	1	0.25	1		2	3	0.375	4			4	0.5	3	5	8
4:00 PM - 5:00 PM								3	3	0.25			2	2	0.5	3			3	0.375	2	6	8
4:15 PM - 5:15 PM								3	3	0.25	2		2	4	0.3333	2			2	0.25	4	5	9
4:30 PM - 5:30 PM								3	3	0.25	3		3	6	0.5	2			2	0.25	6	5	11
4:45 PM - 5:45 PM								3	3	0.25	3		4	7	0.5833						7	3	10
5:00 PM - 6:00 PM											3		4	7	0.5833	1			1	0.25	7	1	8
5:15 PM - 6:15 PM											1		5	6	0.75	2			2	0.5	6	2	8
5:30 PM - 6:30 PM													4	4	0.5	2			2	0.5	4	2	6
5:45 PM - 6:45 PM													3	3	0.375	3			3	0.75	3	3	6
6:00 PM - 7:00 PM													3	3	0.375	2			2	0.5	3	2	5
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	0
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	Site Driveway J
INTERSECTION:	Park Ave. & Driveway J	**WEATHER:**	clear	**WESTBOUND ROAD:**	Park Avenue
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Carmen	**EASTBOUND ROAD:**	Park Avenue
		INPUTED BY:	agan		

Time	Southbound 0					Westbound Park Avenue					Northbound Site Driveway J					Eastbound Park Avenue					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM											1			1							1		1
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM																							
7:30 AM - 7:45 AM																							
7:45 AM - 8:00 AM																							
8:00 AM - 8:15 AM																1			1			1	1
8:15 AM - 8:30 AM																							
8:30 AM - 8:45 AM																							
8:45 AM - 9:00 AM																							
2:30 PM - 2:45 PM													1	1							1		1
2:45 PM - 3:00 PM								1	1		1			1							1	1	2
3:00 PM - 3:15 PM								1	1							1			1			2	2
3:15 PM - 3:30 PM											1			1							1		1
3:30 PM - 3:45 PM																							
3:45 PM - 4:00 PM																							
4:00 PM - 4:15 PM																							
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM																							
4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM													1	1							1		1
5:15 PM - 5:30 PM													1	1							1		1
5:30 PM - 5:45 PM													2	2							2		2
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM								1	1		1			1		1			1		1	2	3
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM								1	1													1	1
6:45 PM - 7:00 PM											1			1							1		1
Total	0	0	0	0		0	0	4	4		5	0	5	10		3	0	0	3		10	7	17
One Hour Volumes																							
6:00 AM - 7:00 AM											1			1	0.25						1		1
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM																							
6:45 AM - 7:45 AM																							
7:00 AM - 8:00 AM																							
7:15 AM - 8:15 AM																1			1	0.25		1	1
7:30 AM - 8:30 AM																1			1	0.25		1	1
7:45 AM - 8:45 AM																1			1	0.25		1	1
8:00 AM - 9:00 AM																1			1	0.25		1	1
2:30 PM - 3:30 PM								2	2	0.5	2		1	3	0.75	1			1	0.25	3	3	6
2:45 PM - 3:45 PM								2	2	0.5	2			2	0.5	1			1	0.25	2	3	5
3:00 PM - 4:00 PM								1	1	0.25	1			1	0.25	1			1	0.25	1	2	3
3:15 PM - 4:15 PM											1			1	0.25						1		1
3:30 PM - 4:30 PM																							
3:45 PM - 4:45 PM																							
4:00 PM - 5:00 PM																							
4:15 PM - 5:15 PM													1	1	0.25						1		1
4:30 PM - 5:30 PM													2	2	0.5						2		2
4:45 PM - 5:45 PM													4	4	0.5						4		4
5:00 PM - 6:00 PM													4	4	0.5						4		4
5:15 PM - 6:15 PM								1	1	0.25	1		3	4	0.5	1			1	0.25	4	2	6
5:30 PM - 6:30 PM								1	1	0.25	1		2	3	0.375	1			1	0.25	3	2	5
5:45 PM - 6:45 PM								2	2	0.5	1			1	0.25	1			1	0.25	1	3	4
6:00 PM - 7:00 PM								2	2	0.5	2			2	0.5	1			1	0.25	2	3	5
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	0
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	Site Driveway K
INTERSECTION:	Park Ave. & Driveway K	**WEATHER:**	clear	**WESTBOUND ROAD:**	Park Avenue
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Carmen	**EASTBOUND ROAD:**	Park Avenue
		INPUTED BY:	agan		

Time	Southbound 0					Westbound Park Avenue					Northbound Site Driveway K					Eastbound Park Avenue					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
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8:30 AM - 8:45 AM																							
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3:30 PM - 3:45 PM																							
3:45 PM - 4:00 PM																							
4:00 PM - 4:15 PM																							
4:15 PM - 4:30 PM													1	1							1		1
4:30 PM - 4:45 PM																							
4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM																							
5:15 PM - 5:30 PM											1			1							1		1
5:30 PM - 5:45 PM																							
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM																							
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM																							
6:45 PM - 7:00 PM																							
Total	0	0	0	0		0	0	0	0		1	0	1	2		0	0	0	0		2	0	2
One Hour Volumes																							
6:00 AM - 7:00 AM																							
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM																							
6:45 AM - 7:45 AM																							
7:00 AM - 8:00 AM																							
7:15 AM - 8:15 AM																							
7:30 AM - 8:30 AM																							
7:45 AM - 8:45 AM																							
8:00 AM - 9:00 AM																							
2:30 PM - 3:30 PM																							
2:45 PM - 3:45 PM																							
3:00 PM - 4:00 PM																							
3:15 PM - 4:15 PM																							
3:30 PM - 4:30 PM													1	1	0.25						1		1
3:45 PM - 4:45 PM													1	1	0.25						1		1
4:00 PM - 5:00 PM													1	1	0.25						1		1
4:15 PM - 5:15 PM													1	1	0.25						1		1
4:30 PM - 5:30 PM											1			1	0.25						1		1
4:45 PM - 5:45 PM											1			1	0.25						1		1
5:00 PM - 6:00 PM											1			1	0.25						1		1
5:15 PM - 6:15 PM											1			1	0.25						1		1
5:30 PM - 6:30 PM																							
5:45 PM - 6:45 PM																							
6:00 PM - 7:00 PM																							
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	0
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	Site Driveway L
INTERSECTION:	Park Ave. & Driveway L	**WEATHER:**	clear	**WESTBOUND ROAD:**	Park Avenue
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Carmen	**EASTBOUND ROAD:**	Park Avenue
		INPUTED BY:	agan		

