### TRAFFIC ENGINEERING EVALUATION

### 14 LINCOLN PLACE BOROUGH OF MADISON MORRIS COUNTY, NEW JERSEY

### Prepared for:

MADISON MOVIE DEVELOPMENT, LLC 339 Jefferson Road Parsippany, New Jersey 07054

Prepared by:



54 Horsehill Road Cedar Knolls, NJ 07927

January 3, 2019 BCG File No. 080790-C1-001

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### **EXECUTIVE SUMMARY**

This Traffic Engineering Evaluation was prepared to assess any traffic impacts that may occur from the proposed redevelopment of the subject site. In addition, we examined the availability of municipal parking facilities proximate to the subject site to supplement the on-site parking for the proposed residential uses. The subject site currently contains the Madison Theater, which is presently closed. The site currently does not provide any on-site parking to support the movie theater use, dependent entirely on municipal parking, including on-street parking. The proposed redevelopment contains 24 apartments, 4,526 square feet of retail space and a 91-seat theater in Option 1. Option 2 of the redevelopment maintains the 24 apartments but contains 7,730 square feet of retail space with no theater. Twenty-four (24) on-site parking spaces are provided for the residential units. Consistent with current conditions, no on-site parking is provided for the non-residential uses.

Based upon our traffic study and capacity analyses, the proposed redevelopment would have a nominal impact on traffic operations at the studied intersections during the weekday AM, PM, and Saturday peak hours. The incremental impact of the additional site generated traffic results in a small increase in the average delay at the studied intersections. The slight increase would be an average vehicle delay of less than one second and would not materially impact the operations of the studied intersections or change the level of service. The calculated levels of services for the proposed site driveway would be LOS A.

We note that the Madison Theater that previously operated on this property generated parking demands for the municipal parking lots proximate to the subject site, as no onsite parking currently exists. The Borough ordinance [Section 195-32.4(F)(5)] states that in the CBD-1 Zone that "There shall be no minimum required off-street parking in the CBD-1 Zone for permitted ground-floor nonresidential uses with public street frontage". Therefore, the prior use did not require off-street parking and the proposed non-residential uses also do not require off-street parking.

Parking occupancy counts were conducted in various municipal parking lots during weekday midday and evening periods and for Saturday midday and evening periods, which would be the peak usage times for the residential and non-residential uses proposed.

We collected parking data at the following six parking lots in downtown Madison:

- Green Avenue Lot Merchants, Tenants, Municipal Employees and Permit Parking (a distance of approximately 550 feet or 2.5 minutes)
- Prospect Street Lot #1 Ambulance, Main Lot, Permit Lot, Municipal Employee Lot (a distance of approximately 450 feet or 2 minutes)
- Train Station Lot (a distance of approximately 200 feet or 1 minute)
- Kings Road Lot #3 (a distance of approximately 800 feet or 3.5 minutes)
- Cook Avenue Lot 2 Hour Limit and Permit Parking (a distance of approximately 1000 feet or 4.5 minutes)
- Elmer Street Lot 2 Hour Limit Parking (a distance of approximately 875 feet or 4 minutes)

We note that public parking is permitted in the Train Station Lot after 9:30 AM and all day Saturday and Sunday, obviously subject to availability. We visited these six parking lots to gather the number of existing parking spaces and to assess the respective parking occupancy of each lot.

Based on our parking occupancy data and assessment of parking availability and demand, we conclude that there are sufficient available parking spaces in any combination of the public parking lots in the downtown area during various timeframes to meet the needs of employees, customers and residential visitors.

Residential Site Improvement Standards (RSIS) require 1.8 parking spaces for one-bedroom units, 2.0 parking spaces for two-bedroom units and 2.1 parking spaces for three-bedroom units. The proposed bedroom mix is 8 one-bedroom units, 15 two-bedroom units and 1 three-bedroom unit. The standard RSIS parking requirement is 47 parking spaces, where 24 parking spaces are provided. However, the RSIS permits the application of alternate parking standards where local conditions support such an option.

The parking supply of 1 parking space per unit is adequate and appropriate for a residential use in a transit-oriented development such as this, especially given its location directly across from the Madison train station and in a walkable downtown setting with many businesses, restaurants, shopping and other attractions convenient to the residents of this redevelopment. The proposed parking ratio has been successfully used in other suburban municipalities with proximity to public transit, availability of municipal parking facilities and in a downtown setting.

The downtown setting of this redevelopment project, with shopping, dining and recreational options within walking distance of the proposed apartments, reduces the demand and need for automobile ownership within this project. The availability of municipal parking especially on weekdays in the late afternoon/evenings and on the weekends when parking demand is at its highest, will provide more than adequate supply to meet the project's demands.

It is our professional opinion that, based upon our traffic and parking engineering evaluation, the proposed redevelopment will provide for safe and efficient traffic operations without affecting the quality of flow along the nearby local roadways; and sufficient, convenient parking will be available for employees, customers, residents and residential visitors. The proposed site plan conforms to applicable industry design standards from a traffic engineering viewpoint. Circulation and access to and from the site, as well as within the property are adequate. The proposed site access point provides more than adequate sight distance along Lincoln Place.

In conclusion, this mixed-use redevelopment project would have a minimal impact on the traffic operations of studied intersections and the available public parking supply in the downtown area. The design of the project will adequately serve the needs of this building's employees, customers, residents and guests.

### INTRODUCTION

This Traffic Engineering Evaluation was prepared to assess any traffic impacts that may occur from the proposed redevelopment of the subject site located on Lincoln Place in the Borough of Madison in Morris County. The redevelopment project is proposed to contain a total of 24 apartments in three floors above 24 residents' parking spaces, 4,526 square feet of retail space and a 91-seat theater (Option 1). Option 2 eliminates the proposed theater and replaces it with additional retail space, providing a total of 7,730 square feet. This redevelopment will result in the demolition of the existing theater building, which currently contains 435 seats. The location of the site is illustrated in Figure 1.

The subject property is shown on the Borough of Madison tax map as Block 2702, Lot 24. The property is located at 14 Lincoln Place, directly across Lincoln Place from the NJ Transit Madison Station. The site is located in the CBD-1 Central Business District. The property has approximately 82 feet of frontage on Lincoln Place, with a shared access driveway along the east side of the building. The site currently contains a vacant movie theater.

The development proposal is to construct a new mixed-use building, containing retail space and a theater on the first floor; with 24 apartments on three floors above the ground floor; and 24 parking spaces in a lower level. These parking spaces would be only for the residents. The proposed site access will be maintained along the east side of the building but will be widened.

Primary aspects of this study include the investigation of existing conditions adjacent to the site, the establishment of background traffic volumes for the surrounding streets, estimation of the development related trip generation utilizing known published sources, assignment of the development related volumes to the key intersection serving the proposed development site, and the assessment of intersection performance using established traffic engineering methodologies. We have also conducted a parking assessment of existing municipal parking lots proximate to the subject site. The base year for anticipated build-out of the development is 2020.

The ensuing report will detail the existing and proposed conditions, summarize the traffic operations at key locations, and include our findings as to the effects of the proposed development on the existing street network and on the available parking supply in nearby municipal parking lots.

### **EXISTING CONDITIONS**

The subject property is located across the street from the Madison NJ Transit Rail Station. The subject property is currently occupied by a vacant movie theater. Adjacent surrounding land uses include commercial and residential uses. The roadway system serving the subject property includes Lincoln Place, Waverly Place and Prospect Street that provide access to and from Main Street (Route 124).

Our assessment of traffic conditions in this area included a study of the street network surrounding the site and a survey of typical traffic characteristics using these roadways. Field observations were made of the existing traffic control devices at the intersections as well as the existing conditions of the adjacent roadways. The following subsections include a brief description of key routes in the adjacent roadway system:

### Study Roadways

### Lincoln Place

In the vicinity of the subject property, Lincoln Place is a two-lane roadway oriented in an east-west direction, under Borough jurisdiction. There is a small median island in front of the property that contains landscaping. In the vicinity of the site, on-street parking is permitted and there are sidewalks on both sides of the street. There are midblock crosswalks at the train station. Lincoln Place provides a connection between Prospect Street to the east and Waverly Place to the west. Parking along Lincoln Place is unmetered with 1-hour time limits, 8:00 AM to 7:00 PM, Monday through Friday. There are 45 parking spaces designated along Lincoln Place, 24 on the south side and 21 on the north side. The speed limit for Lincoln Place is 25 MPH within the area of the subject site.

### **Prospect Street**

Prospect Street is a two-lane street, under Borough jurisdiction, oriented in a north-south direction. Prospect Street provides access from Main Street, changes names to Greenwood Avenue north of Main Street and continues over Route 24 to the north and continues to the south into Chatham. On-street parking is permitted on both sides of the street between Lincoln Place and Main Street. Prospect Street traverses beneath the NJ Transit railroad tracks with a posted vertical clearance of 14-feet, 5-inches. There are sidewalks provided along the both sides of the street. The speed limit is 25 MPH.

### Waverly Place

Waverly Place is a two-lane street with a center median island, under Borough jurisdiction, oriented in a north-south direction. Waverly Place provides access from Main Street, changes names to Central Avenue north of Main Street and continues to the north and continues to the south, changes names to Green Avenue and continues into Chatham. On-street parking is permitted on both sides of the street and along both

sides of the center median island between Lincoln Place and Main Street. Waverly Place traverses beneath the NJ Transit railroad tracks with a posted vertical clearance of 12-feet. There are sidewalks provided along the both sides of the street. The speed limit is 25 MPH.

### Studied Intersections

### Lincoln Place with Prospect Street and Stop & Shop Driveway

Traffic operations on Lincoln Place at the intersection with Prospect Street are controlled by a stop sign. The northbound approach of Prospect Street is wide enough to provide an exclusive left-turn lane and an exclusive through lane. Southbound Prospect Street has a single shared through/right-turn lane. The eastbound approach of Lincoln Place provides one shared left-turn/right-turn lane. The driveway for Stop & Shop is offset to the north of Lincoln Place by approximately 60 feet and is stop-controlled. Traffic to and from the Stop & Shop driveway was included in the traffic analysis of this intersection. There are three crosswalks, one across Prospect Street, one across Lincoln Place and one across the Stop & Shop driveway. Crosswalks and curb ramps are provided at the intersection.

### Lincoln Place with Waverly Place and Commercial Driveway

Traffic operations on Lincoln Place at the intersection with Waverly Place are controlled by a stop sign. The northbound approach of Waverly Place provides a shared through/right-turn lane. Southbound Waverly Place has a single shared left-turn/through lane. The westbound approach of Lincoln Place has an exclusive right-turn only lane. The eastbound approach of the commercial driveway provides one shared left-turn/through/right-turn lane. There are three crosswalks, one across Waverly Place, one across Lincoln Place and one across the commercial driveway. Crosswalks and curb ramps are provided at the intersection.

### **Traffic Volumes**

The intersection traffic turning movement counts were performed at the studied intersections on Thursday, September 7, 2017 during the morning peak period from 7:00 AM to 9:00 AM and during the evening peak period from 4:00 PM to 6:00 PM and on Saturday, September 9, 2017 from 11:00 AM to 2:00 PM. These existing traffic volume data were used as the basis for this traffic engineering evaluation.

Based on the traffic turning movement counts, the weekday peak hours established for analysis purposes were determined to be between 7:15 AM and 8:15 AM and between 4:45 PM to 5:45 PM on the weekday and between 11:30 AM and 12:30 PM on Saturday. Existing volumes at these intersections for the weekday AM, PM, and Saturday peak hour are illustrated in Figure 2.

During our traffic data collection, it was noted that all traffic demand was processed through the intersections with minimal delay and that there were not any material queues that were observed. The results of the traffic volume counts indicate that the

directional split of traffic along Lincoln Place has a bias of 42%/58% split eastbound/westbound during the AM peak hour, 45%/55% split eastbound/westbound during the PM peak hour and 49%/51% split eastbound/westbound during the Saturday peak hour. The results of the traffic volume counts indicate that the directional split of traffic along Prospect Street has a bias of 53%/47% split northbound/southbound during the AM peak hour, 49%/51% split northbound/southbound during the PM peak hour and 48%/52% split northbound/northbound during the Saturday peak hour. The results of the traffic volume counts indicate that the directional split of traffic along Waverly Place has a bias of 51%/49% split northbound/southbound during the AM peak hour, 52%/48% split northbound/southbound during the PM peak hour and 36%/64% split northbound/northbound during the Saturday peak hour.

### **Capacity Analyses**

The existing AM, PM, and Saturday peak hour intersection traffic volumes were analyzed to evaluate the quality of operation at the studied intersections. The methodologies presented in 2010 Highway Capacity Manual, Chapter 19 entitled "Stop-Controlled Intersections" were used for the analysis of the studied intersections. Intersection capacity calculations were completed using the Highway Capacity Software, Version 5.6. Definitions of Levels of Service for stop-controlled intersections are provided in Appendix I.

The methodology addresses two measurements of an intersection's effectiveness in accommodating conflicting traffic movements; capacity and level of service (LOS). Capacity is defined for each approach as a maximum number of vehicles that may pass through the intersection given the prevailing roadway and traffic control conditions. The capacity is evaluated in terms of the ratio of actual traffic flow to capacity (v/c ratio). The second measure of effectiveness is average stopped delay per vehicle (seconds/vehicle), which determines the Level of Service.

Table 1 presents the levels of service for the AM, PM, and Saturday peak hours at the studied intersections. As shown in Table 1, under 2017 Existing Conditions, all movements at the stop-controlled, studied intersections operate at acceptable LOS C or better during both the AM, PM, and Saturday peak hours. These levels of service were consistent with the observations made during our traffic counts.

### **Accident Records**

We obtained accident records from the Madison Police Department for the studied intersections for the three-year period between 2014 and 2017. The data provided indicated there were a total of eight (8) accidents along Lincoln Place or at the two studied intersections within this three-year period. These data are summarized in Table 2 – Accident Summary. Six of these accidents involved parking maneuvers at on-street parking spaces at various locations along Lincoln Place. There was one right angle accident in 2016 at the intersection of Lincoln Place with Prospect Street; and another right-angle accident at the island in Lincoln Place in 2015 (during a snow event). Based upon these data there is no pattern of accidents within the study area that needs to be addressed as part of this traffic study.

### PROPOSED CONDITIONS

The proposed redevelopment program consists of the construction of a building containing 24 apartments in three floors above 24 residents' parking spaces, 4,526 square feet of retail space and one 91-seat theater. Access to the site is provided by one, full-movement driveway on Lincoln Place that is shared with the property to the east. There is an existing driveway 10.6 feet in width which is being widened to 20.5 feet to adequately accommodate two-way traffic flow.

The units are a mix of eight (8) one-bedroom apartments, 15 two-bedroom apartments and one (1) three-bedroom apartment, of which four (4) units will be affordable. A total of 24 parking spaces are provided within the building, consisting of 23 standard parking spaces and one (1) ADA compliant space.

The Year 2020 has been selected as the future analysis year for full occupancy of the proposed redevelopment. We have analyzed conditions for the Year 2020 without the project (No-Build) and with the project (Build).

### Year 2020 No-Build Conditions

The proposed redevelopment is planned for construction and full occupancy in 2020. This year will be used as a basis for estimating background traffic growth on the surrounding street system. An annual growth rate of 2.00 percent, compounded annually, was used to calculate the future background traffic growth at the studied intersections. This rate was based on the April 2017 NJDOT Access Permit Table on Annual Background Growth Rates for local streets in Morris County.

