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James Freas
Acting Director

PUBLIC HEARING/WORKING SESSION MEMORANDUM

DATE: October 9, 2015

MEETING DATE: October 13, 2015

TO: Land Use Committee of the Board of Aldermen

FROM: James Freas, Acting Director of Planning and Development
Alexandra Ananth, Chief Planner of Current Planning
Daniel Sexton, Senior Planner

RE: Information for Working Session

CC: Petitioners

In response to questions raised at the Land Use Committee public hearings and/or staff's technical reviews, the Planning Department is providing the following information for the upcoming continued public hearing and/or working session. This information is supplemental to staff analysis previously provided at the public hearing.

PETITION #148-15 AND (2) **180 WELLS AVENUE**

Proposal of INTRUM CORPORATION, for a SPECIAL PERMIT/SITE PLAN APPROVAL to construct a 60,565 square-foot addition to be connected to the existing office building, as well as a one-story parking deck, and to redesign existing parking facilities increasing the number of parking stalls from 215 to 378. Accompanying the petition is a request to amend the Deed Restriction adopted by Board Order #276-68(3), dated November 18, 1968, and subsequent amendments be further amended or waived to increase the Floor Area Ratio from 0.25 to 0.53, which exceeds the maximum of 0.25, to waive the minimum 40% open space requirement, and to allow a greater percentage of square footage in the office park to be dedicated to office space.

The Land Use Committee (Committee) held a public hearing on September 10, 2015, which was held open so that the petitioner could respond to questions/concerns that were raised in the Planning Department's memorandum and at the public hearing by the Committee and public. The petitioner's design professionals provided a number of supplemental documents in responses to the questions/concerns that were raised.

Traffic. The petitioner's traffic consultant, MDM Transportation Consultants, Inc. (MDM), provided responses to the following three traffic related question raised by the Committee (**ATTACHMENT A**):

1) Explain how intersection capacity and the proportional capacity impact of the project was determined.

According to MDM, intersection capacity was determined in the Traffic Impact Assessment for the project by utilitzing observed traffic volumes, lane arrangement and signal phasing which are incorporated into a computer model known as Synchro®. The results of the modeling at studied intersections showed an average vehicle delay of 40 seconds or less during peak periods under all analysis scenarios, which is ample capacity to accommodate existing and projected traffic flow. To determine the project's proportional capacity impact, MDM utilized the Capacity Allocation Procedure (CAP) methodology, which calculated that the proportional project impact for each of the studied intersections is a range from 2% to 6% of the total intersection carrying capacity.

2) Discuss further the impacts of the project on intersection queuing.

Per MDM's Synchro® results, the studied intersections will experience a range of additional vehicles from one to three for each travel lane, and determined the Wells Avenue/Nahanton Street intersection to be the most impacted. At this intersection, during the weekday evening peak hour, the approach is expected to experience a three vehicle increase, where the observed maximum queues are 21 vehicles (420 feet). In their response, MDM provided a simplified explanation of the modeled results.

3) Describe how the elements of the TDM will reduce individual passenger vehicle use.

MDM provided further clarification of the petitioner's proposed Transportation Demand Management (TDM) program, which illustrates how the wide range of alternative travel modes provided in the TDM can help reduce traffic impacts during peak hours, and is expected to reduce trip generation by up to 5% below industry averages.

In addition, the Committee requested that Vanasse & Associates, Inc. (VAI) provide additional information as to whether the methodology used to determine the financial contribution toward off-site roadyway improvements was appropriate, as well as intersection queuing (**ATTACHMENT B**). Per VAI's review of the three industry approaches used to establish monetary contributions towards roadway improvements, VAI found that the CAP methodology was the most appropriate for establishing the proportional share of the improvement costs for the project. VAI also determined that the allocated costs of the improvements of $75,000 for the Nahanton Street/Wells Avenue instersection and $5,000 for the Nahanton Street/Winchester Street intersection represent a "fair-share" contribution for the project.

With respect to vehicle queuing at the studied intersections, VAI determined that the modeling results of the studied intersections were accurate (**ATTACHMENT C**). VAI also clarfied that one of the reasons for the relatively low impact noted at the studied intersections for the project relates to the dipersed arrival and departure of vehicles over the course of the peak hour. Based on the results of the modeling, VAI found that the traffic signal systems at the studied intersections have capacity to accommodate the additional demands associated with the project.

Drainage. At the request of the Committee, the Associate City Engineer issued a supplemental memorandum (**ATTACHMENT D**) in response to revised plans and information submitted to the Engineering Division of Public Works by Site Design Engineering, LLC. (SDE) for review in August, 2015. According to the memorandum, the Engineering Division determined that the project's

drainage system is designed to meet DEP and City stormwater policies, and no further questions or concerns were raised.

In addition, the Planning Department's Public Hearing Memorandum raised concerns regarding the functionality of the proposed drainage swales between the parking deck and the perimeter of the property, as these drainage structures are proximate to a number of proposed tree plantings. In a letter prepared by SDE (**ATTACHMENT E**), it was explained that adequate separation distance exists in this area to accommodate the proposed drainage swales and landscape plantings without reducing functionally or plant survival. The Planning Department is satisfied with the supplemental information provided, and has no further questions regarding this issue.

Lighting. The petitioner has agreed to lower the pole height of the proposed pole-mounted light fixtures to 20-feet. In the Planning Department's Public Hearing Memorandum, the petitioner was encouraged to consider bollard styled light fixtures as opposed to the proposed wall-mounted light fixtures, as well as to incorporate light fixture sheilding on fixtures proximate to property lines (includes pole- and wall-mounted fixtures). The petitioner has agreed to shield exterior light fixtures where appropriate and will consider different light fixture styles to accommodate the safe movement of pedestrians and vehicles. The petitioner is committed to working with the Planning Department to finalize the lighting plan prior to issuance of any building permit for the project.

Bicycle/Pedestrian Improvements On-Site. The petitioner has decided to stay with the proposal shown to provide a "limited walkway" from the new driveway off of Wells Avenue (southwesterly frontage) to the building, which will be within the vehicle travel-way. The Planning Department continues to believe an uninterrupted walkway system is essential to facilitate pedestrian movements on-site and would be a public benefit. The proposed limited walkway creates an interrupted pedestrian route and increases hazardous interaction between pedestrians and vehicles. The petitioner has cited liability, maintanance, and infrastructure concerns as the basis for not creating a separate pedestrian route in this portion of the site. The Planning Department disagrees with this reasoning, and recommends the petitioner create an uninterrupted pedestrain route from the new driveway off of Wells Avenue to the building.

Bicycle/Pedestrian Improvements on Roadways. Per conversations with the City's Transportation Division of Public Works, a series of bicycle improvements have been installed or are planned on the roadways near Wells Avenue. In 2014, the City implemented exclusive bicycle lanes along both sides of the Winchester Street from just north of the intersection with Nahanton Street to Wallace Street. In the same year, on-street parking along Nahanton Street was removed and a wider shoulder was created from Winchester Street to Dedham Street, which should facilite the implementation of exclusive bicycle lanes in 2016.

In terms of pedestrian enhancement, the construction of a fully operational traffic signals has begun at the intersection of Nahanton Street/Winchester Street, and should be completed by the end of the calendar year. The main goal of the signal project is to make the intersection safer for vehicle access. However, pedestrians entering the intersection from Winchester Street, which has sidewalk along both sides of the street, should be able to access the established walking path along Nahanton Street. There is no sidewalk along Nahanton Street, but the existing walking path extends from the intersection with Wells Avenue past the Newton Community Farm on that side of the street. As

funding becomes available, the City may install ADA compliant ramps and sidewalks connecting Winchester Street and Wells Aveneu as a separate project in the future.

The Planning Department notes that the petitioner has agreed to upgrade the sidewalk segments and pedestrian accessible aprons as part of this project along the Wells Avenue frontages.

