

DRAFT**Evaluation of Congress Street Detour
Maine Medical Center (MMC) – Bramhall Campus
Portland, Maine
February 14, 2018****Proposed Detour:**

The MMC Team met with City staff (including Fire and Police representatives) on January 25th, 2018 to discuss various detour options for the closure of Congress Street between Forest Street and Weymouth Street. Based on those discussions, there was general consensus that the best approach was to combine different aspects of the alternatives into one alternative to create a multi-layered approach.

The currently proposed traffic control plan (TCP) is intended to operate as a three layered approach. The purpose of the multi-layer approach is to gradually decrease the volume of traffic that approaches the closure location, such that traffic is less concentrated at one specific location. A more detailed description of the three layers is as follows, with plans of the TCP attached:

Layer I (Figure I of attached plans)

The first, or outer most, layer involves the use of four Variable Message Boards (VMB). The current detour plan identifies the use of three mobile units and the use of one of MaineDOT's permanent VMB. The locations are as follows:

- St. John Street southbound prior to the intersection with Park Avenue (mobile unit)
- Outer Congress Street inbound prior to Fore River Parkway (mobile unit)
- Upper Congress Street outbound prior to Mellen Street (mobile unit)
- I-295 northbound prior to the Exit 4 ramp toward the waterfront (permanent VMB) – MaineDOT permission will be required for this use

The VMBs will flash “Lower Congress Closed” “Seek Alt Route”. The VMBs are specifically located such that it provides notice to drivers as they enter the downtown such that they have alternate routes to take to avoid the Lower Congress Street closure.

Prior to closure – We recommend that the VMBs be placed and utilized a week in advance of the actual closure to inform drivers of the upcoming closure.

Additional Mitigation beyond that shown on the plans: None anticipated



Layer 2 (Figure 2 of attached plans)

For drivers on Congress Street that are approaching the general area, a primary detour will be established. Inbound traffic on Congress Street will be directed to use St. John Street to Park Avenue to Weymouth Street and back up to Congress Street. A Type III barricade will be placed on Congress Street to discourage through traffic, but will provide enough roadway width such that through traffic will still be allowed to reach local destinations such as the Gilman garage, MOB garage, and local businesses.

For outbound Congress Street traffic, the primary detour will direct traffic onto Weymouth Street to Park Avenue to the intersection with St. John Street. The end detour will be at the intersection with St. John Street because based on our evaluation of the roadway network and traffic patterns, it does not appear to make sense to detour all the traffic back to the Congress Street / St. John Street intersection.

Additional Mitigation beyond that shown on the plans:

- Potential retiming of the traffic signals. We recommend that any exclusive pedestrian timing of the signals involved be changed to concurrent pedestrian timing to maximize capacity while still providing accommodations for pedestrians.

Layer 3 (Figure 2 of attached plans)

For what is expected to be minimal inbound traffic that manages to reach the actual Congress Street closure, rather than try to turn them around, the third secondary layer provides a route. This route would direct traffic onto Forest Street to Boynton Street to Weymouth Street. The current plan is to convert Boynton to one-way inbound which will minimize the potential of outbound traffic trying to use this route. Instead, all outbound traffic will be required to use the primary route described in Layer 2.

To allow emergency vehicles adequate width to maneuver, we recommend that some on-street parking be eliminated while the Congress Street closure is in effect (approximately 8 weeks). This would eliminate approximately four on-street parking spaces on Forest Street and 14 on-street parking spaces on Boynton Street. MMC is working with the residents along Boynton Street to provide alternative parking arrangements such as within the MOB parking garage.

Additional Mitigation beyond that shown on the plans: None anticipated

[Capacity Analysis:](#)

To further evaluate the options, key intersections were evaluated using Synchro/SimTraffic computer analysis software. Level of service rankings are similar to the academic ranking system, where an 'A' is good with little control delay and an 'F' represents poor traffic conditions. If levels of service fall below a 'D', an evaluation should be made to determine if mitigation should be implemented. The following tables summarize the relationship between level of service and control delay per vehicle for unsignalized and signalized intersections:



Level of Service Criteria for Unsignalized Intersections

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

The results are based on the average of five SimTraffic runs. The following summarizes the capacity analysis results.

The key intersections for this detour option have been identified as the following:

- Park Avenue / Weymouth Street
- St. John Street / Park Avenue
- Congress Street / St. John Street

The following table summarizes the forecast operation of the key intersections for existing conditions and with the detour in place. Detailed results are attached.