We contacted the Borough of Madison to inquire about other developments within the immediate area that have been approved but not yet constructed. We were told that there are two specific developments within the immediate area of the subject project that would impact the traffic along Waverly Place and Prospect Street. We obtained the Traffic Impact Assessment report for the Proposed Mixed-Use Development at 9-19 Greenwood Avenue, dated January 3, 2017, prepared by Dolan and Dean; and the Traffic Impact Analysis for KRE Madison NJ Urban Renewal, LLC, Proposed Mixed-Use Redevelopment, 33 Green Village Road (CR 647) and Kings Road, dated December 22, 2014, prepared by Atlantic Traffic & Design Engineers, Inc.

Figures 3A and 3B show those new site-generated trips distributed through our studied intersections. Excerpts of those reports are included in the Appendix IV of this report. Year 2020 No-Build traffic volumes are presented in Figure 3 for the AM, PM, and Saturday peak hours. These traffic volumes were used to evaluate future operations without the addition of the proposed redevelopment at the studied intersections.

The resulting levels of service for 2020 No-Build conditions at the studied intersections are summarized in Table 1. The results of the capacity analyses indicate that under future Year 2020 No-Build conditions, the levels of service for the studied intersections would remain the same at LOS C or better on each approach with increases in the average delay of less than two seconds during the AM, PM, and Saturday peak hours. These increases in average delay would be imperceptible to the motorists.

### Site Trip Generation and Distribution

The trip generation for the proposed 24 apartments is based upon data compiled in the <u>Trip Generation Manual</u>, 10<sup>th</sup> <u>Edition</u> published by the Institute of Transportation Engineers (ITE). With the proximity of the Madison NJ Transit Rail station, the trip generation of this proposed redevelopment would be expected to be less than that of a typical, suburban, apartment building; however, no discount for transit usage was applied to the trip generation results, which yields a conservative analysis of intersection operations.

Table 3 illustrates the trip generation estimate for the proposed redevelopment using the average trip generation rate provided in the Trip Generation Manual. However, the trips associated with the proposed retail and theater uses would generate pedestrian traffic, since there is no parking provided for these uses on-site. The vehicle trips associated with the previous 435-seat theater use would also have parked in public parking lots and on the local streets as there was no on-site parking. This prior use also generated pedestrian traffic in the downtown area among the parking lots, restaurants, other retail uses and the theater.

The peak hour trips from the proposed 24 apartments are likely to coincide temporally with the peak hour commuter trips on the surrounding roadway system. The trip assignment for the proposed redevelopment is based on observed traffic patterns of the predominant traffic movements at the studied intersections. The existing traffic patterns at the studied intersections have been considered to be representative of the traffic distribution associated with the proposed redevelopment. The trip distribution is graphically presented in Figure 4. Applying the site trip distribution to the trip generation values presented in Table 3 resulted in the trip assignment for the AM, PM, and Saturday peak hours shown in Figure 5.

### Year 2020 Build Conditions

The site generated traffic volumes presented in Figure 5 were added to Year 2020 No-Build traffic volumes presented in Figure 3 to yield the AM, PM, and Saturday peak hour Year 2020 Build conditions, which are presented in Figure 6. These traffic volumes are used to analyze future operating conditions including the traffic from the proposed redevelopment.

The site access driveway to Lincoln Place will continue to be stop-controlled.

The resulting levels of service for 2020 Build conditions at the studied intersections are summarized in Table 4. The results of the analyses indicate that under future Year 2020 Build conditions, the levels of service (LOS) for all of the traffic movements at the studied intersection would remain at LOS C or better during the AM, PM, and Saturday peak hours. The increases in average vehicle delay would be less than one second and would be imperceptible by motorists traveling through the studied intersections. The proposed site driveway would operate at LOS A during the AM, PM, and Saturday peak hours.

### MUNICIPAL PARKING OCCUPANCY ASSESSMENT

We note that the Madison Theater that previously operated on this property generated parking demands for these same municipal parking lots, as no on-site parking currently exists. The Borough ordinance [Section 195-32.4(F)(5)] states that in the CBD-1 Zone that "There shall be no minimum required off-street parking in the CBD-1 Zone for permitted ground-floor nonresidential uses with public street frontage". Therefore, the prior use did not require off-street parking and the proposed non-residential uses do not require off-street parking.

We conducted parking occupancy counts at various municipal parking lots proximate to the site to identify the existing utilization of these parking lots. The purpose of this study was to identify the available capacity of these municipal parking lots to accommodate the employee, customer, resident and residential visitor demands of the proposed redevelopment plan. As stated previously, on-site parking is provided for the residents at one space per unit, which is a typical parking ratio for transit-oriented developments (TOD). We reviewed a municipal parking information document that was available on the Borough's website (see Appendix V).

We collected parking data at the following six parking lots in downtown Madison:

- Green Avenue Lot Merchants, Tenants, Municipal Employees and Permit Parking (a distance of approximately 550 feet or 2.5 minutes)
- Prospect Street Lot #1 Ambulance, Main Lot, Permit Lot, Municipal Employee Lot (a distance of approximately 450 feet or 2 minutes)
- Train Station Lot (a distance of approximately 200 feet or 1 minute)
- Kings Road Lot #3 (a distance of approximately 800 feet or 3.5 minutes)
- Cook Avenue Lot 2 Hour Limit and Permit Parking (a distance of approximately 1000 feet or 4.5 minutes)
- Elmer Street Lot 2 Hour Limit Parking (a distance of approximately 875 feet or 4 minutes)

We note that public parking is permitted in the Train Station Lot after 9:30 AM and all day Saturday and Sunday, obviously subject to availability. We visited these six parking lots to gather the number of existing parking spaces and to assess the respective parking occupancy of each lot. The parking occupancy data was collected on the following dates and at the noted times:

- Thursday, December 14, 2017 from 7:00 PM until 10:00 PM
- Saturday, December 16, 2017 from 11:00 AM to 1:00 PM and from 6:00 PM to 9:00 PM.

Weekday midday parking counts were subsequently collected in the Green Avenue Lot, Prospect Street Lots and the Kings Road Lot to supplement the previously collected parking occupancy data. This parking occupancy data was collected on the following dates and at the noted times:

- Wednesday, January 3, 2018 from 11:00 AM to 2:00 PM
- Friday, January 19, 2018, from 11:00 AM to 2:00 PM

We started at the top of the hour or half past the hour and circulated through each lot in the same direction each time. We counted either the vacant parking spaces or the number of parked cars in each parking lot. We counted the total number of parking spaces in each lot. On Saturday, in some parking lots, we were able to count separately the different parking space types, such as Permit, Municipal Employees, Merchants and Tenants. We were able to do this in the Green Avenue Lot, the Cook Avenue Lot and the Prospect Street Lot #1.

On Friday, December 15, 2017, there were snow showers with an accumulation of at least one inch. Throughout our data collection on Saturday, we noted that there were snow-covered cars parked in various parking spaces in various lots. It was obvious that these vehicles were parked for more than the 2-hour time limit specified on the posted signs. For example, in the Cook Avenue lot there were several snow-covered cars parked in the "2-Hour" parking spaces.

Table 5 summarizes the Thursday, December 14 parking data. In all of the studied municipal parking lots there were a minimum total of 180 parking spaces available, with the large majority of them in the Prospect Street Lot (45 spaces minimum) and Kings Road Parking Lot #3 (102 spaces minimum). There were also spaces available in the Train Station Lot during this period. These two lots are less than a 3.5 minute walk from the subject site.

Table 6 summarizes the Saturday, December 16, 2017, 11:00 AM to 1:00 PM parking data. In all of the studied municipal parking lots there were a minimum total of 350 parking spaces available, with the large majority of them in the Prospect Street Lot (95 spaces minimum) and Kings Road Parking Lot #3 (190 spaces minimum). During this time period we also obtained parking occupancy information by parking use type (2-Hour, Permit, etc.). In the Prospect Street Lot, there were at least 9 vacant parking spaces in the Permit section of the parking lot. There were also spaces available in the Train Station Lot during this period.

Table 6 also summarizes the Saturday, December 16, 2017, 6:00 PM to 9:00 PM parking data. In all of the studied municipal parking lots there were a minimum total of over 370 parking spaces available, with the large majority of them in the Prospect Street Lot (95 spaces minimum) and Kings Road Parking Lot #3 (200 spaces minimum). During this time period we also obtained parking occupancy information by parking use type (2-Hour, Permit, etc.). In the Prospect Street Lot, there were at least 9 vacant parking spaces in the Permit section of the parking lot; and in the Green Avenue Lot, there were always 5 permit parking spaces available. There were also spaces available in the Train Station Lot during this period.

Table 7 summarizes the Wednesday, January 3, 2018, 11:00 AM to 2:00 PM parking data. In all of the studied municipal parking lots there were a minimum total of 11 parking spaces available. During this time period we also obtained parking occupancy information by parking use type (2-Hour, Permit, etc.). In the studied lots, there were at

least 9 vacant Merchant/Permit parking spaces. During the midday periods, the parking demand for the redevelopment is lower with the primary demand generated by customers for the retail space. There are ample opportunities, both on-street and in municipal lots to accommodate customer demand. It is also likely that customers for the retail space within the redevelopment project will have other retail destinations in the downtown, linking their walk trips to multiple destinations, without multiple parking needs.

Table 8 summarizes the Friday, January 19, 2018, 11:00 AM to 2:00 PM parking data. In all of the studied municipal parking lots there were a minimum total of 84 parking spaces available, with the large majority of them in the Kings Road Parking Lot #3 (70 spaces minimum). During this time period we also obtained parking occupancy information by parking use type (2-Hour, Permit, etc.). In the studied lots, there were at least 5 vacant Permit parking spaces. Again, during the midday periods, the parking demand for the redevelopment is lower with the primary demand generated by customers for the retail space. There are adequate opportunities, both on-street and in municipal lots to accommodate customer demand.

Based on our parking occupancy data and assessment of parking availability and demand, we conclude that there are sufficient available parking spaces in any combination of the public parking lots in the downtown area during various timeframes to meet the needs of employees, customers and residential visitors.

### SITE PLAN REVIEW

The proposed site access is provided by one, full-movement access driveway intersecting with Lincoln Place. This proposed access point will provide more than adequate circulation and flow into and out of the proposed redevelopment in a safe and efficient manner.

With a posted speed limit of 25 MPH and a design speed of 30 MPH, the required stopping sight distance from the proposed site driveway would be 200 feet. The available sight distance from the proposed site driveway is more than adequate to satisfy this requirement. Currently, there is no parking on either side of Lincoln Place in front of the existing theater building. The driveway for the proposed site will not impact the available parking supply on Lincoln Place.

Residential Site Improvement Standards (RSIS) require 1.8 parking spaces for one-bedroom units, 2.0 parking spaces for two-bedroom units and 2.1 parking spaces for three-bedroom units. The proposed bedroom mix is eight (8) one-bedroom units, 15 two-bedroom units and 1 three-bedroom unit. The standard RSIS parking requirement is 47 parking spaces, where 24 parking spaces are provided. However, the RSIS permits the application of alternate parking standards where local conditions support such an option.

The parking supply of 1 parking space per unit is adequate and appropriate for a residential use in a transit-oriented development such as this, especially given its location directly across from the Madison train station and in a walkable downtown setting with many businesses, restaurants, shopping and other attractions convenient to the residents of this redevelopment. The proposed parking ratio has been successfully used in other suburban municipalities with proximity to public transit, availability of municipal parking facilities and in a downtown setting. The downtown setting of this redevelopment project, with shopping, dining and recreational options within walking distance of the proposed apartments, reduces the demand and need for automobile ownership within this project. The availability of municipal parking especially on weekdays in the late afternoon/evenings and on the weekends when parking demand is at its highest, will provide more than adequate supply to meet the project's demands.

Sidewalks exist along the Lincoln Place frontage of the site. A sidewalk is proposed along the west side of the building to provide access to the residential lobby and theaters. The retail space(s) will have access directly to the sidewalk across the site frontage. There are crosswalks across Lincoln Place to either side of the property to provide access to the Madison train station. There is a complete sidewalk system in the downtown area which provides accessibility between the redevelopment project and a multitude of other destinations in the downtown area including the municipal parking lots and on-street parking opportunities.

Adequate vehicular circulation is provided to the 24 parking spaces located under the building, which are accessible from the shared driveway on the east side of the building.

### **CONCLUSIONS**

The proposed redevelopment of 24 apartments, 4,526 square feet of retail space and a 91-seat theater would have a nominal impact on traffic operations at the studied intersections during the weekday AM, PM, and Saturday peak hours. The second development option which eliminates the theater and increases the retail to a total of 7,730 square feet would have no measurable change in traffic or operations at studied intersections. The incremental impact of the additional site generated traffic results in a small increase in the average delay at the studied intersections. The slight increase would be an average vehicle delay of less than one second and would not materially impact the operations of the studied intersections or change the level of service. The calculated levels of services for the proposed site driveway would be LOS A.

Based on our parking occupancy data and assessment of parking availability and demand, we conclude that there are sufficient available parking spaces in any combination of the public parking lots in the downtown area during various timeframes to meet the needs of employees, customers and residential visitors.

It is our professional opinion that, based upon our traffic and parking engineering evaluation, the proposed redevelopment will provide for safe and efficient traffic operations without affecting the quality of flow along the nearby local roadways; and sufficient, convenient parking will be available for employees, customers, residents and residential visitors. The proposed site plan conforms to applicable industry design standards from a traffic engineering viewpoint. Circulation and access to and from the site, as well as within the property are adequate. The proposed site access point provides more than adequate sight distance along Lincoln Place.

In conclusion, this mixed-use redevelopment project would have a minimal impact on the traffic operations of studied intersections and the available public parking supply in the downtown area. The design of the project will adequately serve the needs of this building's employees, customers, residents and guests.

