



*Traffic and Parking Consultants
Highway and Signal Design*

MICHAEL MARIS ASSOCIATES, INC.

November 4, 2013

Mr. Alberto Urtula
Director, Facility Management & Engineering
Hoffmann-La Roche Inc.
340 Kingsland Street
Nutley, NJ 07110-1199

RE: Scheme 1 Analyses Findings
Hoffmann-La Roche Campus
Nutley/Clifton, New Jersey

Dear Mr. Urtula:

We have completed the traffic and parking analyses of the Scheme 1 Plan for the redevelopment of the Hoffmann-La Roche Campus in Nutley and Clifton, New Jersey. The purpose of the traffic analyses was to determine the traffic impact of the Scheme 1 Plan and to identify potential mitigation improvements for the surrounding roadways, while the purpose of the parking analyses was to determine the number of on-site parking spaces that would be required based on accepted published data and practices.

This letter is intended to provide an overview of the study methodology and its findings for your review and comment. A detailed report is being prepared and will be finalized after our upcoming meeting at Perkins Eastman and receipt of your comments and observations. The Scheme 1 Plan, dated September 30, 2013, shows the following development components:

- | | |
|------------------------|--------------|
| • Light Industrial | 375,000 sf |
| • Bio Tech/R&D | 1,509,000 sf |
| • Office | 679,000 sf |
| • Retail | 215,000 sf |
| • Medical Office | 75,000 sf |
| • Hotel | 200 rooms |
| • Mid-Rise Residential | 210 units |
| • Townhouses | 118 units |
| • Condominiums | 447 units |
| • Senior Housing | 37 units |

TRAFFIC ANALYSES

1. Study Locations

The Traffic projections and analyses were performed for the following Study Locations, which in our opinion provide a reasonable understanding of the development's impacts and required mitigation improvements:

- Passaic Avenue and Westbound Route 3 On/Off Ramps
- Passaic Avenue and Eastbound Route 3 On/Off Ramps
- Cathedral Avenue (Passaic Avenue) and Kingsland Street
- Kingsland Street and New Driveway between proposed First Avenue and Cathedral Avenue
- Kingsland Street and Bloomfield Avenue/Proposed First Avenue (Site Access)
- Kingsland Street and New Driveway between Kenzel and Alexander Avenues
- Kingsland Street and Darling Avenue (Bloomfield Avenue)
- Bloomfield Avenue and Proposed Seventh Avenue (Site Access)
- Bloomfield Avenue and Isabella Street
- Bloomfield Avenue and Eastbound Route 3 On/Off Ramps
- Bloomfield Avenue and Westbound Route 3 On/Off Ramps
- Eastbound Route 3 and Proposed First Avenue (Site Access)

2. Traffic Projections

a. Traffic Projections

The Year 2023 was selected as a good Design Year for this project. The existing traffic volumes, counted in June 2013, were increased by one percent per year (10 percent overall) in order to estimate the future volumes on the surrounding roadways without the traffic generation of the Scheme 1 Plan.

b. Trip Generations and Distributions

The amount of traffic to be generated by the Scheme 1 Plan was estimated using data published by the Institute of Transportation Engineers in its publication entitled, Trip Generation, 9th Edition. The estimated generations using the ITE data were then reduced for the following factors:

- The office, R&D and Light Industrial trips were reduced by 20 percent to account for mass transit utilization and car/van pooling.
- The residential trips were reduced by 35 percent, consisting of 10 percent for mass transit use, 10 percent for car or van pooling, and 15 percent internal trips.
- The retail trips were reduced by 80 percent since it is expected that most of the shoppers would originate from within the site.
- No reductions were made to the hotel, medical office, age-restricted housing and condominium trips.

The results of the trip generation estimates show that the Scheme 1 Plan will generate 2,786 new trips (2,150 arriving and 636 departing) during the Peak AM Hour and 2,952 new trips (786 arriving and 2,166 departing) during the Peak PM Hour.

An assessment was made of the existing traffic volumes on the surrounding roadways in order to identify the most likely routes to and from the site. That assessment indicated the following general trip distributions:

• To/from the west via Route 3	38 percent
• To/from the east via Route 3	38 percent
• To/from the west via Kingsland Street	6 percent
• To/from the east via Kingsland Street	2 percent
• To/from the north via Bloomfield Avenue	8 percent
• To/from the south via Bloomfield Avenue	2 percent
• To/from the north via Passaic Avenue	6 percent

As shown above, the distribution assessment indicates a strong orientation to Route 3 and it is expected that a substantial amount of the site-generated traffic will use the First Avenue driveway from eastbound Route 3 (44% of the arriving and 38% of the departing). The Route 3 First Avenue driveway would be used by a much greater percent of the site traffic if there was also a direct connection to/from westbound Route 3. Without the direct connection, much of the westbound arriving and departing traffic will use Passaic Avenue to the Kingsland Street and Bloomfield Avenue driveways.