Time	Southbound 0					Westbound Park Avenue					Northbound Site Driveway L					Eastbound Park Avenue					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM																							
7:30 AM - 7:45 AM																							
7:45 AM - 8:00 AM																							
8:00 AM - 8:15 AM																							
8:15 AM - 8:30 AM													1	1							1		1
8:30 AM - 8:45 AM																							
8:45 AM - 9:00 AM																							
2:30 PM - 2:45 PM																							
2:45 PM - 3:00 PM																							
3:00 PM - 3:15 PM																							
3:15 PM - 3:30 PM																							
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4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM																							
5:15 PM - 5:30 PM																							
5:30 PM - 5:45 PM																							
5:45 PM - 6:00 PM													1	1							1		1
6:00 PM - 6:15 PM																1			1			1	1
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM																							
6:45 PM - 7:00 PM																							
Total	0	0	0	0		0	0	0	0		0	0	2	2		1	0	0	1		2	1	3
One Hour Volumes																							
6:00 AM - 7:00 AM																							
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM																							
6:45 AM - 7:45 AM																							
7:00 AM - 8:00 AM																							
7:15 AM - 8:15 AM																							
7:30 AM - 8:30 AM													1	1	0.25						1		1
7:45 AM - 8:45 AM													1	1	0.25						1		1
8:00 AM - 9:00 AM													1	1	0.25						1		1
2:30 PM - 3:30 PM																							
2:45 PM - 3:45 PM																							
3:00 PM - 4:00 PM																							
3:15 PM - 4:15 PM																							
3:30 PM - 4:30 PM																							
3:45 PM - 4:45 PM																							
4:00 PM - 5:00 PM																							
4:15 PM - 5:15 PM																							
4:30 PM - 5:30 PM																							
4:45 PM - 5:45 PM																							
5:00 PM - 6:00 PM													1	1	0.25						1		1
5:15 PM - 6:15 PM													1	1	0.25	1			1	0.25	1	1	2
5:30 PM - 6:30 PM													1	1	0.25	1			1	0.25	1	1	2
5:45 PM - 6:45 PM													1	1	0.25	1			1	0.25	1	1	2
6:00 PM - 7:00 PM																1			1	0.25		1	1
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT:	North West & West Broad	**DATE:**	9/12/2013	**SOUTHBOUND ROAD:**	0
W+A JOB NO:	5897	**DAY:**	Thursday	**NORTHBOUND ROAD:**	Site Driveway M
INTERSECTION:	Park Ave. & Driveway M	**WEATHER:**	clear	**WESTBOUND ROAD:**	Park Avenue
LOCATION:	Fairfax County,VA	**COUNTED BY:**	Carmen	**EASTBOUND ROAD:**	Park Avenue
		INPUTED BY:	agan		

Time	Southbound 0					Westbound Park Avenue					Northbound Site Driveway M					Eastbound Park Avenue					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			
15 Minute Volumes																							
6:00 AM - 6:15 AM																							
6:15 AM - 6:30 AM																							
6:30 AM - 6:45 AM																							
6:45 AM - 7:00 AM																							
7:00 AM - 7:15 AM																							
7:15 AM - 7:30 AM																							
7:30 AM - 7:45 AM																							
7:45 AM - 8:00 AM																							
8:00 AM - 8:15 AM																							
8:15 AM - 8:30 AM																							
8:30 AM - 8:45 AM																							
8:45 AM - 9:00 AM																							
2:30 PM - 2:45 PM																							
2:45 PM - 3:00 PM																							
3:00 PM - 3:15 PM																							
3:15 PM - 3:30 PM																1			1			1	1
3:30 PM - 3:45 PM																							
3:45 PM - 4:00 PM																							
4:00 PM - 4:15 PM																							
4:15 PM - 4:30 PM																							
4:30 PM - 4:45 PM													1	1		1			1		1	1	2
4:45 PM - 5:00 PM																							
5:00 PM - 5:15 PM																							
5:15 PM - 5:30 PM																							
5:30 PM - 5:45 PM																							
5:45 PM - 6:00 PM																							
6:00 PM - 6:15 PM																							
6:15 PM - 6:30 PM																							
6:30 PM - 6:45 PM																							
6:45 PM - 7:00 PM											1			1							1		1
Total	0	0	0	0		0	0	0	0		1	0	1	2		2	0	0	2		2	2	4
One Hour Volumes																							
6:00 AM - 7:00 AM																							
6:15 AM - 7:15 AM																							
6:30 AM - 7:30 AM																							
6:45 AM - 7:45 AM																							
7:00 AM - 8:00 AM																							
7:15 AM - 8:15 AM																							
7:30 AM - 8:30 AM																							
7:45 AM - 8:45 AM																							
8:00 AM - 9:00 AM																							
2:30 PM - 3:30 PM																1			1	0.25		1	1
2:45 PM - 3:45 PM																1			1	0.25		1	1
3:00 PM - 4:00 PM																1			1	0.25		1	1
3:15 PM - 4:15 PM																1			1	0.25		1	1
3:30 PM - 4:30 PM																							
3:45 PM - 4:45 PM													1	1	0.25	1			1	0.25	1	1	2
4:00 PM - 5:00 PM													1	1	0.25	1			1	0.25	1	1	2
4:15 PM - 5:15 PM													1	1	0.25	1			1	0.25	1	1	2
4:30 PM - 5:30 PM													1	1	0.25	1			1	0.25	1	1	2
4:45 PM - 5:45 PM																							
5:00 PM - 6:00 PM																							
5:15 PM - 6:15 PM																							
5:30 PM - 6:30 PM																							
5:45 PM - 6:45 PM																							
6:00 PM - 7:00 PM											1			1	0.25						1		1
-																							

Appendix I

Total Future Conditions Synchro Analysis

Queues
1: Route 7 & N West St.

7/23/2015

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	257	1195	52	1199	249	350	152	126
v/c Ratio	1.18	0.78	0.27	0.85	0.70	0.94	0.51	0.26
Control Delay	139.5	28.3	22.0	44.5	55.7	81.0	50.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.5	28.3	22.0	44.5	55.7	81.0	50.2	12.2
Queue Length 50th (ft)	~197	443	21	520	180	265	103	20
Queue Length 95th (ft)	#363	#595	m38	#631	274	#452	169	66
Internal Link Dist (ft)		1468		175		431	110	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	218	1535	240	1403	356	371	370	477
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.78	0.22	0.85	0.70	0.94	0.41	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	236	1042	57	48	1078	25	229	278	44	40	100	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3240		1711	3251		1711	1760			1776	1531
Flt Permitted	0.08	1.00		0.11	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	135	3240		193	3251		1711	1760			1776	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	1133	62	52	1172	27	249	302	48	43	109	126
RTOR Reduction (vph)	0	3	0	0	1	0	0	5	0	0	0	65
Lane Group Flow (vph)	257	1192	0	52	1198	0	249	345	0	0	152	61
Confl. Peds. (#/hr)	8		2	2		8	7		2	2		7
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	62.3	52.8		54.1	48.7		23.0	23.0			18.3	32.8
Effective Green, g (s)	64.2	55.8		57.1	51.7		25.0	25.0			20.3	32.8
Actuated g/C Ratio	0.54	0.46		0.48	0.43		0.21	0.21			0.17	0.27
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	217	1507		179	1401		356	367			300	418
v/s Ratio Prot	c0.11	0.37		0.02	0.37		0.15	c0.20			c0.09	0.04
v/s Ratio Perm	c0.52			0.12								
v/c Ratio	1.18	0.79		0.29	0.86		0.70	0.94			0.51	0.14
Uniform Delay, d1	35.3	27.2		20.6	30.8		44.0	46.8			45.3	33.0
Progression Factor	0.81	0.86		1.29	1.21		1.00	1.00			1.00	1.00
Incremental Delay, d2	115.0	3.6		0.3	6.0		4.8	31.7			0.5	0.1
Delay (s)	143.7	27.0		26.9	43.1		48.8	78.5			45.8	33.0
Level of Service	F	C		C	D		D	E			D	C
Approach Delay (s)		47.6			42.5			66.2			40.0	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	66	19	9	529	239	58
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	21	10	575	260	63
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279		
pX, platoon unblocked	0.73					
vC, conflicting volume	886	292	323			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	292	323			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	97	99			
cM capacity (veh/h)	311	746	1237			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	92	585	323
Volume Left	72	10	0
Volume Right	21	0	63
cSH	357	1237	1700
Volume to Capacity	0.26	0.01	0.19
Queue Length 95th (ft)	25	1	0
Control Delay (s)	18.6	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	18.6	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	448	110	33	17	167	34	33	28	44	28	19	149
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	487	120	36	18	182	37	36	30	48	30	21	162