### TRAFFIC VOLUME FIGURES AND TABLES

Figure 1 - Location Map

Figure 2 – 2017 Existing AM, PM, and Saturday Peak Hour Traffic Volumes

Figure 3 - 2020 No-Build AM, PM, and Saturday Peak Hour Traffic Volumes

Figure 4 – AM, PM, and Saturday Peak Hour Trip Distribution Percentages

Figure 5 - Peak Hour AM, PM, and Saturday Trip Generation

Figure 6 - 2020 Build AM, PM, and Saturday Peak Hour Traffic Volumes

Table 1 - LOS / Average Delay Comparison - Existing vs No-Build

Table 2 – Accident Summary

Table 3 – Trip Generation Summary

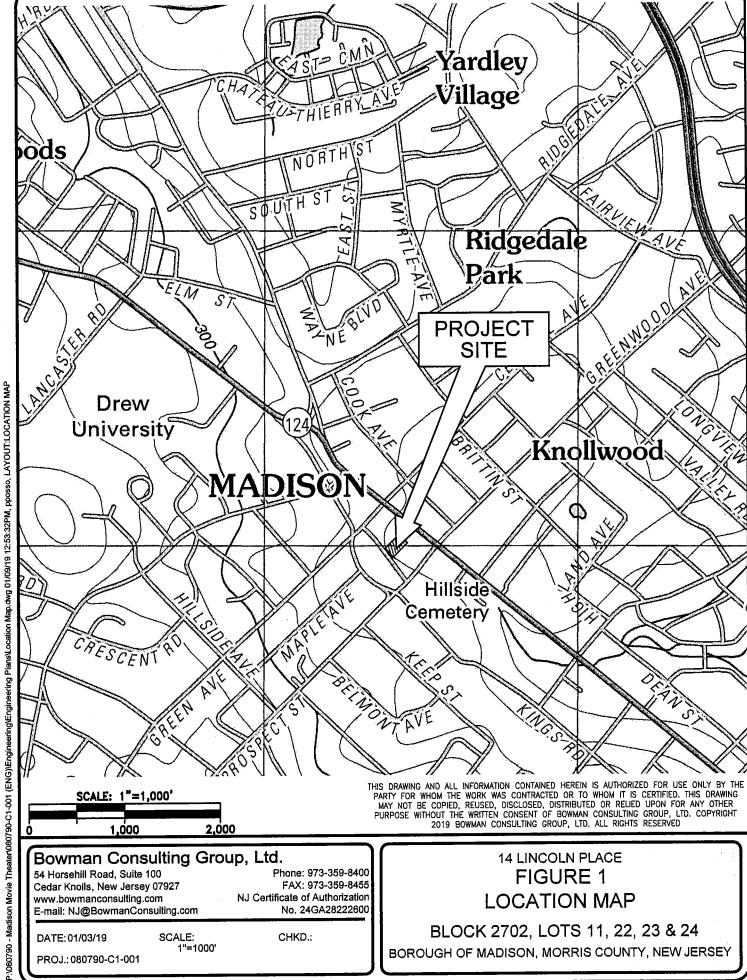
Table 4 - LOS / Average Delay Comparison - No-Build vs Build

Table 5 - Parking Accumulation Data - Thursday, December 14, 2017

Table 6 - Parking Accumulation Data - Saturday, December 16, 2017

Table 7 - Parking Accumulation Data - Wednesday, January 3, 2018

Table 8 - Parking Accumulation Data - Friday, January 19, 2018



DATE: 01/03/19

PROJ.: 080790-C1-001

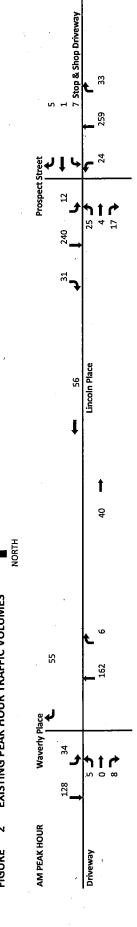
SCALE:

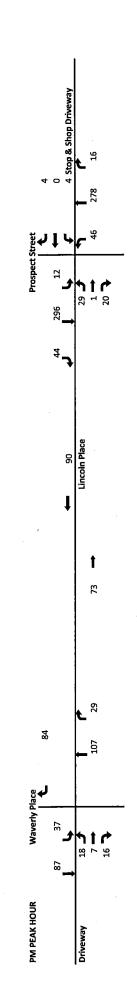
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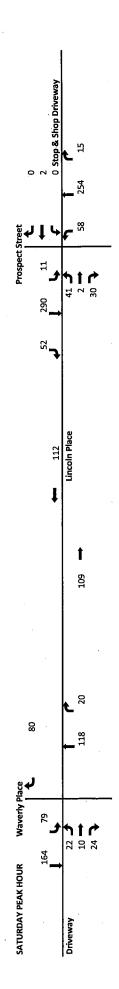
CHKD..

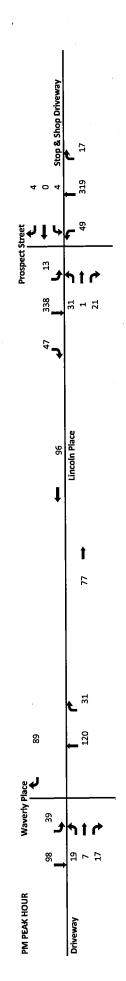
BOROUGH OF MADISON, MORRIS COUNTY, NEW JERSEY

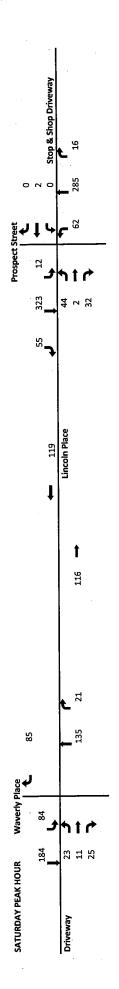
14 LINCOLN PLACE
FIGURE 2 EXISTING PEAK HOUR TRAFFIC VOLUMES

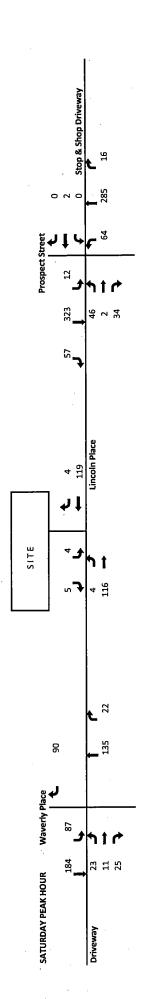












# TABLE 1 - LEVEL OF SERVICE / AVERAGE VEHICLE DELAY COMPARISON - EXISTING AND NO-BUILD CONDITIONS 14 LINCOLN PLACE

AM PEAK   PM PEAK   PM PEAK	V/C Ratio	PEAK Levels	SATI	2					TOTAL PRING ON 0707			_			
Levels  LANE  V/C  Delay  of  V/C  GROUP  Ratio  (sec)  Service  Ratio  NB-LTR  0.03  8.1  A  0.04	V/C Ratio	├,		SALUKDAT PEAK	ÄK		٩	AM PEAK			PM PEAK		SATU	SATURDAY PEAK	ΑK
LANE         V/C         Delay of GROUP         V/C           Ratio         (sec)         Service         Ratio           NB-LTR         0.03         8.1         A         0.04	V/C Ratio	_			Levels		·		Levels	7-		Levels		1	Levels
GROUP Ratio (sec) Service Ratio	Ratio	_	ΛIC	Delay	₽	LANE	χ	Delay.	ģ	O/A	Delay	<u></u>	NC VIC	Delay	ğ
NB-LTR 0.03 8.1 A 0.04	L	ec) Service	Ratio	(sec)	Service	GROUP	Ratio	(sec)	Service	Ratio	(sec)	Service	Ratio	(sec) S	Service
	_	4 A	0.05	8.1	4	NB-LTR	0.03	8.1	Α	0.04	8.2	٧	0.05	8.2	4
SB-LTR 0.01 8.1 A 0.01 7.9	L	A 6.	0.01	7.8	٨	SB-LTR	0.01	8.2	٧	0.01	8.0	٧	0.01	7.9	٧
Lincoln Place WB-LTR 0.05 15.6 C 0.02 13.6	H	3.6 B	0.01	16.5	ပ	WB-LTR	0.05	16.7	၁	0.02	14.8	В	0.01	17.8	U
(Unsignalized) EB-LTR 0.16 16.6 C 0.13 15.3	-	5.3 C	0.18	15.6	U	EB-LTR	0.19	18.2	၁	0.16	17.0	၁	0.21	17.2	ပ
Waverly Place															,
& SB-LTR 0.03 7.6 A 0.03 7.6	_	9.	90.0	9.7	A	SB-LTR	0.03	7.7	٧	0.03	7.6	4	90.0	7.7	٨
Lincoln Place WB-LTR 0.07 9.5 A 0.11 9.4		A A.	0.09	6.3	۷	WB-LTR	20.0	9.6	A	0.12	9.5	٧	0.10	9.4	∢
(Unsignalized) EB-LTR 0.02 10.3 B 0.07 11.2	<u> </u>	1.2 B	0.10	12.3	8	EB-LTR	0.02	10.5	В	0.26	11.5	В	0.12	12.8	В

TABLE 2
ACCIDENT SUMMARY
14 LINCOLN PLACE
2014 – 2017

Туре	Location	Date	Prop. Damage	Fatality
Parking Maneuver	Madison P.O. (10 Lincoln PI)	5/1/17	Z	z
Parking Maneuver	Madison P.O.	12/20/16	Z	Ž
Parking Maneuver	100' w/o Prospect	10/25/16	Z	z
Parking Maneuver	30' w/o Prospect	10/4/16	Z	, <b>Z</b>
Right Angle	Lincoln & Prospect	1/9/16	Z	Z
Parking Maneuver	Waverly @ Lincoln	6/24/16	Y (bench/post) N	oost) N
Right Angle/U-turn (snowing)	Lincoln PI @ Island	1/26/15	z	Z
Parking Maneuver	Lincoln 500' e/o Waverly 12/29/14	12/29/14	Z	Z

SATURDAY	PEAK HOUR	IN OUT TOTAL	8 9 17	8 9 17
	JUR	TOTAL	11	11
	PM PEAK HOUR	OUT TOTAL	4	4
)AY	P	Z	7	7
WEEKDAY	JUR	TOTAL	8	, <b>co</b>
	AM PEAK HOUR	OUT TOTAL	9	9
	AM	Z	2	7
		AMOUNT	24 units	
·		LAND USE	221 Multi-Family Housing - MidRise	SITE GENERATED TRIPS
		CODE	221	

SOURCE: Trip Generation, 10th Edition, published by Institute of Transportation Engineers (ITE)

TABLE 4 - LEVEL OF SERVICE / AVERAGE VEHICLE DELAY COMPARISON - NO-BUILD AND BUILD CONDITIONS 14 LINCOLN PLACE

				2020 Na	2020 No-Build Condit	ondition	u							2020	Build Co	2020 Build Condition				
		Ĺ	AM PEAK			PM PEAK		SATU	SATURDAY PEAK	FAK		1	AM PEAK			PM PEAK		SATI	SATURDAY PEAK	EAK
				Levels			Levels			Levels				Levels			Fevels			Levels
	LANE	Λζ	Delay	o	NC VC	Delay	ğ	Z/A	Delay	ğ	LANE	ΝC	Delay	ō,	NC VC	Delay	of	NC.	Delay	ō
Intersection	GROUP	Ratio	(sec)	Service	Ratio	(sec)	Service	Ratio	(sec)	Service	GROUP	Ratio	(sec)	Service	Ratio	(sec)	Service	Ratio	(sec)	Service
Prospect Street	NB-LTR	0.03	8.1	4	0.04	8.2	4	0.05	8.2	4	NB-LTR	0.03	8.2	A	50.0	8.2	Y	90'0	8.2	٨
ంద	SB-LTR	0.01	8.2	4	0.01	8.0	¥	0.01	7.9	4	SB-LTR	0.01	8.2	٧	10.0	8.0	A	0.01	7.9	۷
Lincoln Place	WB-LTR	0.05	16.7	O	0.02	14.8	<u>а</u>	0.01	17.8	ပ	WB-LTR	0.05	16.9	၁	0.02	14.9	В	0.01	18.0	ပ
(Unsignalized)	EB-LTR	0.19	18.2	O	0.16	17.0	O	0.21	17.2	O	EB-LTR	0.20	18.4	0	0.16	17.4	S	0.23	17.5	ပ
Waverly Place																				
• త	SB-LTR	0.03	7.7	∢	0.03	7.6	٧	90.0	7.7	٧	SB-LTR	0.03	7.7	٧	0.03	7.6	٧	90.0	7.7	٨
Lincoln Place	WB-LTR	0.07	9.6	4	0.12	9.5	V	0.10	9.4	A	WB-LTR	0.08	9.6	٧	0.12	9.6	٨	0.10	9.5	4
(Unsignalized)	EB-LTR	0.02	10.5	В	0.26	11.5	В	0.12	12.8	В	EB-LTR	0.02	10.6	В	0.08	11.6	М	0.12	13.1	В
Site Driveway																				
త											EB-LT	00.00	7.3	۷	00'0	7.4	Α	0.00	7.5	4
Lincoln Place											SB-LR	0.01	8.8	. <	0.01	9.0	٧	0.01	9.4	٨
(Unsignalized)										_										

14 LINCOLN PLACE
TABLE 5 - PARKING ACCUMULATION DATA (Weekday PM Peak Period)
NUMBER OF VACANT PARKING STALLS BY PARKING LOT
Thursday, December 14, 2017

Muni Employ Permit Hour Parking  3 5 106  4 5 7  8 5 7  6 5 5  22 7  23 5 37	Merchants/Tentants/		Green Ave Lot Cook Ave Lot 2	Cook Ave Lot		Prospect St Lot #1	Toritoria	Vince De Let #3			
MM 4 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	S	106	31	65	37	88	24	26	73	220
3 5 8 5 6 5 22 5	TIME										
8 5 6 5 22 5	0 PM 3	5	2	0	10	31	59	ō	22	18	102
8 5 6 5 22 5	0 PM 4	5	7	0	. 15	31	59	6	22	18	102
22 5		5	7	.0	18	33	28	10	23	37	128
22 5	0 PM 6	2	5	0	23	33	55	10	23	40	125
		S	37	0	30	33	48	10	23	41	. 120
5	.0 PM 27	5	51	0	35	33	54	10	23	48	120
10:00 PM 27 5 52		5	52	0	35	33	45	10	23	40	120

TABLE 6 - PARKING ACCUMULATION DATA (Saturday AM and PM Periods) NUMBER OF VACANT PARKING STALLS BY PARKING LOT Saturday, December 16, 2017 **14 LINCOLN PLACE** 

Kines Rd Let #3	220		194	190	191	192	191	200	202	203	206	206	206	206	
Train Cration	73		46	44	45	34	35	25	27	32	32	37	39	41	
Prospect St Lot #1	26		24	24	24	24	24	22	22	22	22	22	22	21	
Prospect St Lot #1 Prospect St Lot #1 Prospect St Lot #1 Prospect St Lot #1 Ambiliance Main Let Barmit Muni Employ	24		21	21	21	21	21	21	21	21	21	22	22	22	
Prospect St Lot #1	88		73	73	73	73	73	70	69	99	64	69	69	7.1	
Prospect St Lot #1	37		37	37	37	37	37	30	28	17	17	17	17	16	
Elmor Ct Lot	65		40	32	30	30	19	25	25	23	27	28	26	28	
Cook Ave Lot	31		0	0.	0	2	0	7	6	9	9	4	80	6	
Cook Ave Lot 2	106		36	23	21	23	11	80	8	8	12	13	16	22	
Green Ave Lot	5		0	0	0	0	0	s	S	5	S	S	2	5	
Green Ave Lot Merchants/Tentants/M	43		1	1	1	2	3	22	23	24	23	23	24	24	
	TOTAL SPACES	START TIME	11:00 AM	11:30 AM	12:00 PM	12:30 PM	1:00 PM	6:00 PM	6:30 PM	7:00 PM	7:30 PM	8:00 PM	8:30 PM	9:00 PM	

NOTES

Green Ave Lot - Merchants, Tenants, Municipal Employees

Green Ave Lot - Permits Cook Ave Lot - 2 Hour Parking

Cook Ave Lot - Permits

Elmer St Lot

Prospect St Lot #1 - Ambulance

Prospect St Lot #1 - Main Lot Prospect St Lot #1 - Permit Prospect St Lot #1 - Municipal Employees

BOWMAN CONSULTING GROUP, LTD.