Energy Efficiency/Sustainability. An email was submited by the petitioner's architectural consultant, Elkus Manfredi Architects, oultining how the building and site design will contribute to the efficient use and conservation of natural resources and energy (**ATTACHMENT F**). The following is a list of some of the conservation measures the petitioner intends to employ as part of the proposed building and site designs:

Building Design Measures

- Install a light colored roof with high solar reflectance to reduce the heat island effect
- Use low flow plumbing fixtures that will reduce water useage by approximately 20%
- Optimize the energy performance by installating energy efficient heating and cooling systems, and using an exterior building envelope design incorporating an air-vapor barrier, continuous insulation and high performace glazing with thermally broken storefront and curtain wall framing
- Use low emitting materials that are regionally produced in construction

Site Design Measures

- Implement stormwater runoff collection control measures to infiltrate on-site and improve discharge quality
- Develop facilities for bicycle parking, as well as charging stations for electric vehicles
- Minimize and, where possible, eliminate the use of irrigation for landscaping
- Remove non-native and invasive species from the site and plant native species where appropriate

Recommendation. The Planning Department believes the petition is complete at this time, and that the petitioner has provided responses to all the concerns/questions raised at the public hearing by the Committee and staff. The Planning Department recommends approval with conditions.

ATTACHMENTS

ATTACHMENT A: Memorandum from MDM Transportation Consultants, Inc., dated September 17, 2015
ATTACHMENT B: Letter from Vanasse & Associates, Inc., dated September 30, 2015
ATTACHMENT C: Letter from Vanasse & Associates, Inc., dated October 7, 2015
ATTACHMENT D: Supplemental Engineering Review Memorandum, dated September 22, 2015
ATTACHMENT E: Letter from Site Design Engineering, LLC., dated September 28, 2015
ATTACHMENT F: E-mail Correspondence from Elkus Manfredi Architects, dated September 4, 2015

ATTACHMENT A

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

PRINCIPALS
Robert J. Michaud, P.E.
Ronald D. Desrosiers, P.E., PTOE
Daniel J. Mills, P.E., PTOE

MEMORANDUM

DATE: September 17, 2015

TO: City of Newton
Current Planning
Attn: Mr. Daniel Sexton, Senior Planner
1000 Commonwealth Avenue
Newton, MA 02459

FROM: Robert J. Michaud, P.E. – Managing Principal
Daniel A. Dumais, P.E. – Senior Project Manager

RE: **Alderman Comments**
Proposed Office Expansion – 180 Wells Avenue
Newton, MA

MDM Transportation Consultants, Inc. (MDM) has prepared the following responses to transportation-related comments issued by the Board of Alderman at their September 10, 2015 meeting. These responses are supported by the August 6, 2015 traffic impact assessment (TIA) and supporting technical attachments and peer review by Vanasse & Associates, Inc. (VAI) dated September 2, 2015.

In summary, the peer review concurs with the methodology, findings and recommendations of the TIA concluding that *"…traffic operations analysis and model calibration were completed using appropriate methodologies and we are in agreement with the reported results and overall conclusion that the addition of project-related traffic to the study intersections will not result in a significant impact on traffic operations(motorist delays or vehicle queuing) over anticipated future conditions without the project."* Additional questions summarized below provide further clarification of methodology, analysis results and commitments to TDM to facilitate ongoing deliberation of the project.

Alderman Questions

Question T1: *"Explain how intersection capacity and the proportional capacity impact of the project was determined."*

Response: Principal factors used to determine intersection capacity include observed/predicted traffic volumes, lane arrangement and signal phasing which are inputs to a computer model known as Synchro®. The Synchro® model utilizes algorithms published in the Transportation Research Board (TRB) *Highway Capacity Manual* to estimate vehicle delays and vehicle queuing in accordance with accepted traffic engineering practice and principles. The modeling protocol

also allows for calibration of model inputs to reflect actual (measured) operating conditions for a location, which was in fact done in this case based on field observation of actual average delays and vehicle queuing at the Wells Avenue/Nahanton Street intersection as documented in the TIA and its technical attachments. The outcome of this modeling is that the study intersections are shown of have average vehicle delays of 40 seconds or less during peak periods under all analysis scenarios (existing, No Build and Build) indicating ample capacity to accommodate existing and projected traffic flow. This is consistent with observed delays for the Wells Avenue approach, for instance, where existing conditions indicate *average delays of less than 40 seconds* during the worst-case PM peak hour.

The proportional capacity impact of the project may be determined using the calculated output of the Synchro® model, which includes a parameter referred to as "volume-to-capacity" (v/c) ratio. Changes in this ratio between the No Build and Build conditions defines the relative (i.e., proportional) change in capacity due to project-related traffic. As reported in the TIA, the relative change in v/c for study intersections (overall, all approaches is 2 percent or less using this methodology, with no change in overall intersection operations (as defined by a letter-grade rating system) and inconsequential changes to queues (2 to 3 vehicles or less).

An alternate and commonly adopted methodology for determining a project's proportional capacity impact, also based on accepted engineering principles documented in the *Highway Capacity Manual*, is the "Capacity Allocation Procedure" (CAP). The CAP allows calculation of the proportional share of an intersection's total carrying capacity using a simplified methodology known as "critical lane analysis". Under this procedure, a signalized intersection[1] is estimated to have an hourly carrying capacity of 1,425 vehicles per hour (vph) for those lanes that carry the highest volume (or combinations of conflicting volumes) for each phase of signal operation (i.e., the "critical lanes"). In the case of the study intersections, each of which has a three-phase signal operation, *the proportional project impacts is calculated to range from 2 to 6 percent of total intersection carrying capacity*. Supporting calculations are attached for reference.

Question T2: *"Discuss further the impacts of the project on intersection queuing."*

Response: Synchro® models vehicle queues at the intersection to range from one (1) to three (3) additional vehicles for individual lanes – an inconsequential change relative to No Build

[1] Using the critical lane analysis guidelines, the capacity for a 3-phase signalized intersection is 1,425 vehicles per hour.

conditions. The most impacted intersection approach is Wells Avenue during the weekday evening peak hour, which is currently observed to have maximum queues of 21 vehicles (420 feet). This approach is expected to experience a 3 vehicle increase (on average) due to the project during the evening peak hour.

The above modeled results are better (and more simply) understood if one considers that the additional traffic generated by the project during the weekday evening peak hour is 75 vehicles per hour leaving the park, of which approximately half are expected to use the left-turn lane at Wells Avenue. This equates to approximately 41 additional vehicles in the Wells Avenue left-turn lane over the course of an hour, which is equivalent to 1 additional vehicle every 90 seconds on average. Since the signal at Wells Avenue operates on a 90-second cycle, a "green" indication for Wells Avenue is provided 40 times per hour. So in effect, only one (1) new vehicle is in the left-turn lane each time a new "green" phase occurs during the hour, suggesting that additional vehicle queuing will be minimal. The Synchro® model output, which shows up to three (3) additional vehicles in queue, shows slightly higher (but inconsequential) impacts to queues based on fluctuations in arrival patterns and other factors but is generally consistent with this simplified description of vehicle queues.

Question T3: *"Describe how the elements of the TDM will reduce individual passenger vehicle use."*

Response: The Applicant's proposed TDM program provides a wide range of ways to choose alternative travel modes including bicycling, carpooling, and shuttle options, working in concert with the Route 128 Business Council TMA and member institutions. In addition, employer programs such as flex-time and telecommuting options are becoming more prevalent and offer yet another means of avoiding travel to/from the park on certain days of the week or during traditional peak hours, thereby further reducing traffic impacts during commuter hours. The effect of such programs is evident in the park already (independent of such features such as a shuttle) based on a survey of trips for the 180 Wells Avenue and 2 Wells Avenue properties, both of which show peak hours traffic that falls below industry standards. Nevertheless, trip impacts documented in the TIA are based on unadjusted ITE trip rates, thereby presenting a conservative basis for estimating project impact that does not reflect the likely result of reducing trips under the Applicant's TDM program. TDM programming such as that offered by the Applicant for 180 Wells Avenue is expected to reduce trip generation by up to 5 percent below industry averages.