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	487	155	237	114	51	162
Volume Left (vph)	487	0	18	36	30	0
Volume Right (vph)	0	36	37	48	0	162
Hadj (s)	0.53	-0.13	-0.04	-0.15	0.33	-0.67
Departure Headway (s)	6.6	5.9	6.6	7.3	7.6	6.6
Degree Utilization, x	0.89	0.25	0.43	0.23	0.11	0.30
Capacity (veh/h)	541	597	511	465	448	516
Control Delay (s)	40.0	9.7	14.5	12.4	10.3	11.1
Approach Delay (s)	32.6		14.5	12.4	10.9	
Approach LOS	D		B	B	B	

Intersection Summary			
Delay	23.3		
HCM Level of Service	C		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1276	1274	111
v/c Ratio	0.60	0.57	0.25
Control Delay	17.6	7.0	16.3
Queue Delay	0.0	0.0	0.0
Total Delay	17.6	7.0	16.3
Queue Length 50th (ft)	494	81	29
Queue Length 95th (ft)	m575	207	56
Internal Link Dist (ft)	385	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2113	2227	637
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.57	0.17

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1117	22	14	1113	45	15	68	19	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.97				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3253			3245			1969				
Flt Permitted		0.88			0.93			0.99				
Satd. Flow (perm)		2883			3035			1969				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1214	24	15	1210	49	16	74	21	0	0	0
RTOR Reduction (vph)	0	1	0	0	3	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1275	0	0	1271	0	0	95	0	0	0	0
Confl. Peds. (#/hr)	10		13	13		10	15		9	9		15
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		39.2			39.2			8.8				
Effective Green, g (s)		42.2			42.2			11.8				
Actuated g/C Ratio		0.70			0.70			0.20				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2028			2135			387				
v/s Ratio Prot												
v/s Ratio Perm		c0.44			0.42			0.05				
v/c Ratio		0.63			0.60			0.25				
Uniform Delay, d1		4.7			4.5			20.3				
Progression Factor		2.86			1.00			1.00				
Incremental Delay, d2		1.0			1.2			0.1				
Delay (s)		14.6			5.8			20.5				
Level of Service		B			A			C				
Approach Delay (s)		14.6			5.8			20.5			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	158	0	0	205	30	19	43	95	20	0	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	172	0	0	223	33	21	47	103	22	0	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	187	255	171	41
Volume Left (vph)	15	0	21	22
Volume Right (vph)	0	33	103	20
Hadj (s)	0.05	-0.04	-0.30	-0.14
Departure Headway (s)	4.8	4.6	4.7	5.1
Degree Utilization, x	0.25	0.33	0.22	0.06
Capacity (veh/h)	703	738	701	629
Control Delay (s)	9.4	9.9	9.1	8.4
Approach Delay (s)	9.4	9.9	9.1	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.4		
HCM Level of Service	A		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	13	63	331	224	169
v/c Ratio	0.08	0.30	0.22	0.17	0.11
Control Delay	28.8	39.3	3.7	1.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	39.3	3.7	1.0	3.4
Queue Length 50th (ft)	3	33	33	0	15
Queue Length 95th (ft)	21	71	121	24	62
Internal Link Dist (ft)	413	1025	403		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	358	533	1538	1286	1490
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.12	0.22	0.17	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	7	47	4	7	1	304	206	12	143	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.96			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.92			0.98			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1641			1760			1862	1530		1853	
Flt Permitted		1.00			0.96			1.00	1.00		0.97	
Satd. Flow (perm)		1641			1760			1862	1530		1806	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	8	51	4	8	1	330	224	13	155	1
RTOR Reduction (vph)	0	8	0	0	6	0	0	0	54	0	0	0
Lane Group Flow (vph)	0	5	0	0	57	0	0	331	170	0	169	0
Confl. Peds. (#/hr)			4	4			12		21	21		12
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		1.5			7.6			72.9	72.9		72.9	
Effective Green, g (s)		4.5			10.6			75.9	75.9		75.9	
Actuated g/C Ratio		0.04			0.11			0.76	0.76		0.76	
Clearance Time (s)		6.0			6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		74			187			1413	1161		1371	
v/s Ratio Prot		c0.00			c0.03							
v/s Ratio Perm								0.18	0.11		0.09	
v/c Ratio		0.07			0.30			0.23	0.15		0.12	
Uniform Delay, d1		45.8			41.3			3.5	3.3		3.2	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.4			0.9			0.4	0.3		0.2	
Delay (s)		46.2			42.2			3.9	3.5		3.4	
Level of Service		D			D			A	A		A	
Approach Delay (s)		46.2			42.2			3.8			3.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	67	0	0	85	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	73	0	0	92	0
Pedestrians											56	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											5	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	221	165	92	165	165	129	92			73		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	221	165	92	165	165	129	92			73		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	700	727	965	799	727	878	1502			1527		

Direction, Lane #	NB 1	SB 1
Volume Total	73	92
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.04	0.05
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	7.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	82	1533	1545	105
v/c Ratio	0.29	0.57	0.64	0.38
Control Delay	6.1	6.4	9.2	37.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.1	6.4	9.2	37.9
Queue Length 50th (ft)	14	248	542	55
Queue Length 95th (ft)	27	302	628	107
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	322	2669	2407	370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.57	0.64	0.28

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	75	1410	1366	55	61	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.98	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3356		1689	
Flt Permitted	0.11	1.00	1.00		0.97	
Satd. Flow (perm)	207	3347	3356		1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1533	1485	60	66	39
RTOR Reduction (vph)	0	0	2	0	19	0
Lane Group Flow (vph)	82	1533	1543	0	86	0
Confl. Peds. (#/hr)	4			4	3	18
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	92.7	92.7	81.8		15.3	
Effective Green, g (s)	95.7	95.7	84.8		18.3	
Actuated g/C Ratio	0.80	0.80	0.71		0.15	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	268	2669	2372		258	
v/s Ratio Prot	0.02	c0.46	c0.46		c0.05	
v/s Ratio Perm	0.22					
v/c Ratio	0.31	0.57	0.65		0.33	
Uniform Delay, d1	7.4	4.5	9.6		45.4	
Progression Factor	1.00	1.00	0.76		1.00	
Incremental Delay, d2	0.2	0.9	0.8		0.3	
Delay (s)	7.6	5.4	8.1		45.7	
Level of Service	A	A	A		D	
Approach Delay (s)		5.6	8.1		45.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	8.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	1191	11	15	1185	71	29	15	19	23	3	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	1295	12	16	1288	77	32	16	21	25	3	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	1365			1307			2164	2798	653	2135	2766	683
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1365			990			2007	2761	214	1974	2722	683
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			0	0	97	0	78	78
cM capacity (veh/h)	499			585			17	14	666	0	15	392

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	697	659	660	721	68	113
Volume Left	50	0	16	0	32	25
Volume Right	0	12	0	77	21	85
cSH	499	1700	585	1700	23	0
Volume to Capacity	0.10	0.39	0.03	0.42	2.99	Err
Queue Length 95th (ft)	8	0	2	0	217	Err
Control Delay (s)	2.9	0.0	0.8	0.0	1254.4	Err
Lane LOS	A		A		F	F
Approach Delay (s)	1.5		0.4		1254.4	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	32	196	70	15	145	11	47	48	45	17	13	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	213	76	16	158	12	51	52	49	18	14	74

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	324	186	152	107
Volume Left (vph)	35	16	51	18
Volume Right (vph)	76	12	49	74
Hadj (s)	-0.09	0.01	-0.09	-0.35
Departure Headway (s)	4.8	5.0	5.2	5.1
Degree Utilization, x	0.43	0.26	0.22	0.15
Capacity (veh/h)	714	664	613	628
Control Delay (s)	11.3	9.8	9.7	8.9
Approach Delay (s)	11.3	9.8	9.7	8.9
Approach LOS	B	A	A	A

Intersection Summary			
Delay	10.3		
HCM Level of Service	B		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1162	1119	21	0	43
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1263	1216	23	0	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		255	696			
pX, platoon unblocked	0.86				0.76	0.86
vC, conflicting volume	1239				1859	620
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	953				676	232
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	93
cM capacity (veh/h)	617				295	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	632	632	811	428	47
Volume Left	0	0	0	0	0
Volume Right	0	0	0	23	47
cSH	1700	1700	1700	1700	662
Volume to Capacity	0.37	0.37	0.48	0.25	0.07
Queue Length 95th (ft)	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	10.9
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.9
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	55	1107	1080	49	71	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	1203	1174	53	77	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		486	465			
pX, platoon unblocked	0.82				0.78	0.82
vC, conflicting volume	1227				1922	614
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	849				612	104
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				74	91
cM capacity (veh/h)	647				302	767

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	461	802	783	445	143
Volume Left	60	0	0	0	77
Volume Right	0	0	0	53	66
cSH	647	1700	1700	1700	419
Volume to Capacity	0.09	0.47	0.46	0.26	0.34
Queue Length 95th (ft)	8	0	0	0	37
Control Delay (s)	2.6	0.0	0.0	0.0	18.0
Lane LOS	A				C
Approach Delay (s)	1.0		0.0		18.0
Approach LOS					C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 3: N West St. & Park Ave.