## 14 LINCOLN PLACE

## TABLE 7 - PARKING ACCUMULATION DATA (Weekday Midday Period) **NUMBER OF VACANT PARKING STALLS BY PARKING LOT** Wednesday, January 3, 2018

	Green Ave Lot Merchants/Tenants/M	Green Ave Lot	Prospect St Lot #1	Prospect St Lot #1   Prospect St Lot #1   Prospect St Lot #1	Prospect St Lot #1	Prospect St Lot #1	
	uni Employ	Permit	Ambulance	Main Lot	Permit	Muni Employ	Kings Rd Lot #3
TOTAL SPACES	43	5	37	88	24	26	220
START TIME						(Residents)	(Not Visitors or ADA)
11:00 AM	6	2	0	0 '	0	2	H
11:30 AM	7	2	0	0	0	2	0
12:00 PM	7	2	0	0	0	2	2
12:30 PM	9	2	0	0	0	8	1
1:00 PM	12	2	0	1	0	· m	П
1:30 PM	11	2	0	1	0	က	2
2:00 PM	11	2	0	1	. 0	3	2

### NOTES

Green Ave Lot - Merchants, Tenants, Municipal Employees

Green Ave Lot - Permits

Prospect St Lot #1 - Ambulance area between timber guiderail and building

Prospect St Lot #1 - Main Lot

Prospect St Lot #1 - Permit

Prospect St Lot #1 - Municipal Employees - there are 3 "Resident Permit" parking spaces in this lot

## 14 LINCOLN PLACE

## TABLE 8 - PARKING ACCUMULATION DATA (Weekday Midday Period) NUMBER OF VACANT PARKING STALLS BY PARKING LOT Friday, January 19, 2018

1,	Green Ave Lot			,			,
*(. · :	Merchants/Tentants/M	<b>Green Ave Lot</b>	Prospect St Lot #1	Prospect St Lot #1	ospect St Lot #1   Prospect St Lot #1   Prospect St Lot #1   Prospect St Lot #1	Prospect St Lot #1	
t .	uni Employ	Permit	Ambulance	Main Lot	Permit	Muni Employ	Kings Rd Lot #3
TOTAL SPACES	43	5	37	88	54	26	220
START TIME						(Residents)	(Not Visitors or ADA)
11:00 AM	2	1	0	0	5	9	73
11:30 AM	2	0	0	0	5	5	72
12:00 PM	3	0	. 0	0	5	5	72
12:30 PM	5	0	0	0	7	7	72
1:00 PM	5	0	0	0	12	9	70
1:30 PM	5	0	0	1	8	8	70
2:00 PM	. 2	0	0	1	8	80	71

NOTES

Green Ave Lot - Merchants, Tenants, Municipal Employees

Green Ave Lot - Permits

Prospect St Lot #1 - Ambulance area between timber guiderail and building

Prospect St Lot #1 - Main Lot

Prospect St Lot #1 - Permit

Prospect St Lot #1 - Municipal Employees - there are 3 "Resident Permit" parking spaces in this lot

## APPENDIX I LEVEL OF SERVICE DEFINITIONS

### TRAFFIC OPERATIONS

Capacity analysis, a procedure used to estimate the traffic-carrying ability of roadway facilities over a range of defined operating conditions, was performed using the 2010 Highway Capacity Manual (HCM) and 2010 Highway Capacity Software.

For a signalized intersection, Level of Service (LOS) A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 80 seconds per vehicle.

For an unsignalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle.

### LEVEL OF SERVICE /AVERAGE DELAY CRITERIA\*

Level Of Service (LOS)	Signalized Delay Range (average delay, sec/veh)	Unsignalized Delay Range (average delay in sec/veh)
Α	<=10	<=10
В	>10 and <=20	>10 and <=15
С	>20 and <=35	>15 and <=25
D	>35 and <=55	>25 and <=35
<b>E</b>	>55 and <=80	>35 and <=50
**************************************	>80	>50

<sup>\*</sup> Sources: Highway Capacity Manual (2010 Edition) & SimTraffic Version 5.0

### APPENDIX II CAPACITY ANALYSES

- IIA EXISTING CONDITIONS
  IIB 2020 NO-BUILD CONDITIONS
- **IIC 2020 BUILD CONDITIONS**

### APPENDIX IIA EXISTING CONDITIONS

General Information	<u> </u>	·	Site In	formation	on	<u> </u>		
Analyst	LDK	·	Interse	ction	<u></u>	T		
Agency/Co.	BOWMAN	I	Jurisdio			LOCAL		
Date Performed	9/9/2017	· · · · · · · · · · · · · · · · · · ·	Analysi	s Year		2017 EXI	STING	
Analysis Time Period	AM PEAK	HOUR						
Project Description MA	DISON THEAT	ER						
ast/West Street: LINC	OLN PLACE					PECT STRE	ET	
ntersection Orientation:	North-South		Study F	eriod (hrs	): 0.25			
/ehicle Volumes an	d Adjustme	nts			-			
/lajor Street		Northbound	· ".			Southbou	nd	
Movement	11	2	3		4	5		6
	Ļ	Т	R		L	T		R
/olume (veh/h)	24	259	33		12	240		31
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
lourly Flow Rate, HFR veh/h)	32	345	44		16	320		41
Percent Heavy Vehicles	0				0			
Median Type				Undivided	d	<u>,</u>		
RT Channelized			0					0
anes	0	1	0		0	1		0
Configuration	LTR				LTR			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	nd	
Movement	7	8	9		10	11		12
	L	Т	R		L	T		R
/olume (veh/h)	25	4	17		7	1		5
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
Hourly Flow Rate, HFR (veh/h)	33	5	22		9	1		6
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0	<u> </u>				0
Lanes	0	1	0		0	1		0
Configuration		LTR	1			LTR		
Delay, Queue Length, a	nd Level of Se		<del></del>					
Approach	Northbound	Southbound	1	Vestbound	<u> </u>	1	astbound	
Viovement	1	4	7	8	T 9	10	11	12
Lane Configuration	LTR	LTR	<u>'</u>	LTR	<del>                                     </del>	<del>                                     </del>	LTR	<del>                                     </del>
				16	<del>                                     </del>	+	60	<del>                                     </del>
/ (veh/h)	32	16			<del>                                     </del>	+	<del></del>	1
C (m) (veh/h)	1209	1181		355	<del>                                     </del>	<del>                                     </del>	369	<del>                                     </del>
//c	0.03	0.01		0.05	ļ	<del> </del>	0.16	<del> </del> -
95% queue length	0.08	0.04		0.14	<del></del>	1	0.57	<del> </del>
Control Delay (s/veh)	8.1	8.1		15.6			16.6	
_os	Α	Α		С			С	<u> </u>
Approach Delay (s/veh)				15.6			16.6	
Approach LOS				С	·		С	

<u></u>		O-WAY STOP							
General Information	n		Site lı	nforma	atio	n			
Analyst	LDK		Interse	ction					
Agency/Co.	BOWMAI	V	Jurisdi	ction			LOCAL		
Date Performed	9/9/2017		Analys	is Year	į		2017 EXI	STING	*
Analysis Time Period	PM PEAK	( HOUR							
Project Description MA	ADISON THEAT	TER	<u> </u>						
East/West Street: LINC			North/S	outh St	treet:	PROSP	ECT STRE	ET	
ntersection Orientation:	North-South		Study F	eriod (l	hrs):	0.25			
Vehicle Volumes ar	nd Adiustme	nts							
Major Street	Ta Aajaoano	Northbound					Southbou	ınd	
Movement	1	2	3			4	5		6
·	i	<del>-</del> -	Ř		-	Ĺ	T		R
Volume (veh/h)	46	278	16	_		12	296		44
Peak-Hour Factor, PHF	0.95	0.95	0.95		_	0.95	0.95		0.95
Hourly Flow Rate, HFR (veh/h)	48	292	16			12	311		46
Percent Heavy Vehicles	0					0			
Median Type				Undivi	ided			· · · · · · · · · · · · · · · · · · ·	
RT Channelized			0						0
anes	0	1	1 0	· - +		0	1		0
Configuration	LTR		<u> </u>		7	.TR			
Upstream Signal		0	+			-//\	0		
		Eastbound	<del></del>	<del></del> +			Westbou	nd	
Minor Street	7		9		<del></del>	10	11	nu	12
Movement		T	R			 L	T		R
( -   -   -   -   -   -   -   -   -   -		1	20			4	0		4
Volume (veh/h) Peak-Hour Factor, PHF	29 0.95	0.95	0.95	<del></del>		).95	0.95		0.95
Hourly Flow Rate, HFR	0.95	0.95		-					4
veh/h)	30	1	21			4 .	0	0	
Percent Heavy Vehicles	0	0	0			0	0		0
Percent Grade (%)		0					0		
Flared Approach		l N	T				N		
Storage	1.	0	+				0		
RT Channelized	<del>                                     </del>		0.						0
	0	1	0			0	1		0
_anes	<del>  '</del>	LTR	+		-	J	LTR		1
Configuration					===		LIK	<u>_</u>	
Delay, Queue Length, a				A/ 11	1		-	4h - · · · ·	<u>.</u>
Approach	Northbound	Southbound		Vestbo	und			astbound	
Movement	1	4	7	8		9	10	11	12
ane Configuration	LTR	LTR		LTR		<u> </u>		LTR	
(veh/h)	48	12		8				52	
C (m) (veh/h)	1213	1264		426				402	
//c	0.04	0.01		0.02				0.13	
95% queue length	0.12	0.03		0.06	_		0.4		1
	8.1	7.9		13.6	_		15.		1
Control Delay (s/veh)	<del></del> -				+			75.5 C	╅
_OS	Α	Α	,	B			<u>.</u>		ľ
Approach Delay (s/veh)	<u></u>	<del></del>		13.6				15.3	
Approach LOS				В				С	

HCS+TM Version 5.5

Generated: 1/9/2019 11:50 AM

Analyst Agency/Co. Date Performed Analysis Time Period Project Description MADISC East/West Street: LINCOLN Intersection Orientation: No Vehicle Volumes and A Major Street Movement Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	PLACE orth-South	Northbound  2		outh Street	4 L 11 0.97 11	LOCAL   2017 EXIS	ind (	6 R 52 0.97 53
Agency/Co. Date Performed Analysis Time Period Project Description MADISC East/West Street: LINCOLN Intersection Orientation: No. Vehicle Volumes and A Major Street Movement Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	BOWMAN 9/9/2017 SAT PEAK ON THEAT PLACE orth-South Adjustmen 1 L 58 0.97 59 0	Northbound  2	North/Si Study P  3 R 15 0.97 15	etion s Year  outh Street eriod (hrs)	4 L 11 0.97 11	2017 EXIS  PECT STRE  Southbou  5  T  290  0.97  298  -	ind (	R 52 0.97 53
Date Performed  Analysis Time Period  Project Description MADISC East/West Street: LINCOLN Intersection Orientation: Noi  Vehicle Volumes and A  Major Street  Movement  Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles  Median Type  RT Channelized Lanes Configuration	9/9/2017 SAT PEAK ON THEAT PLACE orth-South  1 L 58 0.97 59 0	Northbound  2	North/Solution North/Sol	outh Stree eriod (hrs)	4 L 11 0.97 11	Southbou 5 T 290 0.97 298	ind (	R 52 0.97 53
Analysis Time Period Project Description MADISC East/West Street: LINCOLN Intersection Orientation: Noi Vehicle Volumes and A Major Street Movement Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	SAT PEAK ON THEAT PLACE orth-South Adjustmen 1 L 58 0.97 59 0	nts Northbound  2 T 254 0.97 261	North/Si   Study P   3   R   15   0.97   15     0	outh Street	4 L 11 0.97 11	Southbou 5 T 290 0.97 298 -	ind (	R 52 0.97 53
Project Description MADISC East/West Street: LINCOLN Intersection Orientation: No. Vehicle Volumes and A Major Street Movement  Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	ON THEAT PLACE orth-South Adjustmen 1 L 58 0.97 59 0	nts Northbound  2 T 254 0.97 261	3 R 15 0.97 15	eriod (hrs)	4 L 11 0.97 11	Southbou 5 T 290 0.97 298 -	ind (	R 52 0.97 53
East/West Street: LINCOLN Intersection Orientation: No.  /ehicle Volumes and A Major Street Movement  /olume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	PLACE orth-South Adjustmen  1 L 58 0.97 59 0	Northbound 2 T 254 0.97 261 1	3 R 15 0.97 15	eriod (hrs)	4 L 11 0.97 11	Southbou 5 T 290 0.97 298 -	ind (	R 52 0.97 53
Major Street Movement  Velume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	1 L 58 0.97 59 0	Northbound  2	3 R 15 0.97 15 		4 L 11 0.97 11	5 T 290 0.97 298 —		R 52 0.97 53
/ehicle Volumes and A Major Street Movement  /olume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	1 L 58 0.97 59 0	Northbound  2	R 15 0.97 15 		L 11 0.97 11 0	5 T 290 0.97 298 —		R 52 0.97 53
Major Street Movement  /olume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	1 L 58 0.97 59 0	Northbound  2	R 15 0.97 15 		L 11 0.97 11 0	5 T 290 0.97 298 —		R 52 0.97 53
Movement  /olume (veh/h)  Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h)  Percent Heavy Vehicles  Median Type  RT Channelized  _anes  Configuration	58 0.97 59 0	2 T 254 0.97 261 	R 15 0.97 15 		L 11 0.97 11 0	290 0.97 298 —	(	R 52 0.97 53
Volume (veh/h) Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	58 0.97 59 0	T 254 0.97 261 1	15 0.97 15 		0.97 11 0	290 0.97 298 —	(	52 0.97 53
Peak-Hour Factor, PHF Hourly Flow Rate, HFR (veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	0.97 59 0	0.97 261	0.97 15 		0.97 11 0	0.97 298 —	(	0.97 53 
Peak-Hour Factor, PHF Hourly Flow Rate, HFR veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	59 0	261	15  0		11 0	298		53 
Veh/h) Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	0	1		Undivided	0			
Percent Heavy Vehicles Median Type RT Channelized Lanes Configuration	0	1	0	Undivided	1	<u> </u>		
Median Type RT Channelized Lanes Configuration				Undivided				
RT Channelized Lanes Configuration								
_anes Configuration			0					0
Configuration	LTR				0	11		0
					LTR			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	nd	
Movement	7	8	9		10	11		12
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	L	Ţ	R		L	Т		R
/olume (veh/h)	41	2	30		0	2		0
Peak-Hour Factor, PHF	0.97	0.97	0.97		0.97	0.97		0.97
Hourly Flow Rate, HFR (veh/h)	42	2	30		0	2		0
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0	- <del></del>			0	,	
Flared Approach		N	T			N		
		0				0		
Storage		<del> </del>	0		<del></del>	+		0
RT Channelized		1	0		0	1		0
Lanes	0	LTR	<del>                                     </del>	<del></del>		LTR	<del>-   -</del>	
Configuration			<u> </u>					
Delay, Queue Length, and I				A/aathauna		T	Eastbound	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	rthbound	Southbound		Vestbound			11	12
Movement	1	4	7	8	9	10	<del></del>	<del> </del>
Lane Configuration	LTR	LTR		LTR	<u> </u>	<del>                                     </del>	LTR	+
v (veh/h)	59	11		2	<u> </u>	<b>_</b>	74	4-
C (m) (veh/h)	1219	1299		315			412	4
v/c	0.05	0.01		0.01			0.18	
95% queue length	0.15	0.03		0.02		0.65		
Control Delay (s/veh)	8.1	7.8		16.5		15.0		
	A	A A		С	<del>                                     </del>	<del> </del>	С	$\top$
LOS				16.5		+	15.6	
Approach Delay (s/veh) Approach LOS				C C		+	C 75.0	