Level of Service Summary

Approach*	Existing Conditions		With Detour	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Park / Weymouth (Existing = U, Detour = S)				
Park EB	A	A	B	D
Park WB	A	A	B	B
Weymouth NB	C	E	C	D
Parking Lot SB	B	B	A	B
Overall	N/A	N/A	B	C
St. John / Park (S)				
Park WB	C	B	C	C
St. John NB	B	D	B	C
St. John SB	B	C	C	C
Overall	B	C	C	C



Congress / St. John (S)				
Congress EB	C	C	B	C
Congress WB	B	B	B	B
St. John NB	C	C	C	C
St. John SB	C	C	C	C
Overall	C	C	C	C

*(U) = Unsignalized, (S) = Signalized

As shown in the table, the intersections of St. John Street with Park Avenue and Congress Street with St. John Street are forecast to operate at similar levels of service to the existing conditions if the detour is implemented. Additionally, the three key intersections are forecast to operate at acceptable levels of service if the detour is implemented. It should be noted that at the intersection of Park Avenue with Weymouth Street, the eastbound and westbound approaches are forecast to operate at lower levels of service with the detour in place than with the existing conditions. This is due to the temporary signalization of the intersection while the detour is operational, which increases the delay of the traffic that is free-flowing in the existing condition. Although the levels of service on Park Avenue are forecast to be lower than the existing conditions, the levels of service on the Weymouth Street approach and the Parking Lot approach are forecast to be maintained or improve from the existing conditions.

Visitor / Patient Garage

Since the Congress Street access to the Visitor / Patient garage will be unavailable during the Congress Street closure, MMC is proposing a plan (attached) to provide access to the Visitor / Patient garage through the Gilman Street access to the employee garage. The two garages are already connected on the base level. The attached plans show the layout that includes an entrance lane for employees and a separate entrance for visitors / patients. Both entrances will be well signed as to who uses which lane. To avoid any crossing of entrance traffic, employees would be required to access the garage from the direction of A Street, while visitors / patients would be expected to use the entrance via Congress Street direction. To get employees in the habit of entering from the A Street direction, the new set up would be implemented a minimum of one week prior to the actual closure of the Congress Street access.

Once in the garage, employees would continue into the employee section of the garage and visitors / patients would continue to the other garage. Exiting traffic from both garages would merge into one exit lane. A flagger(s) would be stationed within the merge area during busy times to ensure proper guidance. MMC is committed to safety so if additional flaggers or additional time periods are required they will be supplied as needed.

METRO Impacts:

The MMC Team has met with METRO to provide advance notice of the closure of a short section of Congress Street. Based on discussions with them, their preference in dealing with road closures is to stay outside of the detours and to change their routes accordingly. They expect that regardless of the specific closure chosen, travel times will be increased and additional buses / drivers will be required to ensure headways and schedules are maintained.

If the City would like to move forward with this detour as proposed, we would have a follow up meeting with METRO to go over the detour with them and receive their feedback.