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	LT	R
Maximum Queue (ft)	125	284	138	72	55	93
Average Queue (ft)	107	127	61	41	29	52
95th Queue (ft)	144	275	107	65	48	80
Link Distance (ft)		269	740	131	1122	
Upstream Blk Time (%)		5				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)	100					100
Storage Blk Time (%)	30	1				0
Queuing Penalty (veh)	43	3				0

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	85	91	74	30
Average Queue (ft)	40	46	41	22
95th Queue (ft)	64	73	67	44
Link Distance (ft)	740	530	201	303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	75	75	55
Average Queue (ft)	51	45	39	33
95th Queue (ft)	77	66	62	49
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 46

Queues
1: Route 7 & N West St.

7/23/2015

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	257	1195	52	1199	249	350	43	109	126
v/c Ratio	0.98	0.76	0.27	0.90	0.70	0.94	0.15	0.37	0.25
Control Delay	74.6	26.9	16.1	39.2	55.7	81.0	41.5	46.5	11.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	26.9	16.1	39.3	55.7	81.0	41.5	46.5	11.3
Queue Length 50th (ft)	~158	442	19	~344	180	265	27	72	19
Queue Length 95th (ft)	#328	542	m26	#626	274	#452	60	126	63
Internal Link Dist (ft)		1468		171		431		110	
Turn Bay Length (ft)	175		165		250		70		
Base Capacity (vph)	261	1566	199	1335	356	371	356	375	508
Starvation Cap Reductn	0	0	0	3	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.76	0.26	0.90	0.70	0.94	0.12	0.29	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	236	1042	57	48	1078	25	229	278	44	40	100	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1711	3240		1711	3251		1711	1760		1711	1801	1531
Flt Permitted	0.08	1.00		0.12	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	142	3240		220	3251		1711	1760		1711	1801	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	1133	62	52	1172	27	249	302	48	43	109	126
RTOR Reduction (vph)	0	3	0	0	1	0	0	5	0	0	0	64
Lane Group Flow (vph)	257	1192	0	52	1198	0	249	345	0	43	109	62
Confl. Peds. (#/hr)	8		2	2		8	7		2	2		7
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	63.2	54.0		50.9	46.2		23.0	23.0		17.8	17.8	35.3
Effective Green, g (s)	64.7	57.0		53.9	49.2		25.0	25.0		19.8	19.8	35.3
Actuated g/C Ratio	0.54	0.48		0.45	0.41		0.21	0.21		0.17	0.17	0.29
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	260	1539		176	1333		356	367		282	297	450
v/s Ratio Prot	c0.12	0.37		0.02	0.37		0.15	c0.20		0.03	c0.06	0.04
v/s Ratio Perm	c0.42			0.12								
v/c Ratio	0.99	0.77		0.30	0.90		0.70	0.94		0.15	0.37	0.14
Uniform Delay, d1	36.9	26.2		21.3	33.1		44.0	46.8		42.9	44.5	31.2
Progression Factor	0.81	0.86		0.90	0.91		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	47.2	3.2		0.3	7.6		4.8	31.7		0.1	0.3	0.1
Delay (s)	77.0	25.6		19.5	37.5		48.8	78.5		43.0	44.8	31.2
Level of Service	E	C		B	D		D	E		D	D	C
Approach Delay (s)		34.7			36.8			66.2			38.4	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM Average Control Delay	41.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	487	156	237	114	51	162
v/c Ratio	0.88	0.16	0.73	0.17	0.08	0.14
Control Delay	52.0	10.5	51.0	14.4	15.1	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	10.5	51.0	14.4	15.1	4.2
Queue Length 50th (ft)	289	40	138	32	18	39
Queue Length 95th (ft)	#469	73	#241	69	32	32
Internal Link Dist (ft)		221	207	84	71	
Turn Bay Length (ft)	100					100
Base Capacity (vph)	566	982	333	676	647	1161
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.16	0.71	0.17	0.08	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	448	110	33	17	167	34	33	28	44	28	19	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0			3.0			3.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.97			0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.97			0.98			0.94			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.97	1.00
Satd. Flow (prot)	1770	1798			1767			1713			1807	1583
Flt Permitted	0.95	1.00			0.97			0.91			0.84	1.00
Satd. Flow (perm)	1770	1798			1719			1592			1568	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	487	120	36	18	182	37	36	30	48	30	21	162
RTOR Reduction (vph)	0	11	0	0	7	0	0	19	0	0	0	0
Lane Group Flow (vph)	487	145	0	0	230	0	0	95	0	0	51	162
Confl. Peds. (#/hr)	59					59			2	2		
Turn Type	Prot			Perm			Perm			Perm		pt+ov
Protected Phases	3	8			4			2			6	6 3
Permitted Phases				4			2			6		
Actuated Green, G (s)	28.1	49.7			15.6			38.3			38.3	72.4
Effective Green, g (s)	31.1	52.7			18.6			41.3			41.3	72.4
Actuated g/C Ratio	0.31	0.53			0.19			0.41			0.41	0.72
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)	550	948			320			657			648	1146
v/s Ratio Prot	c0.28	0.08										0.10
v/s Ratio Perm					c0.13			c0.06			0.03	
v/c Ratio	0.89	0.15			0.72			0.14			0.08	0.14
Uniform Delay, d1	32.8	12.2			38.3			18.3			17.8	4.2
Progression Factor	1.00	1.00			1.00			1.00			0.79	0.88
Incremental Delay, d2	15.7	0.2			9.4			0.5			0.1	0.1
Delay (s)	48.4	12.3			47.7			18.8			14.0	3.8
Level of Service	D	B			D			B			B	A
Approach Delay (s)		39.7			47.7			18.8			6.3	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	60	1203	1227	143
v/c Ratio	0.20	0.55	0.72	0.27
Control Delay	5.9	6.2	23.7	11.8
Queue Delay	0.0	0.0	0.4	0.2
Total Delay	5.9	6.2	24.1	12.0
Queue Length 50th (ft)	11	89	198	21
Queue Length 95th (ft)	m14	m100	#292	61
Internal Link Dist (ft)		155	385	51
Turn Bay Length (ft)	100			
Base Capacity (vph)	298	2173	1705	584
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	138	95
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.55	0.78	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	55	1107	1080	49	71	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3539	3516		1701	
Flt Permitted	0.12	1.00	1.00		0.97	
Satd. Flow (perm)	233	3539	3516		1701	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1203	1174	53	77	66
RTOR Reduction (vph)	0	0	5	0	50	0
Lane Group Flow (vph)	60	1203	1222	0	93	0
Turn Type	pm+pt					
Protected Phases	7	4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	36.2	36.2	26.0		11.8	
Effective Green, g (s)	36.2	39.2	29.0		14.8	
Actuated g/C Ratio	0.60	0.65	0.48		0.25	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	248	2312	1699		420	
v/s Ratio Prot	0.02	c0.34	c0.35		c0.05	
v/s Ratio Perm	0.13					
v/c Ratio	0.24	0.52	0.72		0.22	
Uniform Delay, d1	8.7	5.5	12.3		18.0	
Progression Factor	0.88	0.82	1.54		1.00	
Incremental Delay, d2	0.3	0.6	2.2		0.3	
Delay (s)	8.0	5.0	21.2		18.3	
Level of Service	A	A	C		B	
Approach Delay (s)		5.2	21.2		18.3	
Approach LOS		A	C		B	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	278	1486	105	1119	170	286	463	249
v/c Ratio	1.18	1.03	0.56	0.81	0.53	0.86	1.29	0.45
Control Delay	147.8	59.2	36.2	36.7	53.9	73.1	192.9	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	147.8	59.2	36.2	36.7	53.9	73.1	192.9	18.8
Queue Length 50th (ft)	~225	~724	53	324	128	222	~498	73
Queue Length 95th (ft)	#414	#877	m109	441	204	#362	#709	153
Internal Link Dist (ft)		1468		165		431	110	
Turn Bay Length (ft)	175		165		250			
Base Capacity (vph)	235	1444	215	1388	342	354	358	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.03	0.49	0.81	0.50	0.81	1.29	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	1267	100	97	1018	11	156	191	72	58	368	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1711	3237		1711	3258		1711	1720			1788	1531
Flt Permitted	0.09	1.00		0.07	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	168	3237		134	3258		1711	1720			1788	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	1377	109	105	1107	12	170	208	78	63	400	249
RTOR Reduction (vph)	0	4	0	0	1	0	0	11	0	0	0	94
Lane Group Flow (vph)	278	1482	0	105	1118	0	170	275	0	0	463	155
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	65.7	54.9		60.7	52.4		22.3	22.3			24.0	39.8
Effective Green, g (s)	68.7	57.9		63.7	55.4		24.3	24.3			26.0	39.8
Actuated g/C Ratio	0.53	0.45		0.49	0.43		0.19	0.19			0.20	0.31
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0			5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	235	1442		185	1388		320	322			358	469
v/s Ratio Prot	c0.11	0.46		0.04	0.34		0.10	c0.16			c0.26	0.10
v/s Ratio Perm	c0.52			0.24								
v/c Ratio	1.18	1.03		0.57	0.81		0.53	0.86			1.29	0.33
Uniform Delay, d1	34.8	36.0		28.2	32.6		47.7	51.1			52.0	34.8
Progression Factor	1.54	0.84		1.29	0.97		1.00	1.00			1.00	1.00
Incremental Delay, d2	110.0	27.8		2.0	4.2		0.9	18.7			151.3	0.2
Delay (s)	163.6	58.1		38.4	35.8		48.6	69.9			203.3	35.0
Level of Service	F	E		D	D		D	E			F	C
Approach Delay (s)		74.7			36.0			61.9			144.4	
Approach LOS		E			D			E			F	