Attachments

- CAP Calculations (Critical Lane Analysis)

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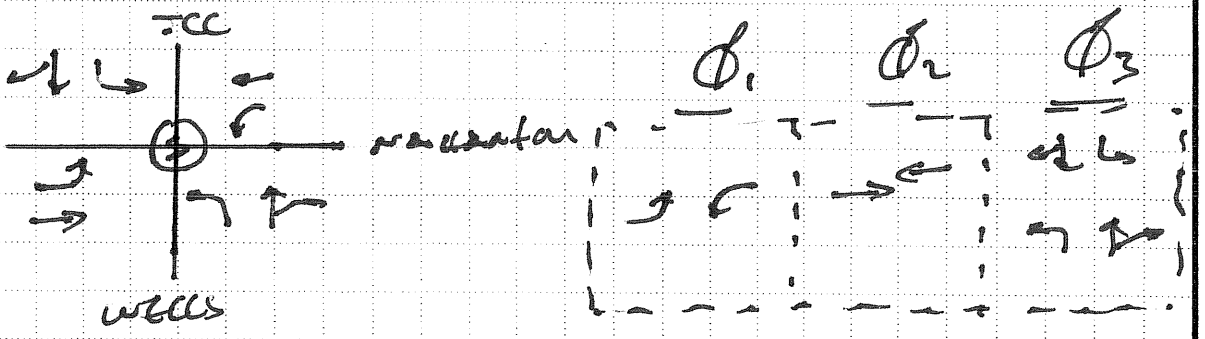
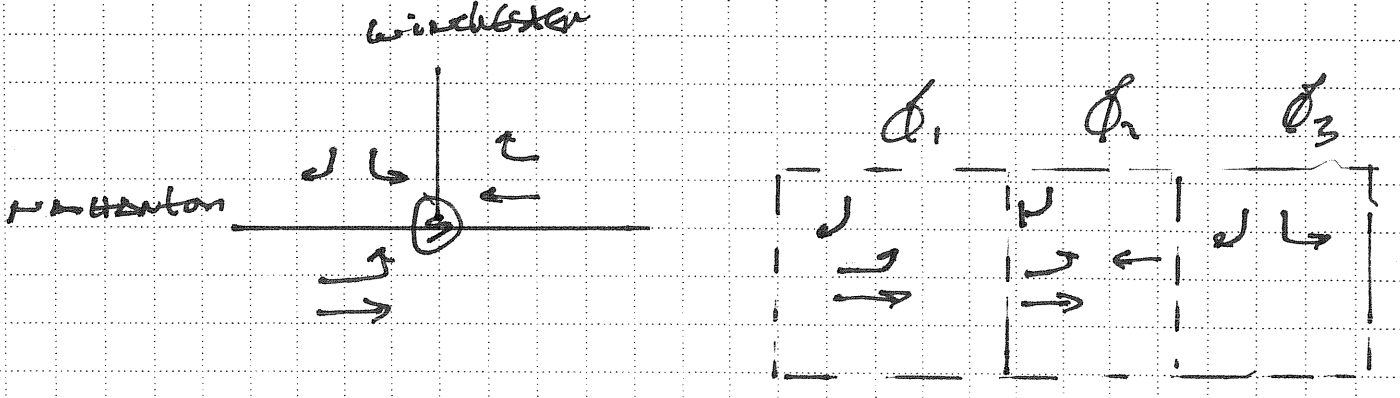
Project #870 - 180 WELLS AVE
Sheet No. 1 of 4
Prepared By KAH Date 8/6/15
Checked By _____ Date _____
Description C.L.V. LANES / PHASING

I. WELLS / N. HANTON - LANES / PHASING / VOLUMES



(SEE FIG's 6, 7, 9, 10 for VOLUMES)

II. N. HANTON / WINCHESTER - LANES / PHASING



(SEE FIG's 6, 7, 9, 10 for VOLUMES)

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Project #840-180 CEICS
Sheet No. 2 of 4
Prepared By NSW Date 8/6/15
Checked By _____ Date _____
Description CAP CALCULATION

AM PEAK - NAHANTON/WINCHESTER

SIGNAL PHASE:	ϕ_1	ϕ_2	ϕ_3	
CRITICAL VOLUME: (NO-BUILD)	43 →	← 983	↓ ϕ 21 →	
SITE TRIPS (NEW)	3	16	(0)	19
	437	999	21	

CAP: $\frac{\text{C.V. NEW}}{1,425} = \frac{19}{1425} = 1.3\%$

PM. PEAK - NAHANTON/WINCHESTER

	ϕ_1	ϕ_2	ϕ_3	
CRITICAL VOLUME: (NO BUILD)	414 →	← 503	↓ ϕ 62 →	
SITE TRIPS:	19	3	0	22
	433	506	62	

CAP= $\frac{\text{C.L.V. NEW}}{1,425} = \frac{22}{1.425} = 1.5\% \approx \underline{2\%}$

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Project #840 - 180 WELLS AVE
Sheet No. 3 of 4
Prepared By [illegible] Date 8/6/15
Checked By _____ Date _____
Description CAP CALCULATION

A.M. PEAK - WELLS @ NAHANTON

SIGNAL PHASE:	Ø1	Ø2	Ø3	E
CRITICAL VOLUME: (NO-BUILD)	← 314	920 →	↑ 146	
SITE TRIPS (NEW):	37	0	11	48
:	351	920	157	

CAP: C.L.V. NEW / 1,425 = 48 / 1,425 = 3.4%

P.M. PEAK - WELLS @ NAHANTON

	Ø1	Ø2	Ø3	E
CRITICAL VOLUME: (NO BUILD)	← 243	617 →	↑ 709	
SITE TRIPS:	7	0	75	82
TOTAL:	250	617	784	

CAP: C.L.V. NEW / 1,425 = 82 / 1425 = 5.8 ≈ 6%

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Project #840 - 180 Wells Ave
Sheet No. 4 of 4
Prepared By KSV Date 8/6/15
Checked By _____ Date _____
Description CAP Contribution