3. Capacity Analyses and Required Improvements

HCS Capacity Analyses were performed comparing the Year 2023 Peak AM and PM Highway Hour Traffic Volumes to the existing intersection capacities in order to identify future traffic operating conditions. Additional analyses were performed for all locations where the analyses indicated potential traffic congestion in order to identify reasonable improvements that would mitigate the Scheme 1 Plan traffic impact.

Following is a summary of the potential improvements and very preliminary construction cost estimates. It is noted that we did not have existing right-of-way information and that some of the improvements may need right-of-way acquisition. Since the area surrounding the Campus is heavily developed, right-of-way acquisition may not be possible, or could be cost prohibitive. Consequently, design standards may need to be waived in order to implement some of the improvements. The extent of the design waivers and the required right-of-way and its cost will not be known until detailed surveys are undertaken and preliminary designs are performed.

Intersection improvements, such as widening, re-striping, and signing will be needed at the following locations:

- a. Eastbound Route 3 and First Street – Deceleration and acceleration lanes will be required along Route 3 in accordance with the NJDOT design criteria. The site has a substantial amount of frontage along Route 3 and it is not expected that there will be any difficulty in implementing this improvement, which is estimated to cost approximately \$ 400,000. It should be noted that a NJDOT Major Access Permit will be needed in order to use the First Avenue driveway and to construct the acceleration and deceleration lanes. While the

NJDOT approval process can be time consuming and may require traffic studies in accordance with the Access Code criteria, the NJDOT Major Permit process allows credits for the existing development on the site and the permit may not be difficult to obtain.

- b. Westbound Route 3 Ramps and Bloomfield Avenue – The improvements to this intersection will require NJDOT approval and should include widening of the ramp approach to provide a double left-turn lane, re-striping and signing of the intersection and signal modifications. The amount of the widening and right-of-way requirements will be determined by surveys. Without any costs for any right-of-way acquisition (if any), it is estimated that the construction costs for this improvement will be approximately \$ 300,000.
- c. Eastbound Route 3 Ramps and Bloomfield Avenue – The improvements to this intersection will also require NJDOT approval and should include widening of the northbound approach of Bloomfield Avenue to provide a separate right-turn lane, re-striping and signing of the intersection and signal modifications. Based on the field observations, it appears that some right-of-way will be needed. Without any costs for right-of-way acquisition, it is estimated that the construction costs for this improvement will be approximately \$ 300,000.
- d. Bloomfield Avenue and Isabella Street or Seventh Avenue – Either the Isabella Street or the Seventh Avenue intersection with Bloomfield Avenue will require improvements, depending upon which is selected to serve as a major site access. The improvements should include re-striping the southbound Bloomfield Avenue approach to provide one left-turn lane and one through lane and the installation of a traffic signal. The Isabella Street or Seventh Avenue approach should include one left-turn lane and one right-turn lane. It is estimated that the construction costs for this improvement will be approximately \$ 300,000.
- e. Darling Avenue and Kingsland Road – Signal timing modifications will be required. Other than obtaining approvals, the costs for this improvement will be minimal.
- f. Kingsland Road and First Street/Bloomfield Avenue – This intersection served as a major access to the Hoffmann-La Roche Campus and has excess capacity. However, the striped-off area on the westbound approach should be eliminated to provide a separate right-turn lane into the site and the signal should be modified. These improvements are estimated to cost approximately \$ 150,000.
- g. Kingsland Road and Cathedral Avenue (Passaic Avenue - The improvements to this intersection should include re-striping of the eastbound approach to provide one left-turn lane and one through lane and the installation of a traffic signal. It is estimated that the construction costs for this improvement will be approximately \$ 250,000.
- h. Passaic Avenue and Ward Avenue (Eastbound Route 3 Ramps) – Both approaches of Passaic Avenue should be re-striped to two lanes and a traffic signal should be installed. It is not known whether approval will be needed from the NJDOT until survey information is collected. The costs for these improvements will be approximately \$ 250,000.

- i. Passaic Avenue and Westbound Route 3 Ramps – The Route 3 Ramps form a Y-type intersection with Passaic Avenue, which due to existing channelization, operate as three intersections within very close proximity. The overall intersection should be modified to a more typical T-type and a traffic signal should be installed. The costs for this improvement are estimated to be approximately \$ 400,000.