		D-WAY STOP							
General Information	ı <u> </u>		Site In	form	<u>atio</u>	n			
Analyst	LDK		Interse						
Agency/Co.	BOWMAN	l	Jurisdic				LOCAL		
Date Performed	9/9/2017		Analysi	s Year	•		2017 EXIS	STING	
Analysis Time Period	AM PEAK								
Project Description MA	DISON THEAT	ER							
ast/West Street: LINC							LY PLACE		
ntersection Orientation:	North-South		Study F	eriod	(hrs):	0.25			
/ehicle Volumes an	d Adjustme	nts							
lajor Street		Northbound					Southbou	nd	
Movement	1	2	3			4	5		6
	L	Τ	R			<u></u>	T		R
/olume (veh/h)		162	6			34	128		0.04
Peak-Hour Factor, PHF	0.91	0.91	0.91		(	0.91	0.91		0.91
lourly Flow Rate, HFR veh/h)	0	178	6			37	140		0
Percent Heavy Vehicles	0					0			
Median Type				Undiv	<u>rided</u>				
RT Channelized			0						0
anes	0	1	0			0	1		0
Configuration			TR			LT			
Jpstream Signal		0					0		
Minor Street		Eastbound					Westbou	nd	
Movement	7	8	9			10	11		12
	· L	Т	R			Ĺ	Т		R
/olume (veh/h)	5	0	8						55 0.91
Peak-Hour Factor, PHF	0.91	0.91	0.91			0.91	0.91	0.91	
Hourly Flow Rate, HFR (veh/h)	5	0	8			0	0		60
Percent Heavy Vehicles	0	0	0		_	0	0		0
Percent Grade (%)		0					0		
Flared Approach		N					N		
Storage		0					0		_
RT Channelized			0						0
anes	0	1	0			0	0		1
Configuration		LTR							R
Delay, Queue Length, a	and Level of Se								
Approach	Northbound	Southbound	,	Westb	ound			Eastbound	j
Movement	1	4	7	8		9	10	11	12
	<u> </u>	LT	<del></del>	<b>├</b>		R	<del></del>	LTR	
Lane Configuration		37	<del> </del>	<del></del>		60		13	
v (veh/h)			<del></del>	<del> </del>		867	<del>                                     </del>	688	+
C (m) (veh/h)		1403	<del>                                     </del>	├			<del> </del>		+
v/c		0.03		ļ		0.07	<u> </u>	0.02	
95% queue length		0.08		<u> </u>		0.22		0.06	+
Control Delay (s/veh)		7.6				9.5		10.3	
LOS		Α				A		В	
Approach Delay (s/veh)				9.5	5			10.3	
Approach LOS				A				В	
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General Information	n	<u> </u>	Site Infor	mation			
	LDK		Intersection		<del></del> :	<del></del>	<del></del>
Analyst	BOWMAI		Jurisdiction		LOCAL		
Agency/Co. Date Performed	9/9/2017	<u> </u>	Analysis Ye		2017 EXIST	ING	
Analysis Time Period	PM PEAR	CHOUR	Allalysis		ZOTT EXIOT	,	
Project Description M						-	
ast/West Street: LINC	OLN PLACE	IEN	North/South	Street: WAVE	RLY PLACE		•
ntersection Orientation:				d (hrs): 0.25	KET TENOL		
		nto	10.000, 10.00		<del></del>		
/ehicle Volumes ar	Ta Aujustine	Northbound		T	Southbound	1	
lajor Street lovement	1 1	2	3	4	5	<u>'                                    </u>	6
lovement	<del>                                     </del>	T	R	<del>                                     </del>	T	+	R
olume (veh/h)	<del>-</del>	107	29	37	87		
eak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	1 (	0.85
lourly Flow Rate, HFR		- " "			102		0
/eh/h)	0	125	34	43	102		U
ercent Heavy Vehicles	0			0			
ledian Type			Uni	divided			
RT Channelized			0				0
anes	O.	1	0	0	1		0
onfiguration			TR	LT			
pstream Signal		0			0		
linor Street		Eastbound			Westbound		
lovement	7	8	9	10	11		12
	L	Т	R	L	T		R
olume (veh/h)	18	7	16				84
eak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85	(	0.85
lourly Flow Rate, HFR veh/h)	21	8	18	0	. 0		98
ercent Heavy Vehicles	0	<b>O</b> \	0	. 0	0		0
ercent Grade (%)		0			0		
lared Approach		N	}		N		*
Storage		0			0		
RT Channelized	<del>                                     </del>	***	0	<u> </u>	1		0
anes	0	1	0	0	0	1	1
Configuration		LTR		<u> </u>			R
elay, Queue Length, a	nd Level of Se			<u>.</u>		<del></del>	
pproach	Northbound	Southbound	West	bound	Fas	stbound	
lovement	1	4	7	8 9	10	11	12
ane Configuration	· · · · · ·	LT LT	-	R	<del>                                     </del>	LTR	<u>'</u>
-					-	47	
(veh/h)	<u> </u>	43		98	<del> </del>		
(m) (veh/h)	<u> </u>	1433		911	<del>                                     </del>	631	
/c		0.03		0.11	<del>                                     </del>	0.07	<u> </u>
5% queue length		0.09		0.36		0.24	·
ontrol Delay (s/veh)		7.6		9.4		11.2	
.os		Α		Α		В	
pproach Delay (s/veh)			g	0.4		11.2	
pproach LOS	<u>.</u>			A	B		

		D-WAY STOP						
General Information	<u> </u>			forma	tion			
Analyst	LDK		Interse					
Agency/Co.	BOWMAN		Jurisdic			LOCAL		
Date Performed	9/9/2017		Analysi	is Year		2017 EXIS	STING	<del></del>
Analysis Time Period	SAT PEA				- <u>-</u>	<u> </u>		
Project Description MA		ER	ls 11 10		1. 14/41/75	11 V DI 40E		
ast/West Street: LINC					eet: <i>WAVEF</i>	KLY PLACE	<del></del>	
ntersection Orientation:			Study F	erioa (ni	rs): 0.25			
/ehicle Volumes an	d Adjustme							
/lajor Street		Northbound			<del></del>	Southbou	nd	
/lovement	1	2	3		4	5 T		6 R
	<u> </u>	T 140	R		L	164	_	<u> </u>
/olume (veh/h)		118	20 0.96		0.96	0.96		0.96
Peak-Hour Factor, PHF Hourly Flow Rate, HFR	0.96	0.96	<u> </u>				<del> </del>	
veh/h)	0	122	20		82	170		0
Percent Heavy Vehicles	0	-			0			
Median Type				Undivid	led			
RT Channelized			0					0
anes	0	1	0		0	1		0
Configuration			TR		LT			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	nd	
Movement	7	8	9		10	11		12
	Ļ	Т	R		L	Т		R
/olume (veh/h)	22	10	24					80
Peak-Hour Factor, PHF	0.96	0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR veh/h)	22	10	25		0	0		83
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0				0		
Flared Approach		N				N		•
Storage	<del></del>	0				0		
RT Channelized			0					0
Lanes	- 0	1	1 0		0	0		1
Configuration	<del>- </del>	LTR	+					R
Delay, Queue Length, a	and Level of Sc							
Approach	Northbound	Southbound	· · · · · ·	Westbou	ınd	E	Eastbound	
Approach Movement	1	4	7	8	9	10	11	12
	I	LT		├─ <u>ॅ</u>	R		LTR	<del>                                     </del>
Lane Configuration	<del></del>				83	<del> </del>	57	+
v (veh/h)		82		<b></b>			552	+
C (m) (veh/h)		1453		<u> </u>	923		0.10	-
v/c		0.06		<del> </del>	0.09	<del>                                     </del>		
95% queue length		0.18		<u> </u>	0.30	<del> </del>	0.34	<del> </del>
Control Delay (s/veh)		7.6			9.3		12.3	<del> </del>
LOS		Α	<u></u>		A		В	
Approach Delay (s/veh)	4-			9.3			12.3	
Approach LOS				Α		В		

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## APPENDIX IIB 2020 NO-BUILD CONDITIONS

	TW	O-WAY STOP	CONTR	OL SU	MMARY		,	
General Informatio	n	:	Site I	nforma	tion			
Analyst	LDK		Interse	ection				
Agency/Co.	BOWMAI	V	Jurisdi			LOCAL		
Date Performed	9/9/2017		Analys	is Year	-	2020 NO	-BUILD	
Analysis Time Period	AM PEAR	( HOUR						·
Project Description M.	ADISON THEA	TER						
East/West Street: LINC			North/S	South Sti	reet: PRC	SPECT STRI	EET	
Intersection Orientation:	North-South		Study F	Period (h	rs): 0.25			
Vehicle Volumes a	nd Adjustme	ents		•				
Major Street	Ta / tajaotini	Northbound				Southbo	und	
Movement	1	2	3		4	5		6
	L	Ť	R		L	Т		R
Volume (veh/h)	25	281	35		13	261		33
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
Hourly Flow Rate, HFR (veh/h)	33	374	46		17	348		44
Percent Heavy Vehicles	0				0			
Median Type				Undivid	ded			
RT Channelized			0		-			0
Lanes	0	1	0		0	1		0
Configuration	LTR				LTR			
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	ınd	
Movement	7	8	9		10	11		12
	L	Т Т	R		. L	Т		R
Volume (veh/h)	27	4	18		7	1		5
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
Hourly Flow Rate, HFR (veh/h)	36	5	24		9	1		6
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0	•			0		
Flared Approach		N	1			N		
Storage		0				0		_
RT Channelized			0			-		0
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length, a	and Level of Se							
Approach	Northbound	Southbound	. ,	Westbou	ınd		Eastbound	<u></u>
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR	<del>-                                       </del>	<del>-  -                                  </del>	LTR	<del>                                     </del>
		17		16	-	,	65	<del> </del>
v (veh/h)	33					<del>-  </del> ,	337	+
C (m) (veh/h)	1178	1150		323	-		<del>                                     </del>	1
v/c	0.03	0.01		0.05			0.19	1
95% queue length	0.09	0.04		0.16	<u> </u>		0.70	1
Control Delay (s/veh)	8.1	8.2	_	16.7			18.2	<b></b>
LOS	A	A		С			С	
Approach Delay (s/veh)				16.7			18.2	
Approach LOS				С			С	
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General Information	า		Site Ir	nformat	ion		,	
Analyst	LDK	<u> </u>	Interse	ction				
Agency/Co.	BOWMAI	V	Jurisdi			LOCAL		
Date Performed	9/9/2017		Analys	is Year		2020 NO	-BÜILD	
Analysis Time Period	PM PEAK	HOUR						
Project Description MA	ADISON THEAT	TER						
ast/West Street: LINC			North/S	outh Stre	et: PROS	PECT STRI	EET	
ntersection Orientation:			Study F	Period (hrs	s): 0.25			
/ehicle Volumes ar	nd Adjustme	nts						
Major Street	T Adjastine	Northbound				Southbo	und	•
Movement	1	2	3		4	5		6
10101110111	L -	<del>                                     </del>	R		L	T		R
/olume (veh/h)	49	316	17		13	335		47
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95	0.95		0.95
lourly Flow Rate, HFR veh/h)	51	. 332	17		13	352		49
Percent Heavy Vehicles	0				0	T		
Median Type				Undivide	ed		•	
RT Channelized			0					0
anes	0	1	0	<del>                                     </del>	0	1		0
Configuration	LTR				LTR			
Jpstream Signal	<u> </u>	0				0		
Minor Street		Eastbound			, .	Westbou	und	
Movement	7	8	9		10	11		12
	L .	T	R			T		R
/olume (veh/h)	31	1	21		4	0		4
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFR veh/h)	32	1	22		4	0		4
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0			`	0		·
Flared Approach		T N	T			N		
Storage	<del>                                     </del>	1 0	1	<del>-  </del>		0		
	···	<del>                                     </del>	1			+ -		0
RT Channelized	<u>,</u>	1	0		0	1		0
Lanes	0	LTR	1 0		U	LTR		
Configuration	1		<u> </u>			1 LIK		
Delay, Queue Length, a				8741			r = -41= - · · · · · · · · · ·	
Approach	Northbound	Southbound		Vestboun			Eastbound	T
Movement	1	´ 4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR			LTR	
(veh/h)	51	13		8			55	
C (m) (veh/h)	1169	1221		376	<u> </u>		354	
ı/c	0.04	0.01		0.02			0.16	
95% queue length	0.14	0.03		0.07			0.54	
Control Delay (s/veh)	8.2	8.0	-	14.8	1	1	17.0	
OS	A A	A		B	+	<del>                                     </del>	C	<del>                                     </del>
		****			1	<del></del>	17.0	
Approach Delay (s/veh) Approach LOS				14.8		<del>                                     </del>	C C	

Site Information			
Agency/Co.   BOWMAN   Date Performed   9/9/2017   Analysis Time Period   SAT PEAK HOUR	T	<del></del>	
Date   Performed   9/9/2017   Analysis Time   Period   SAT PEAK HOUR	LOCAL		
Analysis Time   Period   SAT   PEAK   HOUR   Project Description   MAD/SON THEATER   North/South   Street:   PROTECTION   PEACE   North/South   Street:   PROTECTION   PEACE   North/South   Study   Period (hrs):   0.25		O-BUILD	
Project Description   MADISON THEATER   East/West Street:   LINCOLN PLACE   Study Period (hrs): 0.25			
North/South Street: L/NCOLN PLACE   North/South Street: PR(			
Study Period (hrs): 0.25   Ochicle Volumes and Adjustments   Northbound   Major Street   Northbound   Movement   1	SPECT STF	REET	
Vehicle Volumes and Adjustments   Major Street   Northbound   Movement   1   2   3   4   4   Movement   1   2   285   16   12   298k-Hour Factor, PHF   0.97   0			
Major Street			
Movement	Southbo	ound	
L	5	<u> </u>	6
Volume (veh/h)   62   285   16   12	Ť		R
Peak-Hour Factor, PHF         0.97         0.97         0.97         0.97           Hourly Flow Rate, HFR veh/h)         63         293         16         12           Percent Heavy Vehicles         0           0           Median Type         TChannelized         0         0         0           Annes         0         1         0         0         0           Configuration         LTR         LTR         LTR         LTR         LTR         LTR         LTR         Undivided         0	318		55
Hourly Flow Rate, HFR veh/h    63   293   16   12   2   2   2   2   2   2   2   2	0.97		0.97
Veh/h    03	327		56
Median Type         Undivided           RT Channelized         0           Lanes         0         1         0         0           Configuration         LTR         LTR         LTR         LTR           Upstream Signal         0         0         0         0         0           Minor Street         Eastbound         0         <	32/		. OU ,
RT Channelized			
Annel			
Configuration   LTR			0
Distream Signal   O	1		0
Digital   Digi			
Novement   7	0		
Novement   7	Westbo	ound	
Volume (veh/h)         44         2         32         0           Peak-Hour Factor, PHF         0.97         0.97         0.97         0.97           Hourly Flow Rate, HFR (veh/h)         45         2         32         0           Percent Heavy Vehicles         0         0         0         0           Percent Grade (%)         0         0         0         0           Percent Grade (%)         0         0         0         0           Flared Approach         N         0         0         0           Storage         0         1         0         0           Configuration         LTR         0         0         0           Configuration         LTR         LTR         Uses bound         0           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR         LTR           V(veh/h)         63         12         2         2           C(m) (veh/h)         1187         1263         283         0	11		12
Peak-Hour Factor, PHF	Т		R.
Peak-Hour Factor, PHF	2		0
Hourly Flow Rate, HFR   45	0.97	7	0.97
Percent Heavy Vehicles         0         0         0           Percent Grade (%)         0         0         0           Flared Approach         N         0         0           Storage         0         1         0         0           Lanes         0         1         0         0           Configuration         LTR         0         0         0           Configuration         Northbound         Southbound         Westbound           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR         LTR           V(veh/h)         63         12         2         2           C(m) (veh/h)         1187         1263         283	2		0
Percent Grade (%)         0           Flared Approach         N           Storage         0           RT Channelized         0           Lanes         0           Configuration         LTR           Delay, Queue Length, and Level of Service           Approach         Northbound           Movement         1           LTR         LTR           Jane Configuration         LTR           LTR         LTR           L(veh/h)         63           12         2           C(m) (veh/h)         1187           1263         283	0		0
N   Storage	Ő		
Storage         0           RT Channelized         0           Lanes         0         1         0         0           Configuration         LTR         0         0         0           Delay, Queue Length, and Level of Service         0	N		
Configuration   Configuratio	0		
Lanes         0         1         0         0           Configuration         LTR         0         0           Delay, Queue Length, and Level of Service         Outhout         Westbound           Approach         Northbound         Southbound         Westbound           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR         LTR           V (veh/h)         63         12         2           C (m) (veh/h)         1187         1263         283	<del></del>		0
Configuration         LTR           Delay, Queue Length, and Level of Service           Approach         Northbound         Southbound         Westbound           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR           V (veh/h)         63         12         2           C (m) (veh/h)         1187         1263         283	1		0
Delay, Queue Length, and Level of Service           Approach         Northbound         Southbound         Westbound           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR           V (veh/h)         63         12         2           C (m) (veh/h)         1187         1263         283	LTR	<del>;                                     </del>	
Approach         Northbound         Southbound         Westbound           Movement         1         4         7         8         9           Lane Configuration         LTR         LTR         LTR         LTR           V(veh/h)         63         12         2         2           C (m) (veh/h)         1187         1263         283	LIN	`	
Movement 1 4 7 8 9  ane Configuration	<del></del>	Cacthaire	1
Lane Configuration         LTR         LTR           (veh/h)         63         12         2           C (m) (veh/h)         1187         1263         283	- 10	Eastbound	
(veh/h)     63     12     2       (m) (veh/h)     1187     1263     283	10	11	12
C (m) (veh/h) 1187 1263 283		LTR	
		79	
		373	
		0.21	
95% queue length 0.17 0.03 0.02		0.79	
Control Delay (s/veh) 8.2 7.9 17.8	<u> </u>	17.2	1
		C C	+ -
		17.2	
Approach Delay (s/veh) 17.8 Approach LOS C	_	77.2 C	