I. Wells / Nahanton:

$1,250,000* Cost @ 0.06 = $75,000

* Improvement cost per City estimate

II. Nahanton / Winchester:

$250,000* Cost @ 0.02 = $5,000

* Improvement cost per City estimate

$80,000 total

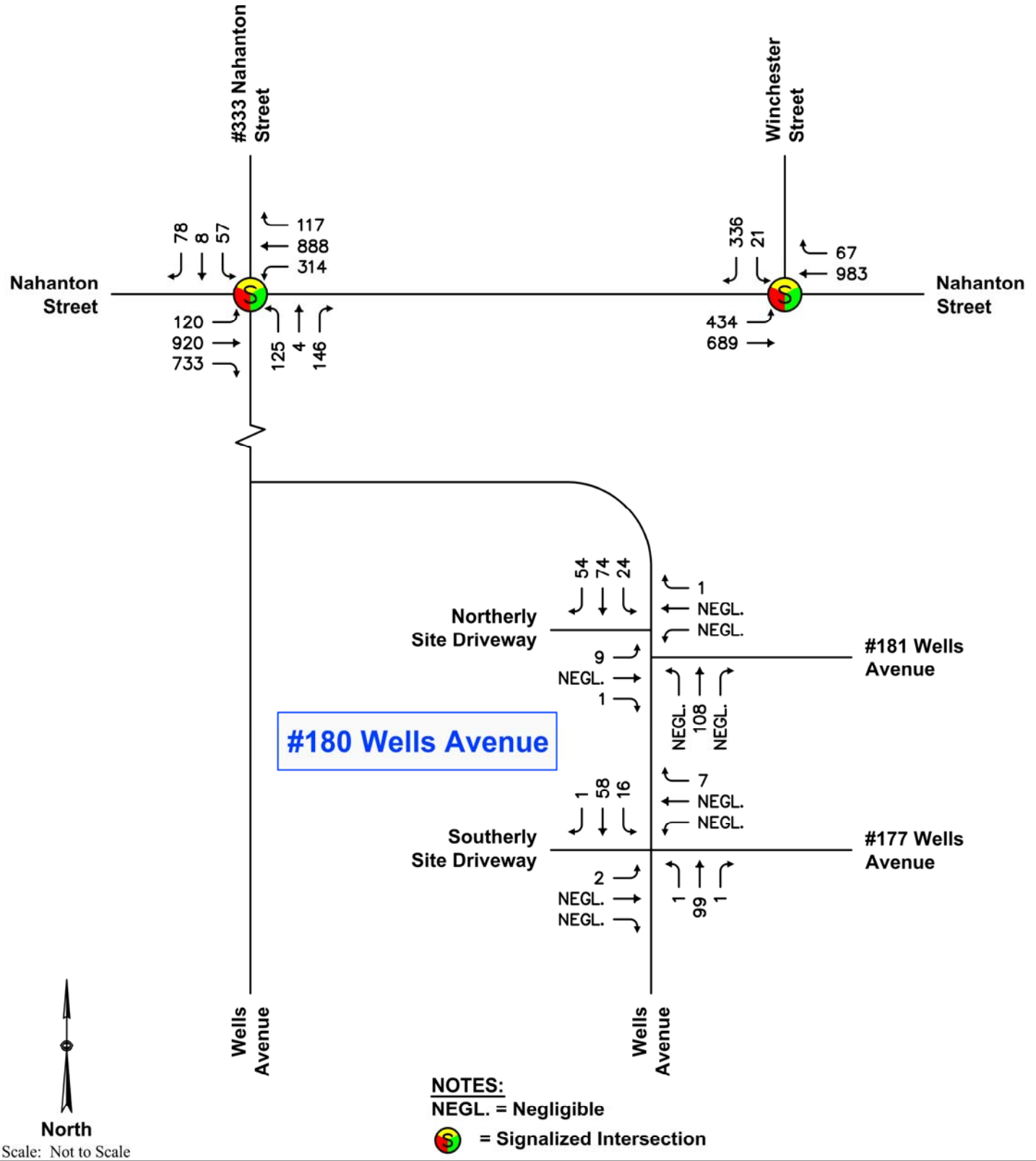


Figure 6

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2020 No-Build Condition
Weekday Morning Peak Hour
Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg

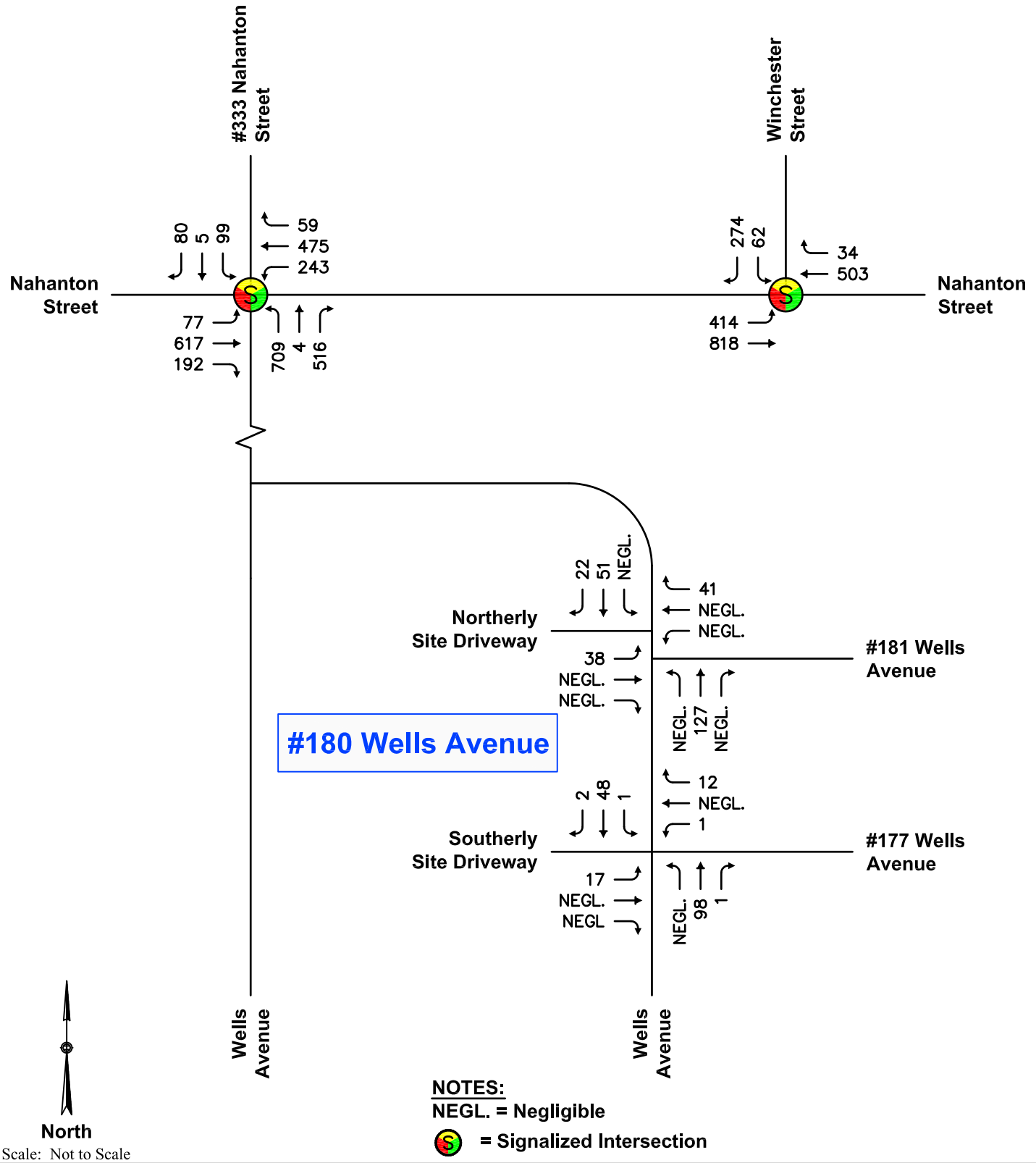


Figure 7

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2020 No-Build Condition
Weekday Evening Peak Hour
Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg