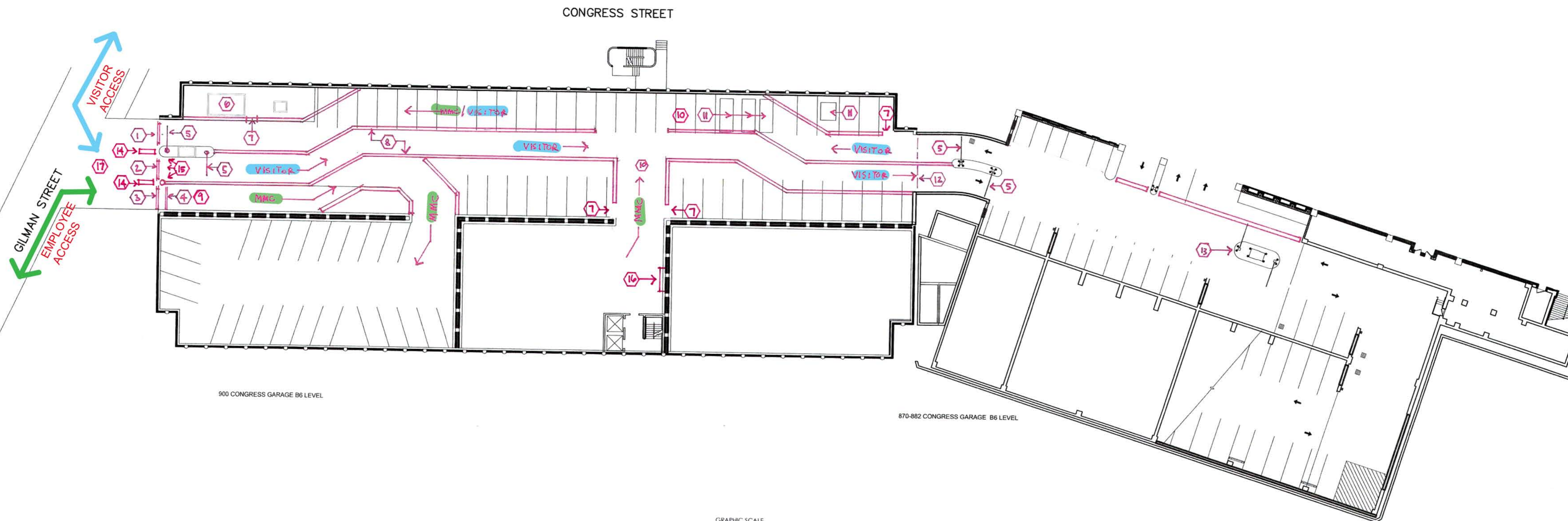


Construction related Deliveries, Delivery Routes, and Parking Restrictions:

Turner Construction will be the responsible party for the actual construction and will be providing number, type (size), and routes for deliveries under separate cover. It should be noted, that additional on-street parking restrictions may be identified when delivery routes are reviewed in the field to ensure proper turning of larger delivery vehicles can be accommodated.

Parking for construction workers will be provided off-site at satellite parking areas, such as the MMC Scarborough Campus, and workers will be shuttled to the work site. Any non-essential vehicles not critical to the work site will be restricted from the site. Any parking by workers in the immediate area reported to MMC or Turner Construction will be taken seriously and addressed by Turner Construction.

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Maine Medical Center - Garage Access During Congress Street Closure

LEGEND :

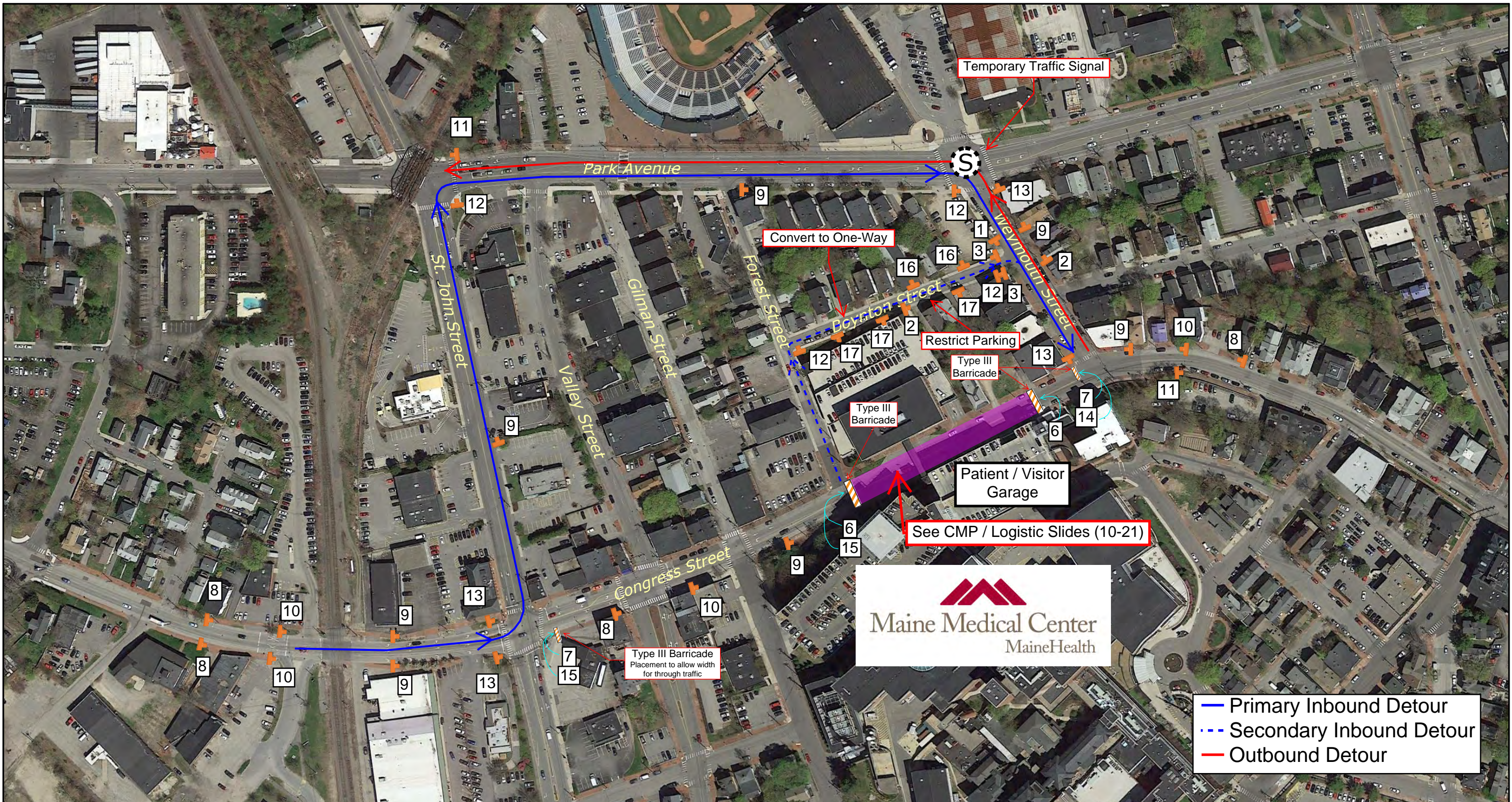
- 1 - "Exit Only" Sign Facing Gilman Street
- 2 - "Visitor Entry Only" Sign Facing Gilman Street
- 3 - "Employee Entry Only" Sign Facing Gilman Street
- 4 - Add horizontal pvc pipe over employee entry lane
- 5 - Gate arms to remain in upright position
- 6 - Temporary office to remain
- 7- 5 Foot opening in barrier for pedestrian access
- 8 - Jersey Barriers, typical
- 9 - Temporary gate arm to control employee access lane
- 10- Stop sign and staff person at this location during peak times
- 11 - Remove storage containers
- 12- Remove chain link fence gates
- 13 - Visitor access booth to remain as currently functioning
- 14 - One jersey barrier section on driveway apron
- 15 - Activate traffic signal lights
- 16 - Stop Ahead sign
- 17 - Staff person at Gilman Street Entrance at peak times