Intersection Summary			
HCM Average Control Delay	73.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	89	22	33	414	619	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	24	36	450	673	60
Pedestrians					3	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				279		
pX, platoon unblocked	0.77					
vC, conflicting volume	1227	703	733			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1146	703	733			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	40	95	96			
cM capacity (veh/h)	162	438	872			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	121	486	733
Volume Left	97	36	0
Volume Right	24	0	60
cSH	185	872	1700
Volume to Capacity	0.65	0.04	0.43
Queue Length 95th (ft)	95	3	0
Control Delay (s)	54.7	1.2	0.0
Lane LOS	F	A	
Approach Delay (s)	54.7	1.2	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	346	109	47	32	150	30	40	27	48	43	34	491
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	376	118	51	35	163	33	43	29	52	47	37	534

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	376	170	230	125	84	534
Volume Left (vph)	376	0	35	43	47	0
Volume Right (vph)	0	51	33	52	0	534
Hadj (s)	0.53	-0.18	-0.02	-0.15	0.31	-0.67
Departure Headway (s)	8.1	7.4	8.1	8.5	7.8	6.8
Degree Utilization, x	0.84	0.35	0.52	0.29	0.18	1.01
Capacity (veh/h)	438	483	425	391	448	534
Control Delay (s)	40.2	13.0	19.4	15.0	11.4	67.9
Approach Delay (s)	31.7		19.4	15.0	60.2	
Approach LOS	D		C	B	F	

Intersection Summary			
Delay	40.1		
HCM Level of Service	E		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	1542	1452	44
v/c Ratio	0.62	0.62	0.19
Control Delay	3.8	5.1	30.8
Queue Delay	0.0	0.0	0.0
Total Delay	3.8	5.1	30.8
Queue Length 50th (ft)	37	205	16
Queue Length 95th (ft)	m47	258	52
Internal Link Dist (ft)	385	625	201
Turn Bay Length (ft)			
Base Capacity (vph)	2500	2340	447
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.62	0.62	0.10

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	1382	11	37	1261	38	10	9	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	12	15	12	12	12	12
Total Lost time (s)		3.0			3.0			3.0				
Lane Util. Factor		0.95			0.95			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			1.00			0.93				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3257			3249			1859				
Flt Permitted		0.89			0.83			0.99				
Satd. Flow (perm)		2892			2703			1859				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1502	12	40	1371	41	11	10	23	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1542	0	0	1451	0	0	23	0	0	0	0
Confl. Peds. (#/hr)	1		6	6		1	2		3	3		2
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		2			2			4				
Permitted Phases	2			2			4					
Actuated Green, G (s)		107.6			107.6			10.4				
Effective Green, g (s)		110.6			110.6			13.4				
Actuated g/C Ratio		0.85			0.85			0.10				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		1.5			1.5			2.0				
Lane Grp Cap (vph)		2460			2300			192				
v/s Ratio Prot												
v/s Ratio Perm		0.53			c0.54			0.01				
v/c Ratio		0.63			0.63			0.12				
Uniform Delay, d1		3.1			3.1			53.0				
Progression Factor		0.91			1.00			1.00				
Incremental Delay, d2		0.4			1.3			0.1				
Delay (s)		3.2			4.5			53.1				
Level of Service		A			A			D				
Approach Delay (s)		3.2			4.5			53.1			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	4.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	199	0	0	207	9	13	18	36	20	0	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	216	0	0	225	10	14	20	39	22	0	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	236	235	73	41
Volume Left (vph)	20	0	14	22
Volume Right (vph)	0	10	39	20
Hadj (s)	0.05	0.01	-0.25	-0.14
Departure Headway (s)	4.5	4.5	4.8	4.9
Degree Utilization, x	0.29	0.29	0.10	0.06
Capacity (veh/h)	773	773	679	650
Control Delay (s)	9.4	9.3	8.3	8.2
Approach Delay (s)	9.4	9.3	8.3	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.1		
HCM Level of Service	A		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	25	204	293	147	447
v/c Ratio	0.07	0.35	0.42	0.22	0.65
Control Delay	23.2	27.2	25.2	4.4	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	27.2	25.2	4.4	30.8
Queue Length 50th (ft)	7	97	136	0	231
Queue Length 95th (ft)	30	159	209	39	339
Internal Link Dist (ft)	413	1025	403		266
Turn Bay Length (ft)				150	
Base Capacity (vph)	353	587	697	676	691
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.35	0.42	0.22	0.65