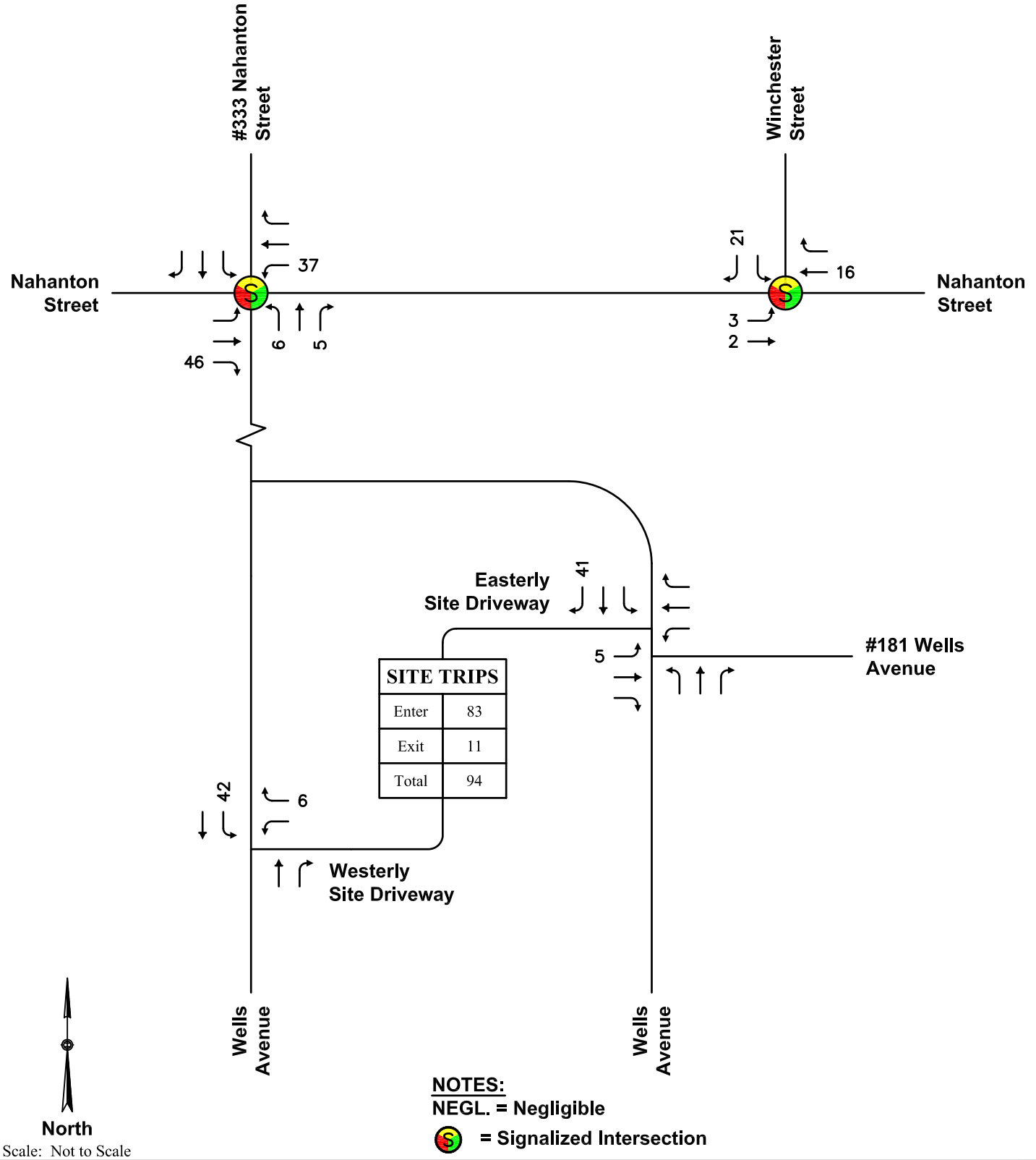


Figure 9

Site-Generated Trips
Weekday Morning Peak Hour

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: July 2015
Dwg No. 840 MR01.dwg

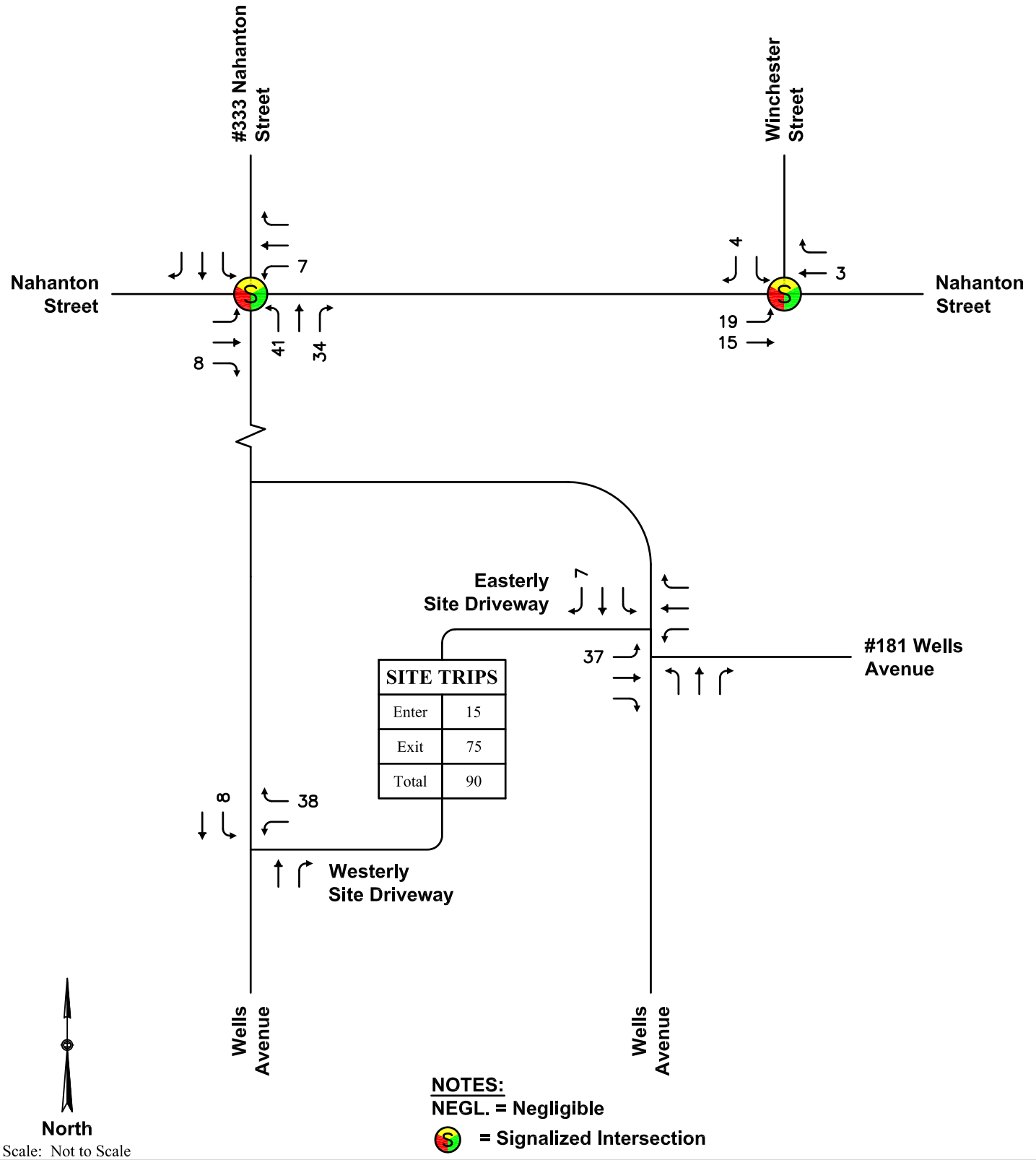


Figure 10

Site-Generated Trips
Weekday Evening Peak Hour

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: July 2015
Dwg No. 840 MR01.dwg

ATTACHMENT B

Vanasse & Associates, Inc.
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810-1066
Office: 978-474-8800
Fax: 978-688-6508
Web: www.rdva.com

Ref: 7118

September 30, 2015

Mr. Daniel Sexton
Senior Planner, Current Planning
City of Newton
1000 Commonwealth Avenue
Newton, MA 02459

Re: Supplemental Traffic Engineering Peer Review
Proposed Office Expansion – 180 Wells Avenue
Newton, Massachusetts

Dear Daniel:

As requested by the Land Use Committee of the Board of Alderman, Vanasse & Associates, Inc. (VAI) is providing additional information and commentary as to the methodology used to determine the financial contribution toward the off-site roadway, intersection and traffic control improvements associated with the proposed expansion of the existing office building located at 180 Wells Avenue in Newton, Massachusetts (hereafter referred to as the "Project"). The following materials submitted in support of the Project were reviewed as a part of this effort:

1. *Traffic Impact Assessment*, Proposed Office Expansion, 180 Wells Avenue, Newton, Massachusetts; MDM Transportation Consultants, Inc.; August 6, 2015;
2. *Response to Peer Review Comments*, Proposed Office Expansion, 180 Wells Avenue, Newton, Massachusetts; MDM Transportation Consultants, Inc.; September 9, 2015; and
3. *Alderman Comments*, Proposed Office Expansion, 180 Wells Avenue, Newton, Massachusetts; MDM Transportation Consultants, Inc.; September 17, 2015.