In summary, based on the projections and analyses presented herein, along with our field observations, it is our opinion that the development outlined in Scheme 1 is feasible and its traffic impacts could be mitigated with the roadway and signal improvements identified herein, which, without consideration to right-of-way costs, are estimated to total of approximately \$ 2,350,000.

PARKING NEEDS STUDY

A Parking Needs Study was performed in order to identify required parking spaces to serve the various development components of the Scheme 1 Plan. Because the site is large and there would be several parking areas, it was divided in Development Zones in order to estimate the number of spaces that will be needed in each Zone taking into account shared parking principals. Attached are a Zone Identification Plan and a table that lists the various development components within each Zone. It is noted that the development components within the various Zones were estimated since the Scheme 1 Plan does not provide a breakdown.

The peak-hour and hourly parking generations presented herein were estimated using data published by the Institute of Transportation Engineers in a publication entitled Parking Generation, Second Edition. Where applicable, credits were taken similar to those for the trip generation estimates in order to reflect mass transit utilization, van/car pooling and internal trips. The following table summarizes the results of the parking generation estimates. The estimated peak vehicle accumulation in each Zone is shown in bold numbers.

<u>TIME</u>	<u>ZONE A</u>	<u>ZONE B</u>	<u>ZONE C</u>	<u>ZONE D</u>	<u>ZONE E</u>	<u>ZONE F</u>	<u>ZONE G</u>	<u>ZONE H</u>	<u>ZONE I</u>	<u>ZONE J</u>	<u>TOTAL</u>
7:00 AM	221	167	225	953	49	644	1569	15	275	186	4,304
8:00 AM	295	224	282	1264	173	513	2006	10	182	233	5,182
9:00 AM	355	269	337	1525	230	473	2386	8	151	250	5,984
10:00 AM	374	283	351	1601	270	446	2500	8	142	254	6,229
11:00 AM	367	277	349	1578	270	429	2458	7	137	254	6,126
12:00 PM	337	255	324	1457	238	425	2269	7	133	247	5,692
1:00 PM	288	218	284	1255	219	425	1960	7	137	328	5,121
2:00 PM	314	238	303	1358	243	427	2125	8	146	338	5,500
3:00 PM	303	229	296	1311	251	439	2062	9	164	321	5,385
4:00 PM	269	204	269	1171	232	484	1862	11	199	260	4,961
5:00 PM	172	130	191	764	140	566	1286	15	270	210	3,744
6:00 PM	94	71	127	437	170	620	784	17	306	210	2,836

As the table shows, when the shared parking principals are applied to the whole site, the peak on-site vehicle accumulation will be approximately 6,229 vehicles at 10:00 AM. It is standard practice to provide a minimum of five (5) percent excess parking. Therefore, the overall Campus would need about 6,540 parking spaces.

The above parking estimate assumes that all spaces will be available on a first-come basis and that employees and residents could park anywhere on the site. However, the size of the development and the distances between the various Zones would make shared parking for the whole site impractical. Therefore, it is recommended that the peak accumulation in each Zone be used to determine the number of spaces in each area, which should exceed the peak vehicle accumulations by a minimum of five (5) percent. Under this condition, the number of parking spaces needed within the Campus will be 7,352 spaces.

We trust that this preliminary letter report is clear and adequately responds to your request. Please let me know if you have any questions or comments.

Respectfully submitted,
MICHAEL MARIS ASSOCIATES, INC.

A handwritten signature in black ink, reading "Michael Maris". The signature is written in a cursive, flowing style.

Michael Maris
President
att

DEVELOPMENT SUMMARY BY ZONE											
COMPONENTS	A	B	C	D	E	F	G	H	I	J	TOTALS
LIGHT INDUSTRIAL										375,000 SF	375,000 SF
BIO TECH/R&D	185,000 SF	140,000 SF					1,184,000 SF				1,509,000 SF
OFFICE			115,000 SF	564,000 SF							679,000 SF
RETAIL			36,000 SF	72,000 SF		35,000 SF	72,000 SF				215,000 SF
MID-RISE RESIDENTIAL			27 UNITS			350 UNITS	140 UNITS				210 UNITS
MEDICAL OFFICE					75,000 SF						75,000 SF
HOTEL						200 RMS					200 RMS
TOWNHOUSES						94 UNITS	24 UNITS				118 UNITS
SENIOR HOUSING								37 UNITS			37 UNITS
CONDOMINIUMS									447 UNITS		447 UNITS