Patient / Visitor Garage Traffic Control Plan



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Congress Street Detour




















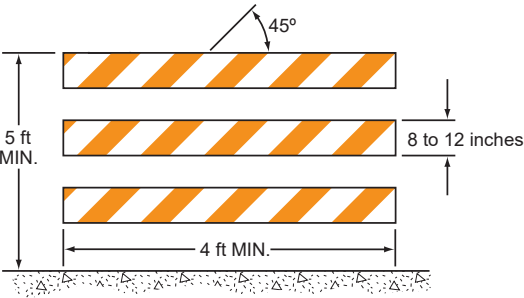
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GENERAL NOTES:

1. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS (MUTCD), USDOT, FHWA, LATEST EDITION, AND CITY STANDARDS.
2. SIGN LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE CITY.
3. OTHER SIGNS MAY BE NEEDED AS DIRECTED BY THE CITY.
4. ALL CONTROL DEVICES SHALL BE PLACED IN HIGHLY VISIBLE LOCATIONS.
5. ALL CONSTRUCTION RELATED TRAFFIC CONTROL SIGNS NOT IN EFFECT SHALL BE COVERED OR TURNED FROM TRAFFIC VIEW UNTIL THEY ARE MADE ACTIVE. SIGNS SHALL BE COVERED OR REMOVED WHEN THE WORK IS NOT ACTIVE.
6. ANY EXISTING SIGNS OR PAVEMENT MARKINGS DAMAGED DURING CONTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS OR REPLACED AS NEEDED.
7. ANY CONFLICTING SIGNS OR PAVEMENT MARKINGS SHALL BE COVERED OR REMOVED AS NEEDED.
8. CHANNELIZING DEVICES SHALL BE PLACED PER MUTCD.
9. POST-MOUNTED SIGNS SHALL BE A MINIMUM HEIGHT OF 7 FEET (TO THE BOTTOM OF THE SIGN) AND MUST BE CRASHWORTHY.