FINANACIAL CONTRIBUTION METHODOLOGY

There are three general approaches that are used to establish monetary contributions toward roadway improvements absent a regulated impact fee structure, all of which determine a project's proportionate impact as measured against conditions without the project, and then the resultant impact expressed as a percent is applied to the cost required to improve the impacted location. This results in a "fair-share" proportioning of improvement costs to a project. The following describes each of the three methodologies and the resultant values when applied to the Project.

Traffic Volume Increase

The first and most simplistic approach is to determine the proportionate traffic volume increase that a project represents at an intersection or along a roadway segment as measured against a defined "No-Build" condition. The drawback to this approach is that the actual impact of a project may be understated due to traffic volume increases that are unrelated to the project and that may not be realized in the future.

In addition, the impact of a project on critical movements at an intersection is also not reflected by this methodology. Applying this approach to the Project results in the following proportionate traffic volume increases:

Traffic Volume Increase Methodology

Intersection	Weekday Peak Hour Traffic Volumes		Traffic Volume Increase AM/PM	Percent Increase AM/PM
	2020 No-Build AM/PM	2020 Build AM/PM		
Nahanton Street/Wells Avenue	3,510/3,076	3,604/3,166	94/90	2.7/2.9
Nahanton Street/Winchester Street	2,530/2,105	2,572/2,146	42/41	1.7/1.9

As shown, the Project represents an average peak-hour traffic volume increase of approximately 3 percent at the Nahanton Street/Wells Avenue intersection and an average increase of approximately 2 percent at the Nahanton Street/Winchester Street intersection.

Intersection Capacity Utilization

The second approach applies a similar methodology as the traffic volume increase approach but refines the methodology to assess the Project's utilization of the overall capacity of an intersection by measuring the change in the volume of traffic processed by an intersection in relation to the overall intersection capacity. This approach accounts for the specific design of the intersection (i.e., number of travel lanes that are available to convey traffic and type of intersection control that is present) and the impact of additional traffic demands on the intersection capacity. Applying this methodology to the Project results in the following metrics:

Intersection Capacity Methodology

	Volume to Capacity Ratio for Critical Approach		Capacity Utilization Increase AM/PM	Percent Utilization AM/PM
Intersection	2020 No-Build AM/PM	2020 Build AM/PM		
Nahanton Street/Wells Avenue	0.91/0.99	0.92/0.99	0.01/0.00	1.0/0.0
Nahanton Street/Winchester Street	1.00/0.77	1.02/0.78	0.02/0.01	2.0/1.0

Using the capacity utilization methodology, the Project results in a defined impact on the improved intersection capacity of approximately 2.0 percent or less during the weekday peak-hours. It is clear that this approach understates the impact of the Project at the subject intersections, particularly at the Nahanton Street/Wells Avenue intersection, and results primarily from the theoretical capacity that is assigned by the traffic model to the overall intersection, which may or may not be achieved under actual operating conditions.

Capacity Allocation Procedure

The third approach, and that which was used by the Applicant's Traffic Engineer, is known as the "Capacity Allocation Procedure" or CAP. This methodology is similar to the capacity utilization methodology in that it accounts for the intersection geometry and type of traffic control that is present; however, the CAP metric evaluates the impact to all critical movements at an intersection, providing an evaluation of impacts on those movements that are "critical" to the ability of an intersection to operate in an efficient manner. The critical movements at the Nahanton Street/Wells Avenue and Nahanton Street/Winchester Street intersections are as follows:

Nahanton Street/Wells Avenue:

- Nahanton Street westbound left-turn movement
- Nahanton Street eastbound through movement
- Wells Avenue northbound approach (right or left-turn movement)

Nahanton Street/Winchester Street:

- Nahanton Street eastbound left-turn movement
- Nahanton Street westbound through movement
- Winchester Street southbound left-turn movement

Applying the CAP to the subject intersections results in the following metrics:

CAP Methodology

Intersection	Sum of Critical Lane Volumes		Critical Lane Traffic Volume Increase AM/PM	Capacity Allocation to Project[a] AM/PM
	2020 No-Build AM/PM	2020 Build AM/PM		
Nahanton Street/Wells Avenue	1,380/1,569	1,428/1,651	48/82	3.4/5.8
Nahanton Street/Winchester Street	1,438/979	1,457/1,001	19/22	1.3/1.5

[a]Based on a theoretical capacity of 1,425 vehicles per hour for a 3-phase signal.

The CAP methodology indicates that the Project will result in impacts to the critical movements at the improved intersections of up to approximately 6.0 percent at the Nahanton Street/Wells Avenue intersection and up to approximately 2.0 percent at the Nahanton Street/Winchester Street intersection. Given that the CAP procedure produces a metric that assesses the Project's impacts on the specific movements at the intersections that are critical to intersection operations, the CAP procedure is the most appropriate methodology to assign a proportionate share of the improvement costs for the subject intersections to the Project and, in this case, results in a larger cost allocation to the Project than would result from the alternative methods.

As a result of applying the CAP methodology to the Project, the calculated "fair-share" cost of the intersection improvements allocated to the Project is as follows:

Nahanton Street/Wells Avenue:

$1,250,000 (estimated cost) x 0.06 (CAP) = $75,000

Nahanton Street/Winchester Street:

$250,000 (estimated cost) x 0.02 (CAP) = $5,000

SUMMARY

VAI has completed an assessment of the methodology used to determine the financial contribution toward the off-site roadway, intersection and traffic control improvements associated with the proposed expansion of the existing office building located at 180 Wells Avenue in Newton, Massachusetts. Based on a review of three alternative approaches to establish a "fair-share" allocation of the intersection improvement costs to the Project, it was determined that the "Capacity Allocation Procedure" would result in the most appropriate metric from which to define the Project's impact on the critical movements that impact the ability of the intersections to operate in an efficient manner.

If you should have any questions regarding our review of the financial contribution methodology, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Principal

JSD/jsd

cc: File

ATTACHMENT C

Vanasse & Associates, Inc.
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810-1066
Office: 978-474-8800
Fax: 978-688-6508
Web: www.rdva.com

Ref: 7118

October 7, 2015

Mr. Daniel Sexton
Senior Planner, Current Planning
City of Newton
1000 Commonwealth Avenue
Newton, MA 02459

Re: Supplemental Traffic Engineering Peer Review
Proposed Office Expansion – 180 Wells Avenue
Newton, Massachusetts

Dear Daniel:

As requested by the Land Use Committee of the Board of Alderman, Vanasse & Associates, Inc. (VAI) has completed a review of the impacts at the intersection of Nahanton Street at Wells Avenue associated with the proposed expansion of the existing office building located at 180 Wells Avenue in Newton, Massachusetts (hereafter referred to as the "Project"). As documented in the August 6, 2015 *Traffic Impact Assessment*[1] and the subsequent September 17, 2015 response to Alderman Comments[2] prepared by MDM Transportation Consultants, Inc. (MDM) in support of the Project, the Project is expected to result in an additional 94 vehicles traversing the Nahanton Street/Wells Avenue intersection during the weekday morning peak-hour (83 vehicles entering and 11 exiting) and 90 additional vehicles during the weekday evening peak-hour (15 vehicles entering and 75 exiting). The impact of the Project on intersection operations was reported as follows:

	Motorist Delay (seconds)		**Vehicle Queue[a] (feet)**		
Time Period/Critical Movement	No-Build/Build	Increase Due to Project	Average Queue (No-Build/Build)	95th Percentile Queue (No-Build/Build)	Increase Due to Project (Average/ 95th Percentile)
Weekday AM Peak-Hour:					
Wells Avenue Northbound	27/28	+1	68/74	130/134	6/4
JCC Driveway Southbound	34/36	+2	31/33	90/94	2/4
Weekday PM Peak-Hour:					
Wells Avenue Northbound	35/37	+2	343/417	575/668	74/93
JCC Driveway Southbound	18/19	+1	37/41	93/103	4/10

[a]Queue length indicated is for the left-turn lane and represents the longest queue on the approach.