General Information	n	-	Site Infor	mation			
Analyst	LDK	·	Intersection		i		
Agency/Co.	BOWMAI	V	Jurisdiction		LOCAL		
Date Performed	9/9/2017		Analysis Ye		2020 NO-BU	JILD	
Analysis Time Period	AM PEA	K HOUR		<del></del>			•
Project Description MA							*
ast/West Street: LINC			North/South	Street: WAVE	RLY PLACE		
ntersection Orientation:				d (hrs): 0.25			
/ehicle Volumes ar		nte					
lajor Street		Northbound		<u> </u>	Southbound		
Movement	1 .	2	3	4	T 5	1.	6
·	i	<u> </u>	R	Ĺ	T		R
/olume (veh/h)	-	174	6	36	138		
eak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.91		0.91
lourly Flow Rate, HFR veh/h)	0	191	6	39	151		0
Percent Heavy Vehicles	0			. 0			
ledian Type			Und	divided			
RT Channelized			0				0
anes	0	1	0	0	1		0
Configuration			TR	LT			
lpstream Signal		0	2		0		
linor Street		Eastbound		T	Westbound		
Novement	7	8	9	10	11	<u>.                                    </u>	12
	L	Т	R	L	T		R
/olume (veh/h)	5	0	8				58
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.91	0.	
lourly Flow Rate, HFR veh/h)	5	0	8	0	0		63
Percent Heavy Vehicles	0	0	0	0	0		0
Percent Grade (%)		0			0		
lared Approach		N			N - 7		
Storage		0			0		
RT Channelized		, , ,	0		1	1	0
anes	0	1	0	0	0	1	1
Configuration	<del>                                     </del>	LTR	1				R
Pelay, Queue Length, a	nd Level of Se		<del>-</del>		<u> </u>	-	
pproach	Northbound	Southbound	West	bound	Eas	stbound	
Novement	1	4		8 9	10	11	12
ane Configuration	· 1	LT LT	<u>'</u>	R		LTR	1 12
			<del></del>		<del>                                     </del>		
(veh/h)		39		63	<del> </del>	13	1 .
(m) (veh/h)		1388		853	<del>                                     </del>	665	-
/c		0.03		0.07	<del></del>	0.02	
5% queue length		0.09		0.24	<del></del>	0.06	
Control Delay (s/veh)		7.7		9.6		10.5	1
.os		· A		Α		В	
pproach Delay (s/veh)			9	.6		10.5	-
pproach LOS				4	10.5 B		

		TW	O-WAY STOP	CONTRO	OL SUM	IMARY			
General Information	n			Site Ir	format	ion			
Analyst		DK		Interse	ction				'
Agency/Co.		BOWMAI	V	Jurisdie			LOCAL		
Date Performed		9/9/2017		Analys	is Year		2020 NO-	BUILD	·
Analysis Time Period		M PEAK	HOUR						
	ADISO	N THEAT	TER				···		
East/West Street: LINC				North/S	outh Stre	et: WAVEF	RLY PLACE		
Intersection Orientation:	Norti	h-South		Study F	Period (hrs	s): 0.25			
Vehicle Volumes ar			nte						
Major Street		jasano	Northbound	· · · · · · · · · · · · · · · · · · ·			Southbou	ınd	
Movement		1	2	3		4	5		6
NOVOINGILE		<del>_</del> i_	<del>                                     </del>	R		L	T		R
Volume (veh/h)			117	31		39	95		
Peak-Hour Factor, PHF		0.85	0.85	0.85		0.85	0.85		0.85
Hourly Flow Rate, HFR (veh/h)		0	137	36		45	111		0
Percent Heavy Vehicles		ō				0			
Median Type					Undivide	d			
RT Channelized				0.					0
Lanes		0	1	. 0		0	1		0
Configuration		<del></del>		TR		LT			
Upstream Signal	1		0				0		
Minor Street	i		Eastbound			-	Westbou	nd	
Movement	-	7	8	9		10	11	1	12
- Individual Control C	+	<u> </u>	T	Ř		L	Т		R
Volume (veh/h)	+	19	7	17					89
Peak-Hour Factor, PHF	╅	0.85	0.85	0.85		0.85	0.85		0.85
Hourly Flow Rate, HFR (veh/h)		22	8	19		o	0		
Percent Heavy Vehicles	1	0	0	0		0 .	0		0
Percent Grade (%)		•	0				0		
Flared Approach	┪┈─		N	T			N		
Storage	+	-	0	+			0		
RT Channelized	+		-	0					0
	+	0	1	1 0		0	. 0		1
Lanes Configuration	+		LTR	+			<del></del>		R
	<u> </u>	1 . ( 0 -		<del></del>					
Delay, Queue Length, a					014h			- a a th a un d	
Approach	North	bound	Southbound		Vestboun			Eastbound	
Movement		1	4	7	8	9	10	11	12
Lane Configuration			LT			R		LTR	+
v (veh/h)			45	′		104		49	ļ
C (m) (veh/h)			1416			896		607	
v/c			0.03			0.12		0.08	
95% queue length			0.10			0.39		0.26	
Control Delay (s/veh)			7.6			9.5		11.5	
LOS			A			Α .		В	
Approach Delay (s/veh)					9.5	<u></u>		11.5	
				_	A .	<del></del>	<del>                                     </del>	B	
Approach LOS		Pighte Pee	-		A Vor		L	rated: 1/9/20	

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•	I VV	O-WAY STOP	CONTR	OF 201	VIIVIART			
General Informatio	n		Site I	nforma	tion		· ·	
Analyst	LDK	<del></del>	Interse	ection				
Agency/Co.	BOWMA	V	Jurisdi	ction	,	LOCAL	-	
Date Performed	9/9/2017		Analys	is Year		2020 NO	-BUILD	
Analysis Time Period	SAT PEA	K HOUR						
Project Description M.	ADISON THEA	TER						
East/West Street: LINC	OLN PLACE		North/S	South Str	eet: WAVE	RLY PLACE	=	
ntersection Orientation:	North-South		Study F	eriod (hi	rs): <i>0.25</i>			
Vehicle Volumes a	nd Adjustme	ents			<del>" -                                   </del>			
Major Street		Northbound				Southbou	ınd	
Movement	1	2	3		4	5		6
	Ĺ	<del>-  </del>	R		L	T		R
/olume (veh/h)		130	21		84	179		
Peak-Hour Factor, PHF	0.96	0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR (veh/h)	0	135	21		87	186		0
Percent Heavy Vehicles	0				0			
Median Type			1	Undivid	ed			
RT Channelized			0					0
anes	0	1	0		0	1		0
Configuration	<del>                                     </del>	<u> </u>	TR	-	<u>LŤ</u>	<del>†                                      </del>		
Jpstream Signal	<del> </del>	0	1			O		
Minor Street		Eastbound	<del></del>			Westbou	nd	
Movement	7	8	T 9	<del>-  </del>	10	11	1	12
viovement	, , ,	T	R		L	T		R
/olume (veh/h)	23	11	25	-		1	-	85
Peak-Hour Factor, PHF	0.96	0.96	0.96		0.96	0.96	<del>- i</del> -	0.96
Hourly Flow Rate, HFR		· · · · · · · · · · · · · · · · · · ·		_			i	
(veh/h)	23	11	26	ŀ	0	0	Ì	88
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0	<del></del>			0'	•	
Flared Approach		N	Т			N		
Storage		0		<del></del>		0		
RT Channelized		<del></del>	0	<del></del>		<del>                                     </del>		0
	0	1	0	<del> -</del>	0	0	<del>- i</del> -	1
anes	<del>-                                     </del>	LTR	+ "			<del> </del>	·	Ŕ
Configuration	<u> </u>		J <u></u>			<u> </u>		Λ
Delay, Queue Length, a			<del>-</del> ,	** "	<del></del>	· ·		
Approach	Northbound	Southbound		Vestbour		<del></del>	Eastbound	
Movement	1	4	7	8	9	10	11	12
ane Configuration		LT			. R	<u> </u>	LTR	<u> </u>
/ (veh/h)		87			88		60	
C (m) (veh/h)		1436			906		520	
//c		0.06			0.10		0.12	
95% queue length		0.19			0.32		0.39	
	· · · · · · · · · · · · · · · · · · ·	7.7			9.4	<del> </del>	12.8	<del>                                     </del>
Control Delay (s/veh)			_		_	-		<del> </del>
.OS		Α			A	<u> </u>	B	
Approach Delay (s/veh)				9.4			12.8	
Approach LOS				. <i>A</i>			В	

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## APPENDIX IIC 2020 BUILD CONDITIONS

General Information	n		Site Ir	nformati	ion	·		
Analyst	LDK		Interse	ction				
Agency/Co.	BOWMAI	V	Jurisdio			LOCAL		
Date Performed	1/3/19			is Year		2020 BU	ILD	
Analysis Time Period	AM PEAF	( HOUR						
Project Description MA	ADISON THEA	TER						
East/West Street: LINC			North/S	outh Stre	et: PROS	PECT STRE	EET	
ntersection Orientation:				eriod (hrs				
Vehicle Volumes ar	nd Adjustme	ents						
Major Street		Northbound			<del> </del>	Southboo	ınd	
Movement	1	2	3		4 .	5	1	6
WIG V GITTIGHT	i i	<del>-</del> -	R		Ĺ	T		R
Volume (veh/h)	26	283	35		13	263		34
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
Hourly Flow Rate, HFR (veh/h)	34	377	46		17	350		45
Percent Heavy Vehicles	0				0			
Median Type	1			Undivide	d			
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration	LTR		1		LTR			
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	ınd	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)	28	4	19		7 .	1		5
Peak-Hour Factor, PHF	0.75	0.75	0.75		0.75	0.75		0.75
Hourly Flow Rate, HFR (veh/h)	37	5	25		9	1		6
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0				0		-
Flared Approach		N ·				N N		
Storage		0				0		
RT Channelized	<del>                                     </del>	<del> </del>	0			<b>-</b>		0
_anes	0	1	0	<del></del>	0	1	_	0
 Configuration	<del></del>	LTR	+ -	<del>-  -</del>	<del></del> -	LTR		<del>-</del>
Delay, Queue Length, a	and Loyal of Sa		<u> </u>					
Approach	Northbound	Southbound	\.	Vestbound	٠	1	Eastbound	
<u>`-i</u> -			7		9	10	11	12
Movement	1	4		8	9	1 10		<del>                                     </del>
_ane Configuration	LTR	LTR		LTR	<del> </del>	+	LTR	<del>                                     </del>
/ (veh/h)	34	17		16	<del>                                     </del>		67	<del>                                     </del>
C (m) (veh/h)	1175	1147		319	ļ		335	<u> </u>
//c	0.03	0.01	1	0.05		,	0.20	ļ
95% queue length	0.09	0.05		0.16			0.73	
Control Delay (s/veh)	8.2	8.2		16.9			18.4	
os .	A	Α		С	1	· ,	С	
Approach Delay (s/veh)	'	,		16.9			18.4	
Approach LOS				C C	•	<del> </del>	C	

IC-1

General Informatio	n	· · · · · · · · · · · · · · · · · · ·	Site Ir	ıformat	ion			
Analyst	LDK	<u> </u>	Interse		<del></del>	- 1		
Agency/Co.	BOWMA	N	Jurisdie			LOCAL		
Date Performed	1/3/19	. •		is Year		2020 BU	ILD -	
Analysis Time Period	PM PEAI	K HOUR						
	ADISON THEA		1		_			
East/West Street: LINC			North/S	outh Stre	et: PROS	PECT STR	EET	
ntersection Orientation:			Study F	eriod (hr	s): 0.25			
Vehicle Volumes a	nd Adiustme	ents						
Major Street		Northbound			<del></del>	Southbo	und	
Movement	1	2	3		- 4	5		6
	L	T	R	1	L	T		R
Volume (veh/h)	51	319	17		13	338		49
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFR (veh/h)	53	335	17		13	355		51
Percent Heavy Vehicles	0				0			
Median Type				Undivide	ed			
RT Channelized			0					0
Lanes	0	1	0		· 0	1		0
Configuration	LTR				LTR			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	ınd	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
/olume (veh/h)	32	1	22		4	0		4
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95	0.95	(	0.95
Hourly Flow Rate, HFR (veh/h)	33	1	23		4	0		4
Percent Heavy Vehicles	0	0	0_		0	0		0
Percent Grade (%)		0				0		
lared Approach		N				N		
Storage		. 0				0	<u> </u>	_
RT Channelized			0	-				0
anes	0	1	0		0	1		0
Configuration		LTR	<del>                                     </del>	$\neg$		LTR	$\neg \uparrow \neg$	
Delay, Queue Length, a	nd Level of Se	1			<del> </del>		<u> </u>	
Approach	Northbound	Southbound	. V	Vestboun	d		Eastbound	
Movement	1 .	4	7	8	9	10	11	12
ane Configuration	LTR	LTR	'	LTR	<del>                                     </del>	+ '	LTR	
					<del>                                     </del>	+	57	<del> </del>
/ (veh/h)	53	13		8		1		
C (m) (veh/h)	1164	1218		370	<del> </del>	-	348	
//c	0.05	0.01		0.02		1	0.16	<u> </u>
5% queue length	0.14	0.03		0.07			0.58	<u> </u>
Control Delay (s/veh)	8.2	8.0		14.9			17.4	•
.OS	Α	Α		В		:	С	
Approach Delay (s/veh)				14.9			17.4	
Approach LOS				В			С	