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	13	10	170	11	6	8	261	135	20	390	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00			1.00			1.00	1.00		1.00	
Frpb, ped/bikes		0.98			1.00			1.00	0.97		1.00	
Flpb, ped/bikes		1.00			1.00			1.00	1.00		1.00	
Frt		0.94			1.00			1.00	0.85		1.00	
Flt Protected		1.00			0.96			1.00	1.00		1.00	
Satd. Flow (prot)		1722			1774			1860	1539		1857	
Flt Permitted		1.00			0.96			0.99	1.00		0.98	
Satd. Flow (perm)		1722			1774			1835	1539		1817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	14	11	185	12	7	9	284	147	22	424	1
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	91	0	0	0
Lane Group Flow (vph)	0	16	0	0	203	0	0	293	56	0	447	0
Confl. Peds. (#/hr)			8	8					6	6		
Turn Type	Split			Split			Perm		Perm	Perm		
Protected Phases	1	1		3	3			2			2	
Permitted Phases							2		2	2		
Actuated Green, G (s)		17.5			30.5			35.5	35.5		35.5	
Effective Green, g (s)		20.0			33.0			38.0	38.0		38.0	
Actuated g/C Ratio		0.20			0.33			0.38	0.38		0.38	
Clearance Time (s)		5.5			5.5			5.5	5.5		5.5	
Lane Grp Cap (vph)		344			585			697	585		690	
v/s Ratio Prot		c0.01			c0.11							
v/s Ratio Perm								0.16	0.04		c0.25	
v/c Ratio		0.05			0.35			0.42	0.10		0.65	
Uniform Delay, d1		32.3			25.3			22.9	19.9		25.5	
Progression Factor		1.00			1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.3			1.6			1.9	0.3		4.7	
Delay (s)		32.6			27.0			24.7	20.3		30.2	
Level of Service		C			C			C	C		C	
Approach Delay (s)		32.6			27.0			23.2			30.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	88	0	0	111	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	96	0	0	121	0
Pedestrians											7	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	223	216	121	216	216	103	121			96		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	223	216	121	216	216	103	121			96		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	728	682	931	740	682	947	1467			1498		

Direction, Lane #	NB 1	SB 1
Volume Total	96	121
Volume Left	0	0
Volume Right	0	0
cSH	1700	1700
Volume to Capacity	0.06	0.07
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	103	1782	1391	193
v/c Ratio	0.33	0.67	0.60	0.65
Control Delay	6.6	8.5	23.2	54.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.6	8.5	23.2	54.4
Queue Length 50th (ft)	18	335	440	133
Queue Length 95th (ft)	37	466	571	207
Internal Link Dist (ft)		310	1468	305
Turn Bay Length (ft)	300			
Base Capacity (vph)	399	2642	2331	447
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.67	0.60	0.43

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	95	1639	1241	39	111	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3347	3360		1697	
Flt Permitted	0.14	1.00	1.00		0.97	
Satd. Flow (perm)	255	3347	3360		1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	1782	1349	42	121	72
RTOR Reduction (vph)	0	0	1	0	18	0
Lane Group Flow (vph)	103	1782	1390	0	175	0
Confl. Peds. (#/hr)	4			4		9
Heavy Vehicles (%)	2%	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	4	0	0	0	0
Turn Type	pm+pt					
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	99.6	99.6	87.2		18.4	
Effective Green, g (s)	102.6	102.6	90.2		21.4	
Actuated g/C Ratio	0.79	0.79	0.69		0.16	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	311	2642	2331		279	
v/s Ratio Prot	0.02	c0.53	0.41		c0.10	
v/s Ratio Perm	0.24					
v/c Ratio	0.33	0.67	0.60		0.63	
Uniform Delay, d1	7.1	6.2	10.4		50.6	
Progression Factor	1.00	1.00	1.95		1.00	
Incremental Delay, d2	0.2	1.4	0.8		3.1	
Delay (s)	7.3	7.6	21.1		53.7	
Level of Service	A	A	C		D	
Approach Delay (s)		7.6	21.1		53.7	
Approach LOS		A	C		D	

Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	1478	31	28	1377	43	10	7	35	34	6	78
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	1607	34	30	1497	47	11	8	38	37	7	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		705										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	1543			1640			2588	3295	820	2493	3289	772
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1543			1419			2521	3343	466	2411	3336	772
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			93			0	0	92	0	0	75
cM capacity (veh/h)	426			409			0	6	468	0	6	342

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	837	837	779	795	57	128
Volume Left	34	0	30	0	11	37
Volume Right	0	34	0	47	38	85
cSH	426	1700	409	1700	0	0
Volume to Capacity	0.08	0.49	0.07	0.47	Err	Err
Queue Length 95th (ft)	6	0	6	0	Err	Err
Control Delay (s)	2.6	0.0	2.4	0.0	Err	Err
Lane LOS	A		A		F	F
Approach Delay (s)	1.3		1.2		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	17	199	63	19	215	14	11	27	56	35	24	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	216	68	21	234	15	12	29	61	38	26	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	303	270	102	76
Volume Left (vph)	18	21	12	38
Volume Right (vph)	68	15	61	12
Hadj (s)	-0.09	0.02	-0.30	0.04
Departure Headway (s)	4.6	4.8	5.1	5.5
Degree Utilization, x	0.39	0.36	0.14	0.12
Capacity (veh/h)	736	718	619	581
Control Delay (s)	10.6	10.4	8.9	9.2
Approach Delay (s)	10.6	10.4	8.9	9.2
Approach LOS	B	B	A	A

Intersection Summary			
Delay	10.1		
HCM Level of Service	B		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1470	1202	23	0	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1598	1307	25	0	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		245	706			
pX, platoon unblocked	0.90				0.61	0.90
vC, conflicting volume	1332				2118	666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1151				847	414
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	92
cM capacity (veh/h)	544				185	530

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	799	799	871	461	43
Volume Left	0	0	0	0	0
Volume Right	0	0	0	25	43
cSH	1700	1700	1700	1700	530
Volume to Capacity	0.47	0.47	0.51	0.27	0.08
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	12.4
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.4
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	106	1364	1176	95	58	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	115	1483	1278	103	63	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		486	465			
pX, platoon unblocked	0.88				0.63	0.88
vC, conflicting volume	1382				2302	691
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1165				1054	382
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				42	90
cM capacity (veh/h)	525				109	543

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	609	988	852	529	116
Volume Left	115	0	0	0	63
Volume Right	0	0	0	103	53
cSH	525	1700	1700	1700	172
Volume to Capacity	0.22	0.58	0.50	0.31	0.68
Queue Length 95th (ft)	21	0	0	0	100
Control Delay (s)	6.1	0.0	0.0	0.0	61.1
Lane LOS	A				F
Approach Delay (s)	2.3		0.0		61.1
Approach LOS					F

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection: 3: N West St. & Park Ave.

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	LT	R
Maximum Queue (ft)	125	284	123	76	399	125
Average Queue (ft)	84	90	61	42	122	106
95th Queue (ft)	138	217	99	71	313	147
Link Distance (ft)		269	740	131	1122	
Upstream Blk Time (%)		2				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)	100					100
Storage Blk Time (%)	15				0	31
Queuing Penalty (veh)	23				0	24

Intersection: 5: Park Ave. & N Spring St.

Movement	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LR
Maximum Queue (ft)	84	102	52	30
Average Queue (ft)	43	39	25	20
95th Queue (ft)	66	65	44	43
Link Distance (ft)	740	530	201	303
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: Park Ave. & N Oak St.

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	89	81	78	54
Average Queue (ft)	45	56	33	30
95th Queue (ft)	70	80	57	46
Link Distance (ft)	530	228	203	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 47

Queues
1: Route 7 & N West St.