[1]*Traffic Impact Assessment*, Proposed Office Expansion, 180 Wells Avenue, Newton, Massachusetts; MDM Transportation Consultants, Inc.; August 6, 2015.
[2]*Alderman Comments*, Proposed Office Expansion, 180 Wells Avenue, Newton, Massachusetts; MDM Transportation Consultants, Inc.; September 17, 2015.

As indicated, the increase in average motorist delay for critical movements at the Nahanton Street/ Wells Avenue intersection were found to range from approximately 1 to 2 seconds when compared to the No-Build condition, with vehicle queues expected to increase by between 2 feet and 93 feet (approximately 4 vehicles) for the critical movements at the intersection.

One of the reasons for the relatively minor impact noted for the Project at the intersection is due to the dispersed arrival and departure of traffic at the intersection over the course of the peak-hour. That is to say, not all of the traffic arrives at the intersection at the same time. The traffic model that was used to predict motorist delays and vehicle queuing at an intersection uses a simulation that assumes random arrivals of traffic over the course of the hour. Several simulations are completed and the average of the resulting values is reported. Within each peak-hour the model does assume that there is a distinct peak where a platoon of vehicles may arrive and is represented by a "peaking" factor.

If one were to focus on the weekday evening peak-hour, the peak-hour with the most noted impact resulting from the Project, the Project will add 75 vehicles to the Wells Avenue approach, 41 of which are expected to be left-turn movements (the movement with the longest reported queue). As indicated by MDM in their September 17, 2015 memorandum, the traffic signal system at the Nahanton Street/ Wells Avenue intersection operates on a 90 second cycle, which would indicate that the Wells Avenue approach and the left-turn lane will receive a "green" signal indication 40 times over the course of the peak-hour, which approximates the volume of added traffic that is represented by the Project. While this is a simplistic analogy and the underlying methodology used in the simulation model is much more complex, it does illustrate that traffic signal system will afford capacity to accommodate the additional traffic demands that are associated with the Project.

If you should have any questions regarding our review of the Project's impact at the Nahanton Street/ Wells Avenue intersection, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Principal

JSD/jsd

cc: File

ATTACHMENT D

CITY OF NEWTON
Department of Public Works
ENGINEERING DIVISION

MEMORANDUM

To: Alderman Mark Laredo, Land Use Committee Chairman

From: John Daghlian, Associate City Engineer

Re: Special Permit – 180 Wells Avenue

Date: September 22, 2015

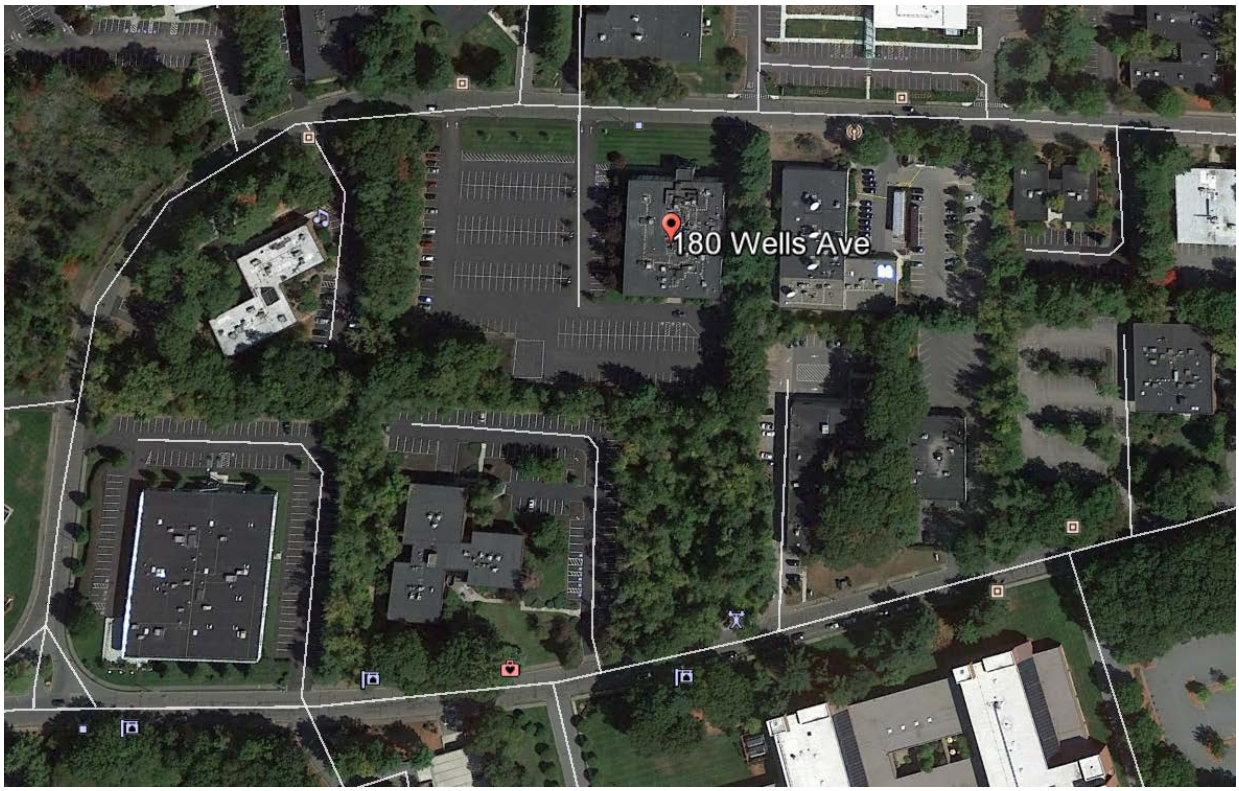
CC: Lou Taverna, PE City Engineer
Linda Finucane, Associate City Clerk
Alexandria Ananth, Chief Planner
Dan Sexton, Sr. Planner

In reference to the above site, I have the following comments for a plan entitled:

180 Wells Avenue
Newton, MA
Prepared by: Site Design Engineering LLC
Dated: June 3, 2015
Revised: September 2, 2015
&
Response Memo Dated: August 27, 2015

Executive Summary:

This permit involves the proposal of a new building attached to the existing office space in concert with the construction of a parking garage and expanded parking lot on a 5 acre parcel. The proposal also requires the clear cutting of a large number of mature deciduous trees to accommodate the expanded parking facilities and proposed stormwater surface storage ponds. The drainage system as designed meets the DEP & City's stormwater policy.



180 Wells Ave

Construction Management:

1. A construction management plan is needed for this project. At a minimum, it must address the following: staging site for construction equipment, construction materials, parking of construction worker's vehicles, phasing of the project with anticipated completion dates and milestones, safety precautions, emergency contact personnel of contractor. It shall also address any anticipated dewatering during construction, site safety & stability, and impact to abutting properties.

Drainage:

1. The drainage analysis submitted is acceptable as it is based the City of Newton's 100-year storm event of 6-inches over a 24-hour period. All runoff from impervious areas will be infiltrated on site improving stormwater quality control.