SIGN SPECIFICATIONS:

						
R3-1 24" x 24" 1	R3-2 24" x 24" 2	R5-1 30" x 30" 3	R8-3 24" x 24" 4	R9-9 Modified 24" x 12" 5	R11-2 48" x 30" 6	R11-3a 60" x 30" 7
						
W20-1 36" x 36" 8	W20-2 36" x 36" 9	W20-3 36" x 36" 10	M4-8a 24" x 18" 11	M4-9R 30" x 24" 12	M4-9L 30" x 24" 13	
						
M4-10R 48" x 18" 14	M4-10L 48" x 18" 15					
						
R6-1R 36" x 12" 16	R6-1L 36" x 12" 17					



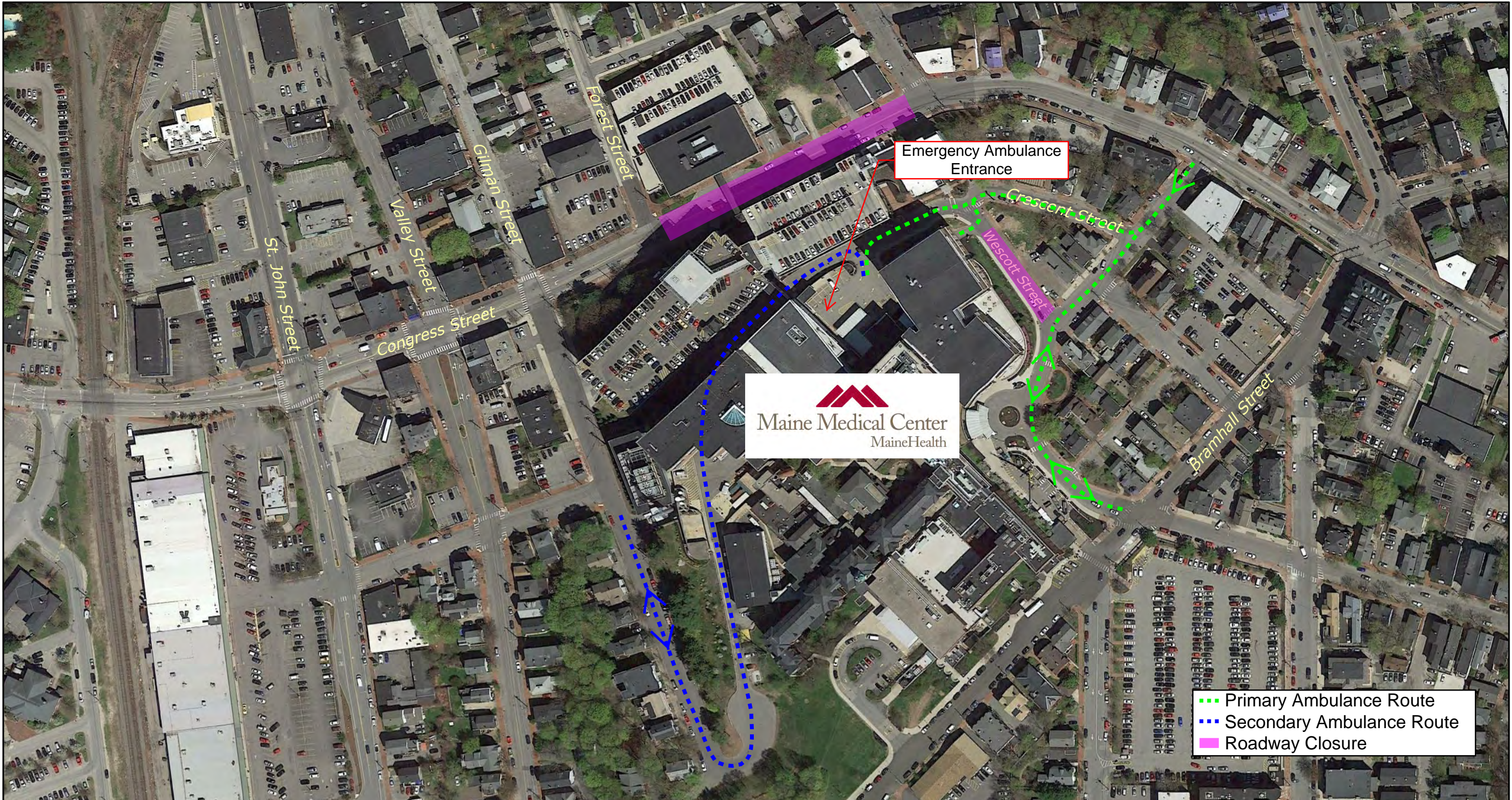
TYPE 3 BARRICADE

TEMPORARY SIGNALIZATION: SIGNAL SHALL BE ON FLASH FOR A MINIMUM OF ONE WEEK PRIOR TO BEING PUT INTO RED-YELLOW-GREEN OPERATION. THE SIGNAL SHALL BE PUT INTO RED-YELLOW-GREEN OPERATION PRIOR TO 6 AM ON A MONDAY MORNING AND SIGNAL CONTRACTOR SHALL REMAIN ON-SITE UNTIL A MINIMUM OF 9 AM TO MAKE ADJUSTMENTS TO SIGNALS / TIMING PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER OR REPRESENTATIVE. THE CONTRACTOR SHALL ALSO BE AVAILABLE FROM 11 AM TO 1 PM AND AGAIN FROM 3 PM TO 6 PM ON THE SAME DAY TO MAKE ADJUSTMENTS AS DIRECTED BY THE CITY ENGINEER OR THEIR REPRESENTATIVE. TWO WEEKS AFTER INITIAL RED-YELLOW-GREEN INITIALIZATION, THE CONTRACTOR SHALL BE AVAILABLE AT THOSE SAME TIMES FOR FURTHER ADJUSTMENTS AS DIRECTED BY THE CITY TRAFFIC ENGINEER OR THEIR REPRESENTATIVE.

NOTE: SIZES OF SIGNS AND LETTERING ON ALL SIGNS SHALL BE VERIFIED THAT THEY MEET MUTCD REQUIREMENTS PRIOR TO ORDERING AND INSTALLATION.

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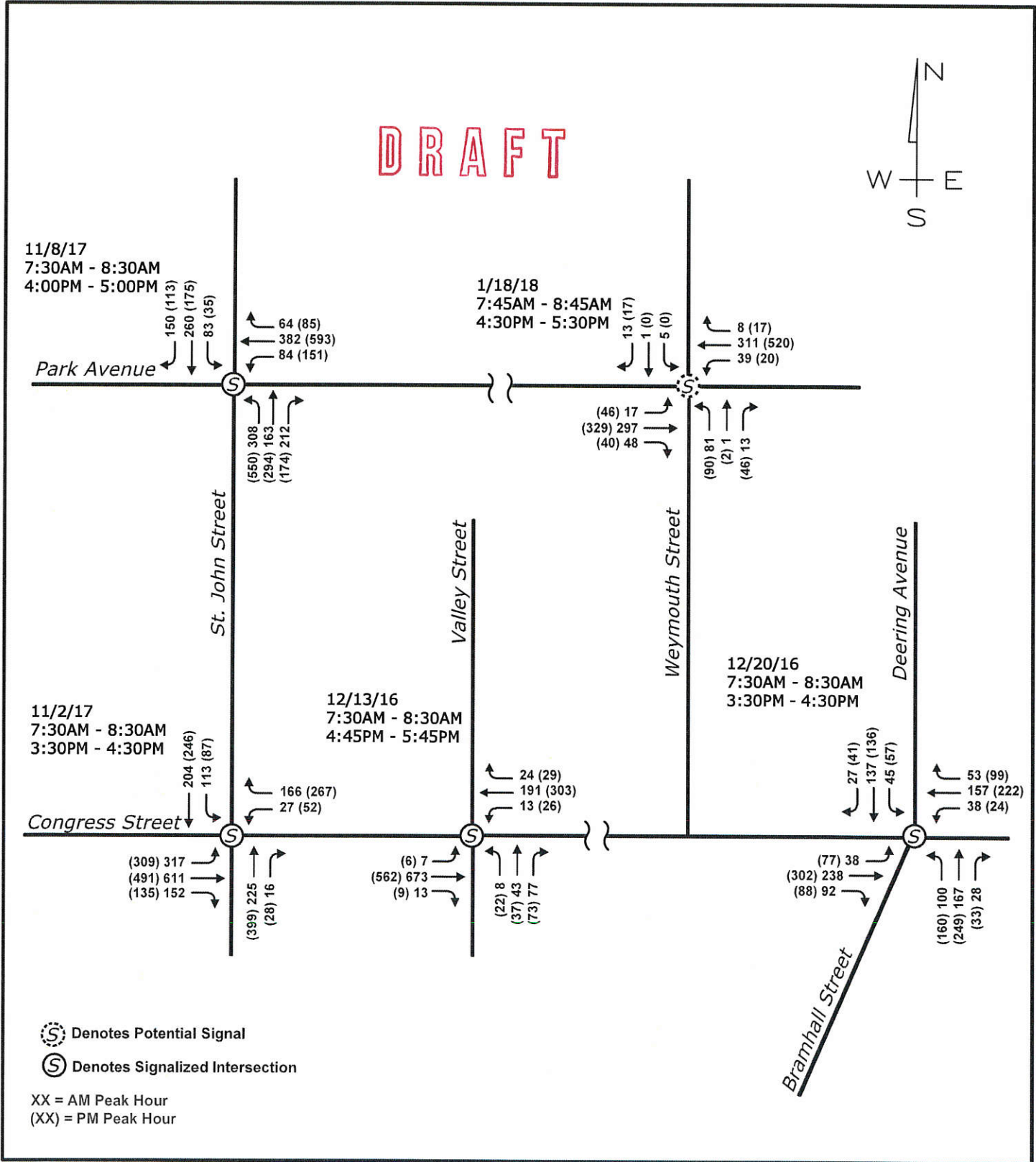
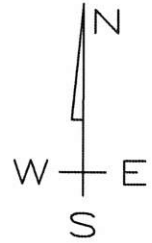
Ambulance Routes