7/23/2015

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	278	1486	105	1119	170	286	63	400	249
v/c Ratio	0.92	0.94	0.67	0.85	0.62	0.99	0.18	1.11	0.42
Control Delay	77.0	35.5	37.2	52.5	61.4	103.4	44.9	128.3	21.4
Queue Delay	0.0	1.5	0.0	77.1	0.0	647.6	0.0	0.0	0.0
Total Delay	77.0	37.0	37.2	129.6	61.4	750.9	44.9	128.3	21.4
Queue Length 50th (ft)	194	613	63	526	135	235	45	~385	94
Queue Length 95th (ft)	#353	#323	#118	594	214	#423	87	#588	171
Internal Link Dist (ft)		1468		171		431		110	
Turn Bay Length (ft)	175		165		250		70		
Base Capacity (vph)	309	1586	156	1317	276	288	342	360	604
Starvation Cap Reductn	0	0	0	359	0	0	0	0	0
Spillback Cap Reductn	0	33	0	0	0	223	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.96	0.67	1.17	0.62	4.40	0.18	1.11	0.41

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	1267	100	97	1018	11	156	191	72	58	368	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	11	11	11	11	11	11	11	11	11
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1711	3237		1711	3258		1711	1720		1711	1801	1531
Flt Permitted	0.08	1.00		0.08	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	139	3237		141	3258		1711	1720		1711	1801	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	1377	109	105	1107	12	170	208	78	63	400	249
RTOR Reduction (vph)	0	5	0	0	1	0	0	10	0	0	0	62
Lane Group Flow (vph)	278	1481	0	105	1118	0	170	276	0	63	400	187
Confl. Peds. (#/hr)							1		2	2		1
Heavy Vehicles (%)	2%	7%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt			pm+pt			Split			Split		pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases	2			6								
Actuated Green, G (s)	71.0	60.5		55.6	49.6		19.0	19.0		24.0	24.0	45.9
Effective Green, g (s)	72.5	63.5		58.6	52.6		21.0	21.0		26.0	26.0	45.9
Actuated g/C Ratio	0.56	0.49		0.45	0.40		0.16	0.16		0.20	0.20	0.35
Clearance Time (s)	4.5	6.0		4.5	6.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	300	1581		154	1318		276	278		342	360	541
v/s Ratio Prot	c0.13	c0.46		0.04	0.34		0.10	c0.16		0.04	c0.22	0.12
v/s Ratio Perm	0.38			0.27								
v/c Ratio	0.93	0.94		0.68	0.85		0.62	0.99		0.18	1.11	0.35
Uniform Delay, d1	39.5	31.4		27.6	35.1		50.7	54.4		43.2	52.0	31.0
Progression Factor	1.42	0.82		0.80	1.31		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	26.7	9.5		8.0	5.9		2.9	51.6		0.1	80.9	0.1
Delay (s)	82.9	35.1		30.1	51.7		53.6	106.1		43.3	132.9	31.1
Level of Service	F	D		C	D		D	F		D	F	C
Approach Delay (s)		42.6			49.8			86.5			89.4	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM Average Control Delay	57.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	376	169	231	124	84	534
v/c Ratio	0.84	0.20	0.72	0.17	0.12	0.47
Control Delay	53.0	13.0	51.3	11.9	14.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	53.0	13.0	51.3	11.9	14.1	2.5
Queue Length 50th (ft)	226	48	135	31	19	17
Queue Length 95th (ft)	#373	88	#236	66	m31	23
Internal Link Dist (ft)		221	207	78	71	
Turn Bay Length (ft)	100					100
Base Capacity (vph)	460	870	326	749	721	1157
Starvation Cap Reductn	0	0	0	0	0	230
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.19	0.71	0.17	0.12	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	346	109	47	32	150	30	40	27	48	43	34	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			3.0			3.0			3.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			0.98			0.94			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.98			0.97	1.00
Satd. Flow (prot)	1770	1778			1803			1706			1805	1583
Flt Permitted	0.95	1.00			0.93			0.89			0.82	1.00
Satd. Flow (perm)	1770	1778			1687			1553			1530	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	118	51	35	163	33	43	29	52	47	37	534
RTOR Reduction (vph)	0	16	0	0	6	0	0	19	0	0	0	0
Lane Group Flow (vph)	376	153	0	0	225	0	0	105	0	0	84	534
Confl. Peds. (#/hr)	6					6			3	3		
Turn Type	Prot			Perm			Perm			Perm		pt+ov
Protected Phases	3	8			4			2			6	6 3
Permitted Phases				4			2			6		
Actuated Green, G (s)	22.4	44.0			15.6			44.0			44.0	72.4
Effective Green, g (s)	25.4	47.0			18.6			47.0			47.0	72.4
Actuated g/C Ratio	0.25	0.47			0.19			0.47			0.47	0.72
Clearance Time (s)	6.0	6.0			6.0			6.0			6.0	
Vehicle Extension (s)	3.0	5.0			5.0			3.0			3.0	
Lane Grp Cap (vph)	450	836			314			730			719	1146
v/s Ratio Prot	c0.21	0.09										c0.34
v/s Ratio Perm					c0.13			0.07			0.05	
v/c Ratio	0.84	0.18			0.72			0.14			0.12	0.47
Uniform Delay, d1	35.3	15.4			38.2			15.1			14.9	5.7
Progression Factor	1.00	1.00			1.00			1.00			0.88	0.16
Incremental Delay, d2	12.6	0.2			9.4			0.4			0.1	0.3
Delay (s)	48.0	15.6			47.6			15.5			13.2	1.2
Level of Service	D	B			D			B			B	A
Approach Delay (s)		37.9			47.6			15.5			2.8	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	115	1483	1381	116
v/c Ratio	0.44	0.54	0.59	0.34
Control Delay	13.8	16.4	20.7	37.6
Queue Delay	0.0	10.8	78.9	0.4
Total Delay	13.8	27.2	99.6	38.0
Queue Length 50th (ft)	48	446	480	64
Queue Length 95th (ft)	m50	m441	569	123
Internal Link Dist (ft)		155	385	51
Turn Bay Length (ft)	100			
Base Capacity (vph)	362	2722	2325	338
Starvation Cap Reductn	0	1227	864	0
Spillback Cap Reductn	0	0	1144	51
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.99	1.17	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	106	1364	1176	95	58	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3539	3500		1702	
Flt Permitted	0.12	1.00	1.00		0.97	
Satd. Flow (perm)	231	3539	3500		1702	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1483	1278	103	63	53
RTOR Reduction (vph)	0	0	4	0	24	0
Lane Group Flow (vph)	115	1483	1377	0	92	0
Turn Type	pm+pt					
Protected Phases	7	4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	97.0	97.0	83.2		21.0	
Effective Green, g (s)	97.0	100.0	86.2		24.0	
Actuated g/C Ratio	0.75	0.77	0.66		0.18	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	265	2722	2321		314	
v/s Ratio Prot	0.03	c0.42	c0.39		c0.05	
v/s Ratio Perm	0.30					
v/c Ratio	0.43	0.54	0.59		0.29	
Uniform Delay, d1	10.5	6.0	12.2		45.7	
Progression Factor	2.51	2.64	1.60		1.00	
Incremental Delay, d2	0.5	0.4	0.9		0.5	
Delay (s)	26.8	16.1	20.4		46.2	
Level of Service	C	B	C		D	
Approach Delay (s)		16.9	20.4		46.2	
Approach LOS		B	C		D	