IC-2

					MARY			
General Information		<del></del>		nformati	ion			
Analyst	LDK		Interse					
Agency/Co.	BOWMAI	<u> </u>	Jurisdi			LOCAL		
Date Performed	1/3/19		Analys	is Year		2020 BUI	LD	
Analysis Time Period	SAT PEA					<u> </u>		
Project Description MA		TER						
East/West Street: LINC						PECT STRE	<u>:EŢ</u>	
ntersection Orientation:	North-South		Study F	Period (hrs	s): 0.25			
Vehicle Volumes ar	nd Adjustme	ents						
Major Street		Northbound				Southbou	ınd	
Movement	1	2	3		4	5		6
	L	Т	R		<u>     L                               </u>	T		R
/olume (veh/h)	64	285	16		12	323		57
Peak-Hour Factor, PHF	0.97	0.97	0.97		0.97	0.97		0.97
lourly Flow Rate, HFR veh/h)	65	293	16		12	332	τ.	58
Percent Heavy Vehicles	0				0			
Median Type				Undivide	d			
RT Channelized			0					0
anes	0	1	0		0	· 1		0
Configuration	LTR				LTR			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	nd	
Movement	7	. 8	9		10	11		12
	L	Т	R		L	Т		R
/olume (veh/h)	46	2	34		0	2		0
Peak-Hour Factor, PHF	0.97	0.97	0.97		0.97	0.97	•	0.97
Hourly Flow Rate, HFR (veh/h)	47	. 2	35		0	2		0
Percent Heavy Vehicles	0	0	0		0 .	0		0
Percent Grade (%)		0				0		
Flared Approach		T N	T			N		
		0		· -		0		
Storage RT Channelized	<del> </del>	<del>                                     </del>	0	<del></del>		<del>                                     </del>	-	0
	<del> </del>	<del>                                     </del>			0	1		0
_anes	0	1 (TD	0		<u> </u>	LTR		U
Configuration		LTR	. L			LIR		
Delay, Queue Length, a						<del></del>	- 11 .	
Approach	Northbound	Southbound		Nestboun			Eastbound	
Movement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR	<u> </u>		LTR	<u> </u>
/ (veh/h)	65	12		2			84	
C (m) (veh/h)	1180	1263		278			371	
//c	0.06	0.01		0.01	1		0.23	
95% queue length	0.17	0.03		0.02	1	1	0.86	
	8.2	7.9		18.0	+	<del>                                     </del>	17.5	ť
Control Delay (s/veh)					+	+		<del>                                     </del>
_OS	Α	Α		C	<u></u>	<del> </del>	C	Ц
Approach Delay (s/veh)				18.0		<del> </del>	17.5	-
Approach LOS				С			С	

e e	TW	O-WAY STOP	CONTR	OL SUI	MMARY		•	
General Informatio	n		Site I	nforma	tion			
Analyst	LDK		Interse	ection				
Agency/Co.	BOWMA	N	Jurisdi			LOCAL		
Date Performed	1/3/19		Analys	sis Year		2020 BU	ILD	
Analysis Time Period	AM PEA							
Project Description M		TËR						
East/West Street: LINC					eet: WAVE	RLY PLACE	<b>E</b> .	
ntersection Orientation:	North-South		Study I	Period (h	rs): 0.25			
∕ehicle Volumes a	nd Adjustme	ents						
Major Street		Northbound				Southboo	und	
Movement	1	2	3		4	5		6
	LL	T	R		<u>L</u>	T 100		R
/olume (veh/h)	0.04	174	6		37	138		0.04
Peak-Hour Factor, PHF Hourly Flow Rate, HFR	0.91	0.91	0.91	-	0.91	0.91		0.91
veh/h)	0	191	6		40	151		0
Percent Heavy Vehicles	0		<u></u>		0			
Median Type				Undivid	led			
RT Channelized	·		0					0
anes	0	1	0		0	1		0
Configuration	·		TR		LT			
Jpstream Signal		0				0		
Minor Street		Eastbound				Westbou	ınd	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
/olume (veh/h)	5	0	8					62
Peak-Hour Factor, PHF	0.91	0.91	0.91		0.91	0.91		0.91
lourly Flow Rate, HFR veh/h)	5	0	8		0	0		68
Percent Heavy Vehicles	0	0	0		0	0 :		0
Percent Grade (%)		0				0		
lared Approach		N				N		
Storage		0			-	0.		
RT Channelized		7	0					0
anes	0	1	0	<del></del>	0	0		1
Configuration		LTR	-					R
Delay, Queue Length, a	and Level of Se	ervice		<u> </u>		<u></u>		
Approach	Northbound	Southbound	·	Vestbou	nd	T	Eastbound	
/lovement	1	4	7	8	9	10	11	12
ane Configuration	•	LT	•		R	1	LTR	<del>                                     </del>
(veh/h)		40			68		13	1
(ver//r) (m) (veh/h)		1388			853	<del>                                     </del>	661	1
/c		0.03			0.08		0.02	+
5% queue length		0.09			0.26		0.02	1
							<del></del>	+
Control Delay (s/veh)		7.7			9.6		10.6	
.OS		Α			Α		В	1
pproach Delay (s/veh)				9.6	•	<u> </u>	10.6	
opproach LOS				Α		l .	В	

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		TW	O-WAY STOP	CONTRO	OL SUM	MARY				•
General Information	n		-	Site Ir	nformati	on				
Analyst		LDK		Interse	ction					
Agency/Co.		BOWMAI	V	Jurisdi	ction		LOCAL			
Date Performed		1/3/19		Analys	is Year		2020 BUI	LD		
Analysis Time Period		PM PEAK	( HOUR							
Project Description MA	ADISC	ON THEA	TER	<u> </u>						
East/West Street: LINC				North/S	outh Stree	et: WAVEF	RLY PLACE			
Intersection Orientation:	Nor	th-South		Study F	Period (hrs	): 0.25	-			
Vehicle Volumes ar	nd A	diustme	ents							
Major Street	<del></del>	.,	Northbound	<u> </u>			Southbou	ınd		
Movement		1	2	3		4	5			6
		L	Т	R		L	Т			R
Volume (veh/h)		-	120	32		41	98			
Peak-Hour Factor, PHF		0.85	0.85	0.85		0.85	0.85		0	85
Hourly Flow Rate, HFR (veh/h)		0	141	37		48	115			0
Percent Heavy Vehicles		0				0				
Median Type	$\neg$			•	Undivide	d	,			
RT Channelized	$\neg$			0		·	-	· [		0
Lanes	1	0	1	0		0	1			0
Configuration	十一			TR		LT		i		
Upstream Signal			0				0			•
Minor Street	i		Eastbound	<u> </u>			Westbou	nd		
Movement	<del></del>	7	8	9		10	11			12
	十一	Ĺ	Т	R		L	Ŧ			R
Volume (veh/h)	1	19	7	17						92
Peak-Hour Factor, PHF		0.85	0.85	0.85		0.85	0.85		0	85
Hourly Flow Rate, HFR (veh/h)		22	8	19		0	0		1	08
Percent Heavy Vehicles	1	0	0	0		0	0			0
Percent Grade (%)	Ì		0				0	-		
Flared Approach	1		N .				N	ł		
Storage	十		0				0			
RT Channelized	+			0			-			0
Lanes	+-	0	1	0		0	0	<del></del>		1
Configuration	+		LTR	· · · · ·						R
Delay, Queue Length, a	nd L	ovel of Sc		<u> </u>			<u>.                                    </u>			
		hbound	Southbound		Vestbound	٠		astbou	ınd	
Approach Movement	14011	1	4	7	8	9	10	11		12
	-	1	LT		<u> </u>	R		LTR	-	14
Lane Configuration		-		_			<del>                                     </del>		_	
v (veh/h)			48			108		49	$\rightarrow$	•
C (m) (veh/h)			1410			890		593	_	-
v/c			0.03			0.12	<u> </u>	0.08	-	
95% queue length	<u> </u>		0.11			0.41		0.27	-	
Control Delay (s/veh)			7.6			9.6		11.6		
LOS			Ą			· A		В		
Approach Delay (s/veh)					9.6			11.6		
Approach LOS				-	Α			В		
Conversity @ 2010 University of El				1 .	CC+TM Vor			rated: 1/	- /	

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		TW	O-WAY STOP	CONTR	OL SU	MARY			
General Informatio	n			Site I	nforma	tion			
Analyst	7	DK		Interse	ection				
Agency/Co.		BOWMAI	V	Jurisd	ction		LOCAL		
Date Performed	17	1/3/19		Analys	is Year		2020 BU	'LD	
Analysis Time Period	9	SAT PEA	K HOUR						
Project Description M.	ADISO	N THEA	TER						
East/West Street: LINC				North/S	South Str	eet: WAVE	RLY PLACE		
Intersection Orientation:						rs): 0.25			
Vehicle Volumes a			nte						
Major Street	T	justine	Northbound		-	****	Southbou	ınd	
Movement	+	1	2	3	-	4	5		6
viovement	+	<del>_</del>	<del>1                                    </del>	R	-	<del>-</del>	T		R
/olume (veh/h)	+	<u> </u>	135	22		87	184		:`
Peak-Hour Factor, PHF		0.96	0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR (veh/h)		0	140	22		90	191		0
Percent Heavy Vehicles	<del>- </del>	0			<u> </u>	0			
Median Type	_			<u>.</u>	Undivid	ed	<u></u>		
RT Channelized		-	i	0	Giraitia	-	Τ -		0
_anes	<del></del>	0	1	0		0	1		0
Configuration	╁	0	· '-	TR		LT	<del>  '</del>		
Jpstream Signal	-		0	1//	<del></del>		0		
							1	<del></del> !	
Minor Street	_		Eastbound	T ^		40	Westbou	na	40
Movement	<del></del>	7	8	9		10	11 T		12
		L	Т	R		L	Т		R
/olume (veh/h)	_	23	11	25			2.22		90
Peak-Hour Factor, PHF		0.96	0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR veh/h)		23	11	26		0	0		93
Percent Heavy Vehicles		0	, O	0		0	0		0
Percent Grade (%)			0		·		0		
lared Approach			N				N		•
Storage		,	0	1			0		
RT Channelized				0					0
anes		0	1	0		0	0		1
Configuration			LTR	<del>                                      </del>		<del> </del>	+ Č		R
		and of Co							
Delay, Queue Length, a				<del></del> ,	A/a akla av u		T - r	- aathaund	1 .
Approach		bound	Southbound		Vestbour			Eastbound	
Movement		1	4	7	8	9	10	11	12
ane Configuration			LT			R		LTR	<del> </del>
(veh/h)			90			93		60	
C (m) (veh/h)			1429			901		-506	<u> </u>
r/c			0.06			0.10		0.12	
95% queue length			0.20			0.34		0.40	
Control Delay (s/veh)			7.7	•		9.5		13.1	<del>                                     </del>
					_			B	+
.os			Α .			Α	_		<del></del>
Approach Delay (s/veh)	:		. =-		9.5	·		13.1	
Approach LOS	<u> </u>				Α			В	

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	TW	O-WAY STOP	CONTR	OL SU	MMARY			
General Informatio	n		Site I	nforma	ition			
Analyst	LDK		Interse					
Agency/Co.	BOWMA	N	Jurisd			LOCAL		
Date Performed	1/3/19		Analys	is Year		2020 BU	ILD'	
Analysis Time Period	AM PEA							
Project Description M		TER						
East/West Street: LINC					eet: SITE I	DRIVEWAY		
Intersection Orientation:	East-West	····	Study	Period (h	rs): 0.25			
Vehicle Volumes a	nd Adjustme	ents					•	
Major Street		Eastbound				Westbou	ınd	
Movement	1 .	2	3		4	5		6
	L L	T	R		<u> </u>	T		R
Volume (veh/h)	1	42	1 000	-	0.04	59	<u> </u>	1
Peak-Hour Factor, PHF Hourly Flow Rate, HFR	0.91	0.91	0.91		0.91	0.91		0.91
(veh/h)	1	46	0		0	64	<u></u>	1
Percent Heavy Vehicles	0	-			0			
Median Type				Undivid	ded			
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration	LT						}	TR
Upstream Signal		0				0		
Minor Street		Northbound				Southboo	und	
Movement	7	8	9		10	11		12
	L	Т	R		L	T		R
Volume (veh/h)	,				3			3
Peak-Hour Factor, PHF	0.91	0.91	0.91		0.91	0.91		0.91
Hourly Flow Rate, HFR (veh/h)	0	О	0		3	0		3 .
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)	1	0		l		0		
Flared Approach		N				, N		
Storage		0				0		
RT Channelized			0					0
Lanes	. 0	0	0		0	0		0
Configuration						LR		
Delay, Queue Length, a	and Level of Se	ervice				- · · · · · · · · · · · · · · · · · · ·	-	
Approach	Eastbound	Westbound	ı	Vorthbou	ınd	s	outhbound	<del>1</del>
Movement	1	4	7	´8 .	. 9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	1						6	
C (m) (veh/h)	1550						944	· ·
v/c	0.00						0.01	1
95% queue length	0.00		'			1	0.02	<del>                                     </del>
Control Delay (s/veh)	7.3	·	-				8.8	1
LOS	7.3 A			<u> </u>		1	A A	<del> </del>
					<u> </u>	1	8.8	1
Approach Delay (s/veh)		, * , <del></del>	<del></del>	<del></del>		1		
Approach LOS	lorida. All Rights Res	<del></del>		CS+TM V		<u> </u>	A erated: 1/9/20	

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General Information	n .		Site Info	ormation			
Analyst	LDK		Intersecti		<del></del>	<del></del>	
Agency/Co.	BOWMA		Jurisdicti		LOCAL		
Date Performed	1/3/19	<u> </u>	Analysis		2020 BU	IILD	
Analysis Time Period	PM PEAR	CHOUR	-    <del>   (1.0.1)   (1.0</del>				
Project Description M.						<del></del>	
East/West Street: LINC		ILIN	North/Sou	uth Street: SITE	DRIVEWAY		
ntersection Orientation:	_			riod (hrs): 0.25			
Vehicle Volumes aı		nte			<del></del>		
Vajor Street		Eastbound			Westbou	ınd	•
Movement	1	2	3	4	5	- T	6
VIOVEITICITE	1	T	R	L	T		R
/olume (veh/h)	3	77			96		4
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85		0.85
lourly Flow Rate, HFR veh/h)	3	90	0	0	112		4
Percent Heavy Vehicles	0	<del></del>	<u></u>	0			
Median Type	<del>-                                     </del>	<u> </u>		Individed			
RT Channelized		1	7 0			,	0
anes	0	1	0	0	1		0
Configuration	LT	<del></del>	<del>                                     </del>	- <u> </u>	· · · · · ·		TR
Jpstream Signal	<del>- </del> '	0	<del>                                     </del>		0		
/linor Street	<del>-                                    </del>	Northbound	<u> </u>		Southbo	und	
Movement	7	8	T 9	10	11	unu	12
wovernent	<u> </u>	<del>                                     </del>	R	L	Т		R
/olume (veh/h)	<u> </u>	<del>- '</del>	<del>                                     </del>	1			3
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.85	0.85		0.85
Hourly Flow Rate, HFR	0	0.00	0	1	0	,	3
veh/h) Percent Heavy Vehicles	0	0.	1 0	0	0		0
Percent Grade (%)	<del></del>		1		0		
		0	1 -			<del></del>	
lared Approach		N	<del>                                     </del>		N N		
Storage	· · · · · · · · · · · · · · · · · · ·	0	ļ		0		
RT Channelized			0		1		0
anes	0	0	0	0	0		0
Configuration	<u> </u>		<u> </u>		LR		
Delay, Queue Length, a	ınd Level of Se	ervice					
\pproach	Eastbound	Westbound	No	rthbound		Southbound	ł
Movement	1	4	7	8 9	10	11	12
ane Configuration	LT					LR	
(veh/h)	3		·			4	
C (m) (veh/h)	1485					897	
/c	0.00		<del></del>	· ·		0.00	
	0.00		<del></del>	<del></del>		0.01	
5% queue length						9.0	<del>                                     </del>
Control Delay (s/veh)	7.4	-					$\vdash$
.OS	A					<u>A</u>	<u> </u>
Approach Delay (s/veh)						9.0	
pproach LOS		<b></b>		,		Α	