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RAW VOLUMES

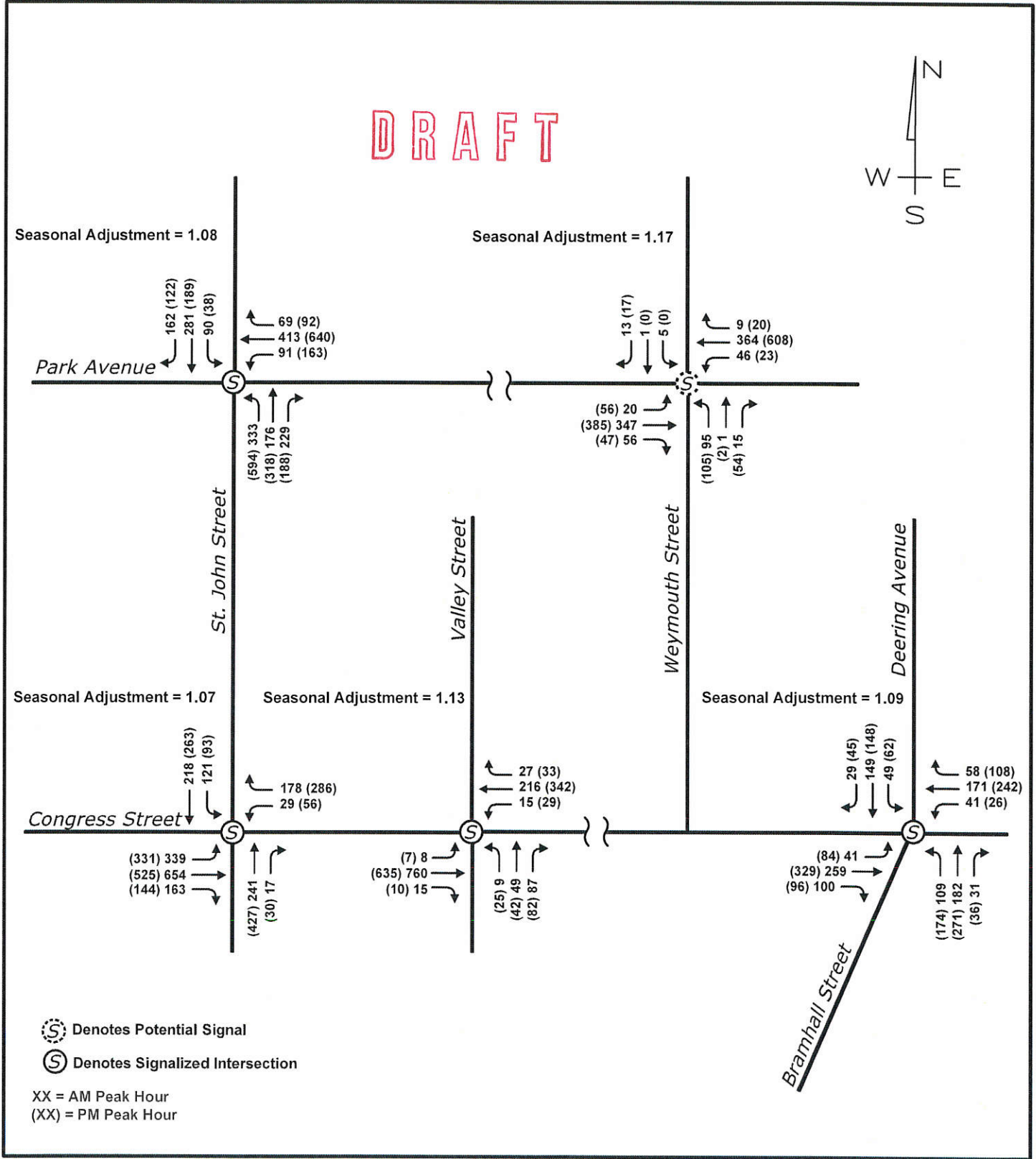
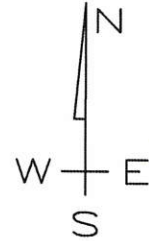
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ADJUSTED VOLUMES