2. When a connection to the City's drainage system is proposed, prior to approval of the Building Permit a Closed Circuit Television (CCTV) inspection shall be performed and witnessed by the Engineering Division, the applicant shall retain a contractor that specializes in CCTV inspection. The applicant shall contact the Engineering Division 48 hours in advance to schedule an appointment. At the end of the inspection the video or CD shall be given to the inspector. Furthermore, upon completion of the connection to the drainage system a Post – Construction video inspection shall also take place and witnessed as described above. This is required regardless of the connection point, the intent is to ensure that there are no downstream blockages or damaged pipe so that the contractor of record is not held accountable for preexisting conditions.

3. The Operations and Maintenance (O&M) plan for Stormwater Management Facilities is acceptable. The O&M must be adopted by applicant, incorporated into the deeds; and recorded at the Middlesex Registry of Deeds. A copy of the recording instrument shall be submitted to the Engineering Division.

4. It is imperative to note that the ownership, operation, and maintenance of the proposed drainage system and all appurtenances including but not limited to the drywells, catch basins, and pipes are the sole responsibility of the property owner(s).

Environmental:

- As the total site disturbance is over an acre, a Phase II General Construction (NPDES) Permit will need to be filed with DEP & EPA. A Stormwater Pollution Prevention Plan (SWPPP) will need to be developed.

Sewer:

1. The sizing of the pump, pump performance curves, and hydraulic calculations will be required for the Utility Connection permit.

2. Details of the forced main connection into the sewer manhole are needed.

Water:

1. Fire flow testing is required for the proposed fire suppression system. The applicant must coordinate this test with both the Newton Fire Department and the Utilities Division; representatives of each department shall witness the testing, test results shall be submitted in a write report. Hydraulic calculation shall be submitted to the Newton Fire Department for approval.

2. All water connections shall be chlorinated & pressure tested in accordance to AWWA and the City of Newton Construction Standards and Specifications prior to opening the connection to existing pipes.

General:

1. The new driveway aprons shall comply with the City of Newton Construction Standards and the Architectural Access Board's requirements. The existing drive apron shall be remodeled as a sidewalk.

2. Finalized utility connection plan reflecting the above changes that meets the minimal design standards of the City of Newton must be submitted for approval by the contractor of record with appropriate Bonds & Insurance. The Engineering Division makes no representations and assumes no responsibility for the design(s) in terms of suitability for the particular site conditions or of the functionability or performance of any items constructed in accordance with the design(s). The City of Newton assumes no liabilities for design assumption, error or omissions by the Engineer of Record.

3. All trench excavation contractors shall comply with Massachusetts General Laws Chapter 82A, Trench Excavation Safety Requirements, to protect the general public from unauthorized access to unattended trenches. Trench Excavation Permit required. This applies to all trenches on public and private property. *This note shall be incorporated onto the plans*

4. All tree removal shall comply with the City's Tree Ordinance.

5. Due to the total square footage of the building, a scale massing model will be needed.

6. The contractor is responsible for contacting the Engineering Division and scheduling an appointment 48 hours prior to the date when the utilities will be made available for an inspection of water services, sewer service, and drainage system installation. The utility is question shall be fully exposed for the inspector

to view; backfilling shall only take place when the City's Inspector has given their approval. *This note should be incorporated onto the plans*

7. The applicant will have to apply for Street Opening, Sidewalk Crossing, and Utilities Connecting permits with the Department of Public Works prior to any construction. *This note must be incorporated onto the site plan.*

8. The applicant will have to apply for a Building Permits with the Department of Inspectional Service prior to any construction.

9. Prior to Occupancy Permit being issued, an As-Built Plan shall be submitted to the Engineering Division in both digital format and in hard copy. The plan should show all utilities and final grades, any easements and final grading. *This note must be incorporated onto the site plan.*

10. All site work being completed before a Certificate of Occupancy can be issued. *This note must be incorporated onto the site plan.*

Note: If the plans are updated it is the responsibility of the Applicant to provide all City Departments [Conservation Commission, ISD, and Engineering] involved in the permitting and approval process with complete and consistent plans.

If you have any questions or concerns please feel free to contact me @ 617-796-1023.

ATTACHMENT E

SITE DESIGN ENGINEERING, LLC.
11 Cushman Street, Middleboro, MA 02346
P: 508-967-0673 F: 508-967-0674

September 28, 2015 SDE No. 14225

Daniel Sexton, Senior Planner
Department of Planning & Development
Newton City Hall, Room 202
1000 Commonwealth Avenue
Newton Centre, MA 02459

Subject: Special Permit - 180 Wells Ave
Engineering Division Memo 9/22/2015

Dear Mr. Sexton:

We have received the revised Engineering Department review memo dated September 22, 2015 regarding the proposed Special Permit application at 180 Wells Ave. The memo confirms that the revised site plans provided to the Engineering Department, dated September 2, 2015, contain all the revisions and additional information that was requested and that the proposed drainage system complies with the city's drainage requirements.

In addition, we would also like to clarify the size and extent of the proposed drainage swales along the perimeter of the parking lot and property line. The proposed swale is approximately 8 feet wide and located within the 20 foot parking/property line setback. The swale will abut the parking areas leaving a minimum of 12 feet available for landscape planting adjacent to the property line. Additional landscape planting area will also be available in areas where the swale is narrower as well as along the interior edge of the swale.

Please contact me at 508-503-3500 or email me at dmulloy@sitedesigneng.com if you have any questions or require additional information.

Respectfully,
Site Design Engineering LLC

Daniel C. Mulloy, PE.
President/Manager

ATTACHMENT F

To: Randy Goldberg
Subject: RE: 180 Wells Avenue

From: Knight, Kent [mailto:kknight@elkus-manfredi.com]
Sent: Friday, September 04, 2015 9:48 AM
To: Randy Goldberg <rgoldberg@intrumcorp.com>; Maiellaro, Dominick <dmaiellaro@elkus-manfredi.com>
Subject: RE: 180 Wells Avenue

The 180 Wells addition proposed to be designed to a LEED certifiable level. Possible energy conservation measures under consideration include:

SITE DESIGN

- Development on an already developed site versus impacting a virgin site,
- Accommodations for bicycle commuters, as well as electric charging stations for electrical powered cars,
- Storm water runoff quantity and quality control, [confirm quality component with Dan.]
- A light colored roof with high solar reflectance to reduce the heat island effect,
- Tenant design and construction guidelines.

WATER

- 20% water use reduction including low flow plumbing fixtures (LEED pre-requisite),
- Minimize or eliminate the use of irrigation for landscaping.

ENERGY

- Commissioning of the mechanical systems (LEED pre-requisite),
- Fundamental refrigerant management (LEED pre-requisite),
- Optimize the energy performance of the building mechanical systems by means of energy efficient heating and cooling systems and an exterior envelope design incorporating an air-vapor barrier, continuous insulation and high performance glazing with thermally broken storefront and curtain wall framing.

MATERIALS AND RESOURCES

- Storage and collection of recyclables (LEED pre-requisite),
- Construction waste management,
- Use of regional materials.

INDOOR ENVIRONMENTAL QUALITY

- Minimum indoor air quality (LEED pre-requisite),
- Prohibit smoking inside the building and 25’ away from entrances (LEED pre-requisite),
- Construction indoor air quality management during construction,
- Low emitting materials,
- 10’ long floor grates at all entry and exit doors and MERV 13 filters for intake air,
- Maximize opportunity for daylight to the interior and views out to the exterior.

I have attached the LEED score card for the Trip building for your reference.

Regards,
Kent

Kent Knight AIA, LEED AP
Vice President

ELKUS MANFREDI ARCHITECTS
[tel] 617.368.3477 [email] kknight@elkus-manfredi.com