General Information	n		Site In	format	ion			
Analyst	LDK		Intersec			1		
Agency/Co.	BOWMA	N	Jurisdic			LOCAL		
Date Performed	1/3/19	•	Analysis			2020 BU	ILD	
Analysis Time Period		AY PEAK HOUR						-
Project Description MA						<u>' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' </u>		
East/West Street: LINC			North/So	outh Stre	et: SITE I	DRIVEWAY		
ntersection Orientation:					s): 0.25			
Vehicle Volumes aı	nd Adjustme	nte	<del>'</del>					
Major Street	T	Eastbound		- 1		Westbou	ınd	
Movement	1	2	3	_	4	5	1110	6
VIOVOITIONE	Ĺ	<del></del>	Ř		Ĺ	<del>                                     </del>		R
/olume (veh/h)	4	116	<del>                                     </del>			119		4
Peak-Hour Factor, PHF	0.97	0.97	0.97		0.97	0.97		0.97
Hourly Flow Rate, HFR veh/h)	4	119	0		0	122		4
Percent Heavy Vehicles	0				0			
Median Type				Undivide	ed			
RT Channelized			0					0
_anes	0	1	0		0	1		0
Configuration	LT							TR
Jpstream Signal		0				0		
Minor Street		Northbound				Southbo	und	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
/olume (veh/h)					4			5
Peak-Hour Factor, PHF	0.97	0.97	0.97		0.97	0.97	,	0.97
Hourly Flow Rate, HFR (veh/h)	0	0	0		4	0		5
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)	-	0				0		
lared Approach		N				N		
Storage		О				0		
RT Channelized	<del> </del>		0	$\overline{}$				0
anes	0	0	0		0	0		0
Configuration	<del>                                     </del>		<del>                                     </del>	<del></del>		LR		-
Delay, Queue Length, a	nd Level of Sc	rvice	1		<del></del>		<del>!</del>	
Approach	Eastbound	Westbound	NI.	orthbour	nd	1 .	Southbound	
Movement	1	4	7	8	T 9	10	11	12
		4			<del>                                     </del>	10		1 12
ane Configuration	LT		<u> </u>			<del> </del>	LR	
(veh/h)	4				-	<del>                                     </del>	9	<del>                                     </del>
C (m) (veh/h)	1473					<del> </del>	836	<u> </u>
/c	0.00						0.01	ļ
5% queue length	0.01			· .			0.03	
Control Delay (s/veh)	7.5						9.4	
.os	Α						Α	
Approach Delay (s/veh)			<u> </u>	-			9.4	•
Approach LOS		<u></u>				1	A	

## APPENDIX III TRAFFIC COUNTS

14 LINCOLN PLACE Intersection Turning Movement Counts

Prospect Street with Lincoln Place	with Lincoln	Place						•								
<u> </u>	Lincoln Place			Stop & Shop Dwy	Dwy		Pro	Prospect Street			Prospect Street			Thur	Thursday, September 7, 2017	ber 7, 2017
	83		,		WB			NB			SB					
	₩.	7 1	3 Total	4	LO I	9 1	6 Total	۷.	<b>∞</b> 1	9 Total	10	# 1	12 Totai	TOTAL		
	.,	<u>.</u> .	oc ·	<b>-</b>	-	*			-	×	_	-	œ			
7:15	7 1	0	m +	0	0	0			41	m	<del>e</del> 1 :	36	ın i	66		
7:30	5	-	7	-	0	0			29	7	m	43	<i>t</i> :	136		
7:45	12	m	9	0	0	0			26	18	m	29	œ	218		
8:00	4	0	y	4	0	7		6	25	7	П	7	얽	170	623	
8:15	4	0	m	2	1	en		'n	33	7	ιΩ	29	9	134	658 7:15-8:15	-8:15
8:30	7	0	, <b>60</b>	2	0	1		6	41	5	7	33	9	114	636	
8:45	m	0	2	П	0	m		12	62	ιΛ	m	S	9	151	269	
9:00	7	0	Ħ	П	0	0			25	4	0	32	13	131	230	
Peak Hr	22	4	17	7	1	Ŋ			529	33	12	240	31	658		
														0.75 PHF	붗	
. =	lincoln Place			Ston & Shon Duay	Q.		Gra	Prognect Street			Process Ctroot			Ė	Thursday Contambor 7 2017	har 7 2017
•				done a done	WB		2	spect oueer.			riospect su eet				sooy, septem	uei 7, 2017
		7	3 Total	4		9	6 Total		<b>∞</b>	9 Total	91	#	12 Total	TOTAL		
End	_	۰	œ	_	_	~		_	-	~	<u> </u>	-	~			
4:15	13	-	9	7	0	1			53	4	0	29	22	179		2
4:30	12	Н	S	0	0	0			28	9	m	52	16	188		
4:45	10	0	m	1	0	2		10	82	ĸ	7	89	13	170		
2:00	7	1	7	2	0	2			9	9	7	29	თ	180	717	
5:15	9	0	4	0	0	0			89	5	н	ð	∞	171	715	
5:30	9	0	9	1	0	1			79	6	7	63	18	196	723	
5:45	10	0	m	1	0	н			71	2	7	87	6	197	750 4:45-5:45	-5:45
9:00	9	0	7	1	0	0		13	25	4	<b>H</b>	89	13	160	730	
Peak Hr	ี	H	22	4	0	4			278	16	17	236	4	750		
														U.S. PRI	ŧ	
7	Lincoln Place			Stop & Shop Dwy	Dwy		Pro	Prospect Street			Prospect Street			Satu	Saturday, September 9, 2017	ber 9, 2017
	83				WB			8N			88					
	-	7	3 Total	4	S	9	6 Total	7	60	9 Total	10	1	12 Total	TOTAL		
End	_	<b>-</b>	œ	_	<b>!-</b>	œ		_	<b>-</b>	œ	_	۰	ď			
11:15 AM	6	Н	9	0	0	0		10	62	4	0	42	17	151		
11:30 AM	13	н	10	0	0	Τ.		15	29	0	н	99	19	193		
11:45 AM	13		∞	0	Н	0			29	9	2	62	12	188		
12:00 PM	ដ '	0	7	0	0	0			8	m	7	29	12	189	721	
12:15 PM		0	7	0	Η .	0			7.5	2	φ ·	9	00	184	754	
12:30 PM	10	-	13	0	0	0			46	4	ᆏ	85	70	194	755 11:3	755 11:30-12:30
12:45 PM	12	0	13	H	0	Н	٠	17	22	4	н	22	18	181	748	
1:00 PM	14	0	9	0	0	0			59	1	H	99	70	184	743	
1:15 PM	œ	0	<b>∞</b>	0	0	0			65	4	-	29	18	184	743	
1:30 PM	14	-	13	0	0	1			20	4	0	9	15	171	720	
1:45 PM	ю	0	14	0	0	1			23	2	0	54	9	157	969	
2:00 PM	∞	0	Ŋ	0	0	0		10	37	7	1	25	∞	128		
Peak Hr	41	7	30	0	7	0			254	15	#	290	25	755		11:30-12:30
														0.97 PHF	HF.	

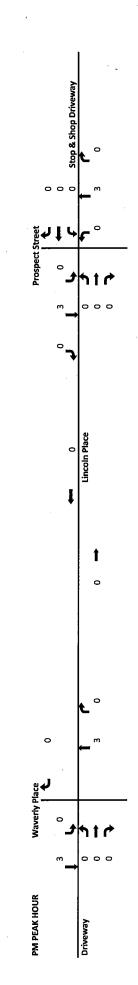
14 LINCOLN PLACE
Intersection Turning Movement Counts

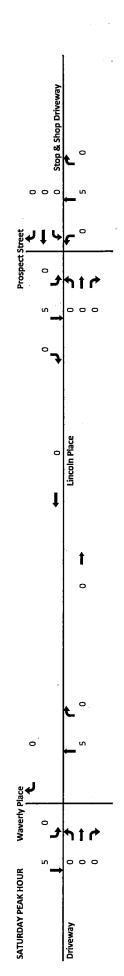
Prince   P	Waverly Place with Lincoln Place	h Lincoln Pl	ace												
	Dri		-		Lincoln Place		>	averly Place			Waverly Place			Thursd	ay, September 7, 2017
1		8	7	3 Total		ın	6 Total	0N /	00	9 Total	01 2	11	12 Total	TOTAL	
1	End	_	-	<b>«</b>	ب	-	œ	_	<b>-</b>	œ	J	<b>-</b>	œ		
745 1 1 0 0 4 0 1 1 1 0 0 1 1 1 1 0 1 1 1 1		0	0	2	0	0	11	0	24	7	Ŋ	15	0	53	
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## APPENDIX IV OTHER DEVELOPMENTS IN THE AREA

1/3/2019

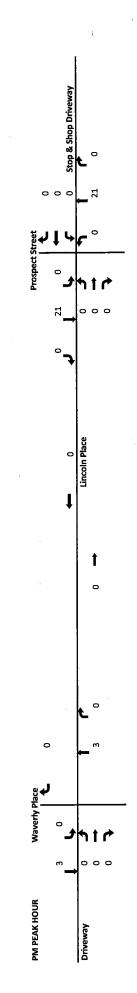
Stop & Shop Driveway Waverly Place AM PEAK HOUR Driveway

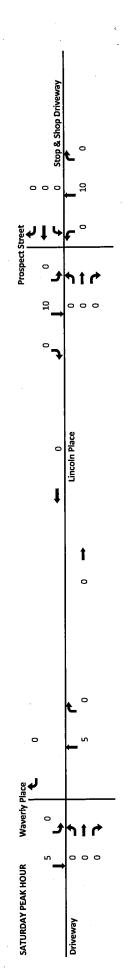




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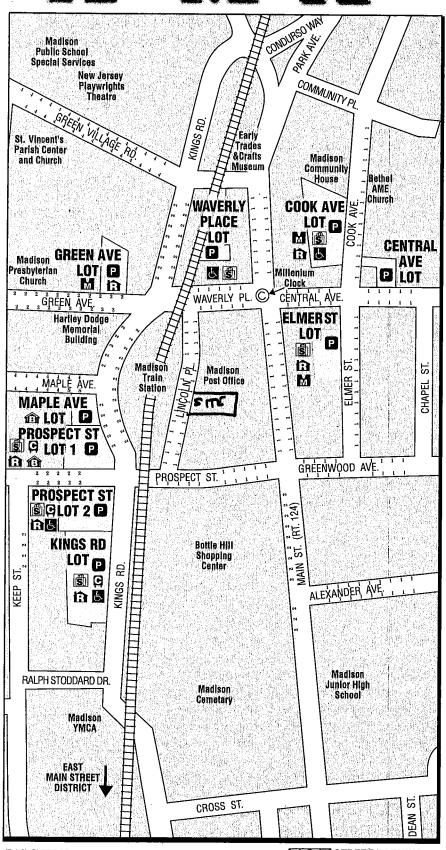




### APPENDIX V

### BOROUGH PUBLIC PARKING INFORMATION BROCHURE

# Me About Parking



#### **LEGEND**



Shopper Parking



Handicapped Parking Available

#### ETTER STREET PARKING

- 1 1 1 1 One-hour Parking
- 2 2 2 Two-hour Parking
- 4 4 4 Four-hour Parking
- S S S Senior Citizen Parking

### A MAP of Madison's Free Public Parking

The Madison Chamber of Commerce and

#### The Downtown Development Commission

This publication is a community service of the Madison Chamber of Commerce and the Downtown Development Commission supporting Madison's Business Districts which run east to west along Main Street (Route 124) and include Kings Road, Park Avenue, Lincoln Place, and Central Avenue. Over the years Madison's business districts have been transforming into pedestrian-friendly streetscapes that offer FREE parking to visitors. Madison's attractive and thriving business districts are consistently cited among the most successful in New Jersey.

#### PUBLIC PARKING GUIDE

WAVERLY GREEN LOT **3 3 3 2**-Hour Parking NO PARKING 2 A.M. - 6 A.M.

COOK AVENUE LOT 🔠 M 🔝 **3.133** 2-Hour Parking 15-MINUTE MERCHANT DELIVERY PARKING

ELMER STREET LOT M FREE 2-Hour Parking

GREEN AVENUE LOT M 🏗 🏗 = = = 4 pm-2 am (weekdays) 🔁 6 am-2 am (weekends)

FIRE DEPARTMENT EMPLOYEE PARKING

MAPLE AVENUE LOT

24-HOUR PARKING-BOROUGH EMPLOYEES ONLY

PROSPECT ST. LOTS A REPORT CONTROL OF THE PROSPECT ST. LOTS FREE 4 pm-2 am (weekdays) R = 6 am-2 am (weekends)

KINGS ROAD LOT 🕭 🏗 🔾 4 pm-2 am (weekdays) = 6 am-2 am (weekends) DAILY \$2.00 PAID PARKING

CENTRAL AVENUE LOT M

FREE 4 pm-2 am (weekdays) 🖃 🖪 6 am-2 am (weekends)

HEALTH CENTER PARKING

Parking regulations may change periodically. Please note posted signs.

#### **PERMIT PARKING**

C

Resident Permit Parking



Merchant Permit Parking



Borough Permit Parking

#### MADISON POLICE DEPARTMENT 2019 PERMIT PARKING REGULATIONS

Notice is hereby given that your car must have a NEW OFFICIAL PARKING TAG for the period of January 1, 2019 to December 31, 2019 to legally park in the Borough of Madison parking lots. The parking tag is transferable and is to be displayed from your rearview mirror. If not displayed properly a summons will be issued.

All applicants MUST provide a valid vehicle registration. If the vehicle is leased additional proof of residency is required: Additional acceptable proof of residency is as follows:

Valid NJ driver's license or valid NJ insurance ID card or current utility bill in applicants name or first page of homeowner's contract or tenant's lease agreement

The permit is registered in your name. If the tag is reported lost or stolen by you, anyone found using your permit would be charged and prosecuted accordingly. You are solely responsible for your permit, and if lost the replacement fee is 50% of the permit fee with no exceptions.

#### **2019 PARKING PERMITS FEE:**

\$425.00 - COMMUTER (residents only) \$212.50 if processed after June 30, 2019. \$150.00 - MERCHANT & TENANT \$75.00 if processed after June 30, 2019.

Park in the lots specified below: (Permits are color coded; be sure to park in proper lot.)

<u>MERCHANTS/GREEN TAGS:</u> Cook Plaza, Elmer Street & Green Avenue <u>COMMUTERS (residents only)/BLACK TAGS:</u> Kings Rd. lots 1 & 3 (Not in numbered spaces.)

\*\*TENANTS/BLUE TAGS: Cook Plaza, Elmer Street & Green Avenue (in permit spaces only)

DAILY NUMBERED SPACES: Lot #3 and train station lot: \$5.00 per day when available.

THIS PERMIT DOES NOT GUARANTEE YOU A SPACE IN A SPECIFIC LOT

DO NOT BACK INTO PARKING SPACES & DO NOT PARK OVERNIGHT: Improper parking in the parking areas is a violation, and summonses will be issued. Permits will not be issued to vehicles classified as trucks or commercial vehicles.

Return completed application with check or money order made payable to "Borough of Madison" to: Parking Permits, Madison Police Dept., 62 Kings Road, Madison, NJ 07940.

If responding by mail, please include copies of all documents required and a **Self-addressed** stamped envelope. If all required documents AND ENVELOPE are not received, your application will be returned to you unprocessed.

\*\*(Residing in a dwelling in Madison's historic district or in a dwelling on the south side of Kings Road from 124 east to Green Avenue; 42,44,50 Cook Avenue and 30 Central Avenue.) Montpelier Apartments (limited to 10 permits per year).

Rev. 09/2018