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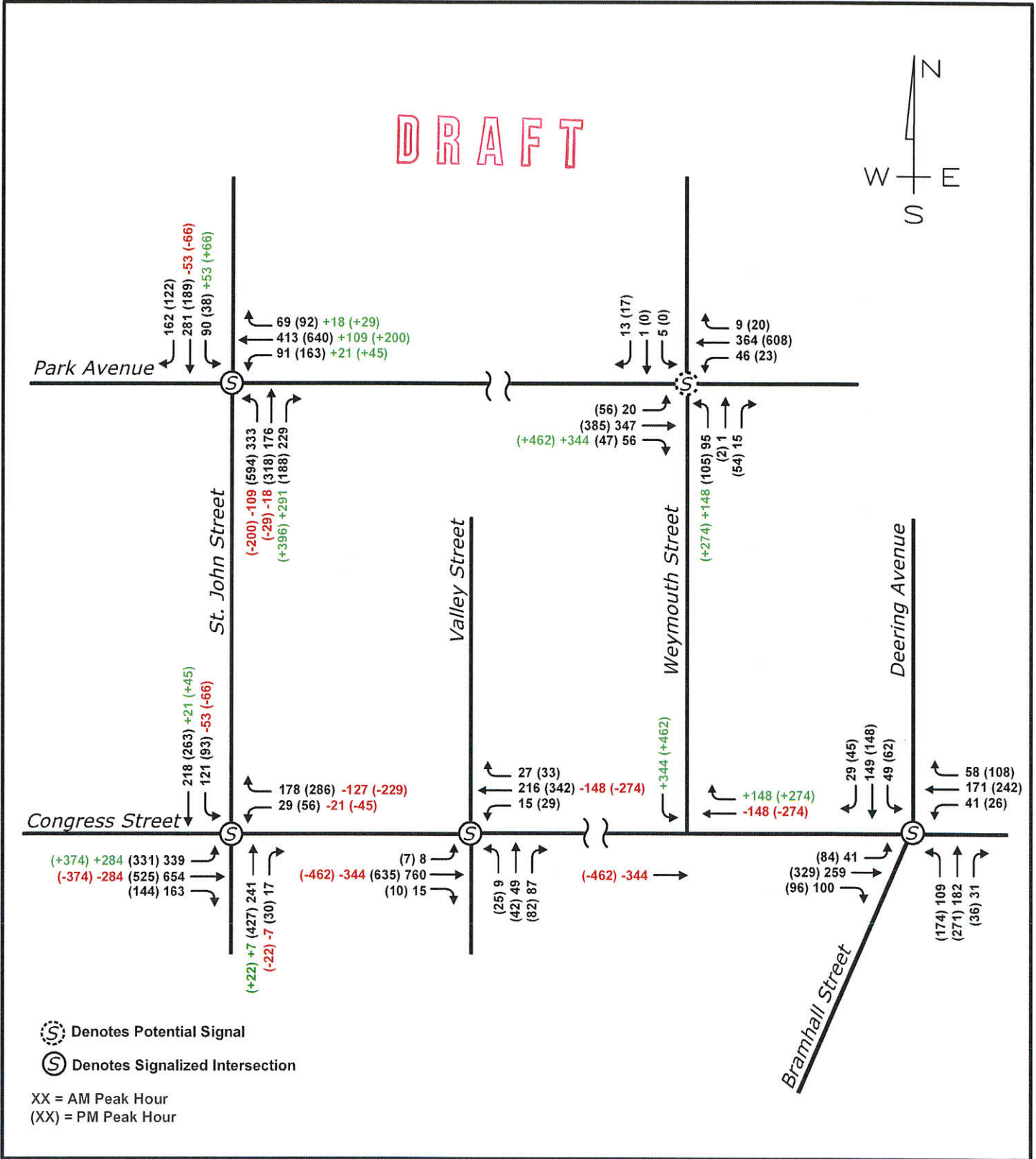
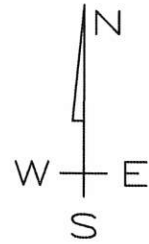
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DETOUR VOLUMES

Figure No.

3

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