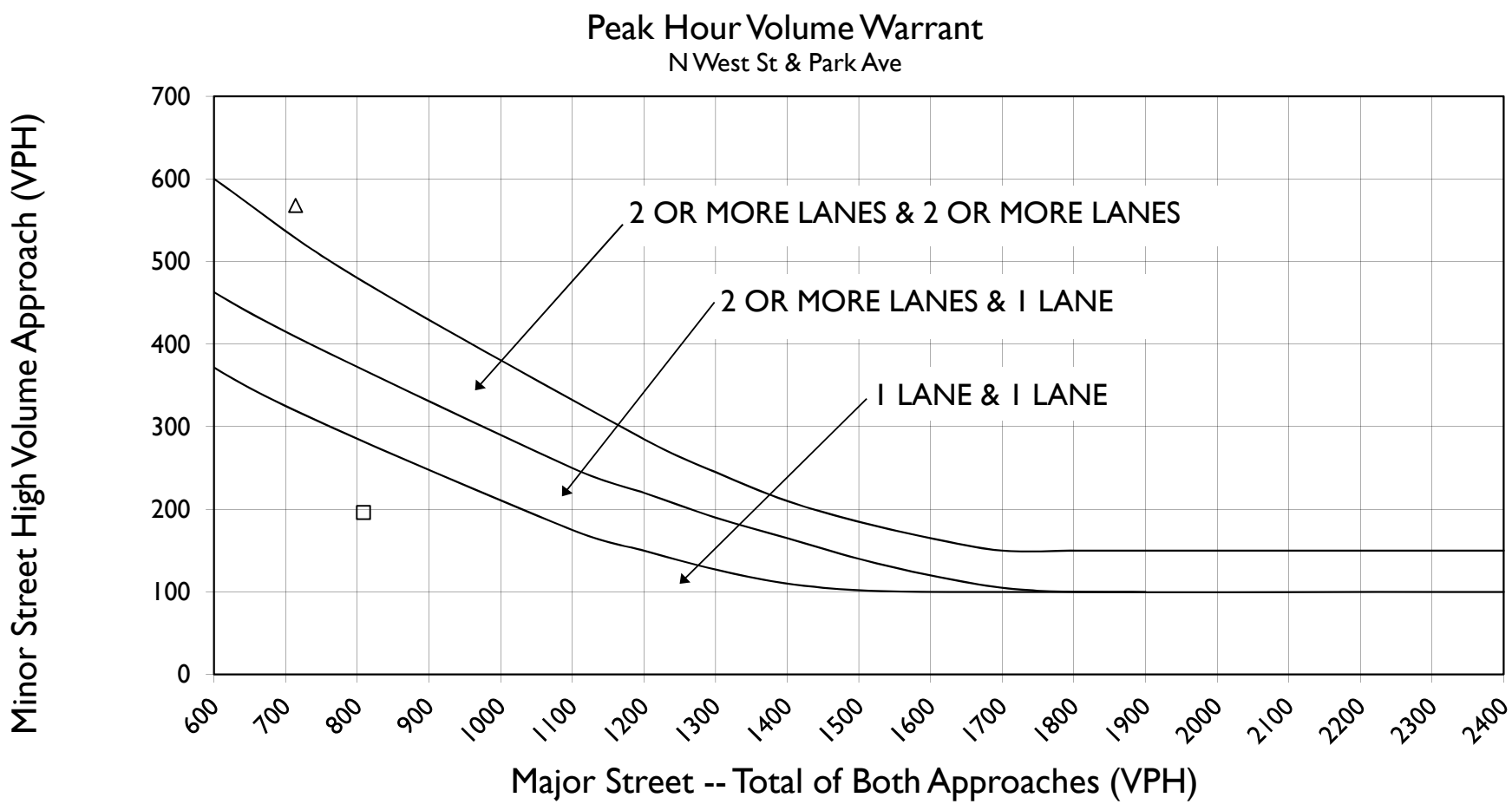
Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix J

Peak Hour Signal Warrant Analysis
Manual of Uniform Traffic Control Devices (MUTCD)

INPUT VOLUMES

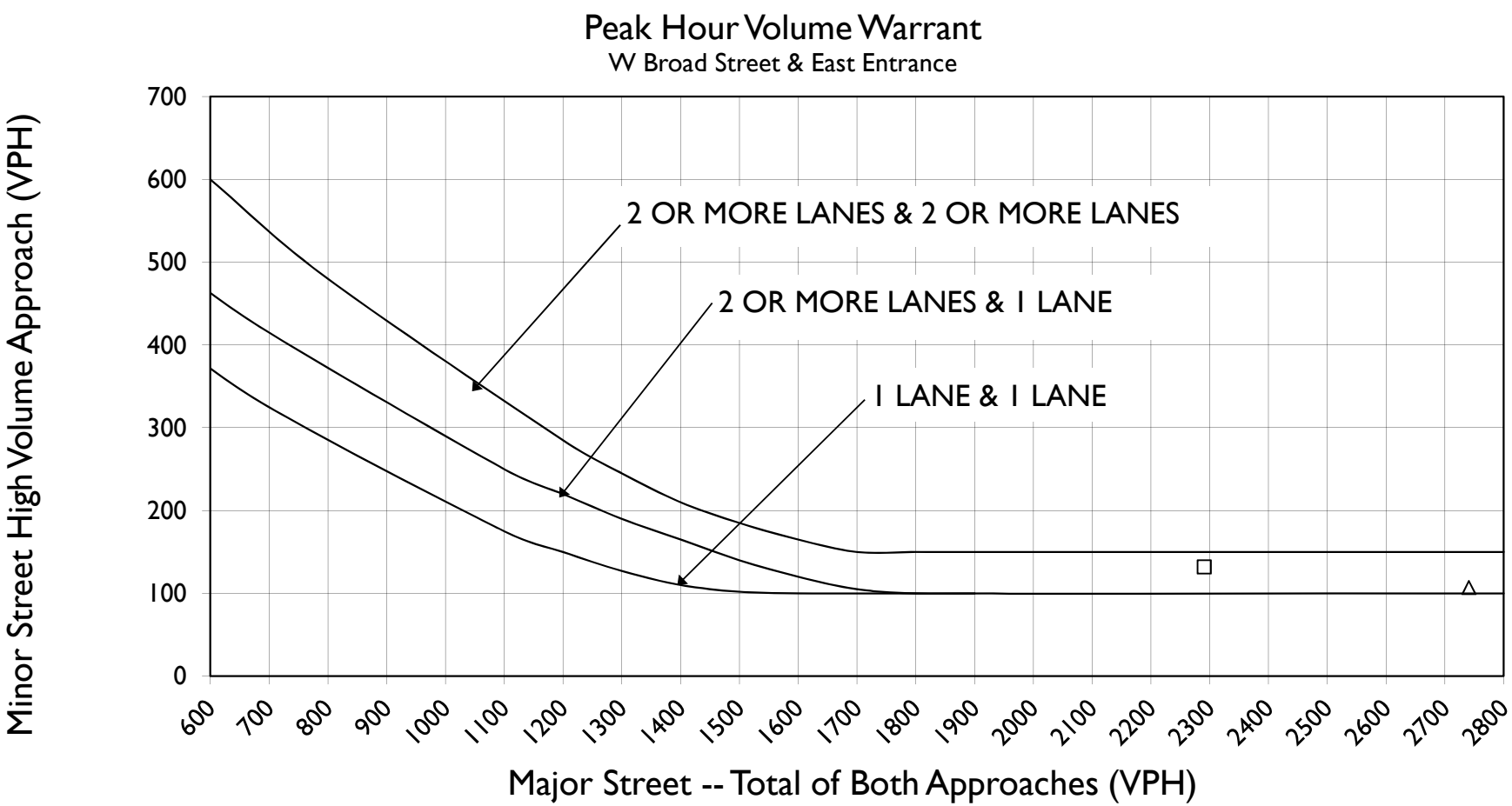
Condition	major street (total of both approaches)	minor street (high volume approach)	Lane Configuration	Yes/No Warrant Met
□ TF AM Peak Hour	809	196	1 & 1	No
△ TF PM Peak Hour	714	568	1 & 1	YES



Source: Manual on Uniform Traffic Control Devices 2009 Edition

INPUT VOLUMES

Condition	major street (total of both approaches)	minor street (high volume approach)	Lane Configuration	Yes/No Warrant Met
□ TF AM Peak Hour	2291	132	2 & 1	YES
△ TF PM Peak Hour	2741	107	2 & 1	YES



Source: Manual on Uniform Traffic Control Devices 2009 Edition