Site Planning
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3D Visualization
Laser Scanning

November 30, 2016

Mr. Michael Blau
Village Administrator
Village of Tarrytown
One Depot Plaza
Tarrytown, NY 10591

RE: JMC Project 16177
Evaluation of Traffic Mitigation Concepts
Village of Tarrytown, NY

Feasibility Evaluation (Part One)

Dear Mr. Blau:

We have prepared this letter to summarize the results of the feasibility evaluation of traffic mitigation concepts at various locations within the Village of Tarrytown. We are prepared to present our findings to the Village Board of Trustees, prior to the commencement of part two of the RFP. All of the property line information shown on our figures is based on Westchester County GIS information. The feasibility evaluation has been summarized into five locations below, and the following figures have been prepared to assist in the Village's review:

Figure No.	Title
1	Broadway (US 9) & Neperan Road/Main Street – Bypass Lanes
2	Broadway (US 9) & Neperan Road/Main Street – Photographs
3	South Broadway (US 9) & Franklin Street – Photographs
4	South Broadway (US 9) & Franklin Street – Photographs
5	South Broadway (US 9) & Franklin Street – Traffic Signal Pole Alternative 1
6	South Broadway (US 9) & Franklin Street – Traffic Signal Pole Alternative 2
7	Miller Park Neighborhood
8	H-Bridge over Metro North Railroad
9	H-Bridge over Metro North Railroad – Photographs
10	West Franklin & White Street
11	West Franklin & White Street – Photographs

A. Broadway (US 9) & Neperan Road/Main Street

Figure 1 depicts the removal of parking spaces to create bypass lanes which provide the ability for thru vehicles to bypass vehicles waiting to make left turns without striping separate left turn lanes. The first 4 parking spaces on the southbound side of Broadway just north of Main Street and the first 4 parking spaces on the northbound side just south of Neperan Road are proposed to be removed. These two areas of parking removal are highlighted in pink. An existing fire hydrant on the southbound side of Broadway just north of Main Street could likely be relocated to the northbound side of Broadway to allow for an additional parking space. Figure 2 includes a photograph of a potential parking space after the relocation of an existing fire hydrant. With the bypass lanes a net parking reduction of 7 parking spaces on Broadway is proposed.

The design of the bypass lanes with the net removal of 7 parking spaces on Broadway is feasible at its intersection with Neperan Road and Main Street.

B. South Broadway (US 9) & West Franklin Street

NYSDOT recently completed improvements to the west side of South Broadway along the frontage of Washington Irving Middle School, south of West Franklin Street. The improvements included replacing the sidewalk along the frontage of the school and reducing the southbound travel lane slightly to accommodate a stamped concrete drop-off/parking lane to assist the daily school operations. Figures 3 and 4 show the recent improvements compared to a record view.

The striping improvements depicted in the DEIS for Lighthouse Landing have been modified to account for the recent improvements to South Broadway and are shown on Figures 5 and 6. The improvements provide a separate left turn lane for the northbound approach along South Broadway. Parking is required to be removed for on the east side of South Broadway to allow for the northbound lane shift. Providing a left turn lane on this approach reduces delays for the thru traffic and improves safety as motorists currently weave around vehicles that are waiting to make a left turn onto West Franklin Street.

The traffic signal design considered herein will signalize the four approaches of the intersection, including eastbound West Franklin Street and westbound East Franklin Street. Two traffic signal design alternatives have been considered at this intersection. A traffic signal pole with a mast arm is proposed to be placed on the west side of South Broadway, opposite East Franklin Street, to serve the southbound approach on Broadway and the westbound approach on East Franklin Street. This pole location is the same in both alternatives. Alternative 1 locates a second traffic signal pole on the northeast corner of the intersection to serve the northbound approach on Broadway and the eastbound approach on West Franklin Street. Based on Westchester County Geographic Information System (GIS), which places the right of way line along the retaining wall behind the existing sidewalk, the pole location is on private property. A permanent easement would likely be required for the pole location. A review of record survey information or a new survey if required would confirm whether the pole would be located within the right of way or on private property. Alternative 2 locates the second traffic signal pole in the southwest

corner of the intersection, which is within the right of way, yet requires significant pruning to or the removal of a large tree. A photograph of the existing tree is shown on Figure 4.

The design of a traffic signal is feasible at the intersection of South Broadway & West Franklin Street. An easement for the second traffic signal pole may be necessary depending on the location of the pole if the preservation of a large tree is preferred.

C. Miller Park Neighborhood

The Miller Park neighborhood is generally bounded on the easterly side by South Broadway; on the northerly side by West Franklin Street; on the westerly side by Franklin Courts and the Metro-North Commuter Railroad tracks; and on the southerly side by Church Street.

The primary goal of the traffic calming within the Miller Park neighborhood appears to be reducing the amount of cut-through traffic between the Tarrytown Village Hall/train station area and Broadway south of Benedict Avenue. A secondary goal of the traffic calming is to reduce the operating speeds of motorists within the neighborhood.

Typical traffic calming measures were assessed for the Miller Park neighborhood and we feel speed humps are the most appropriate application for the area. A speed hump is a rounded raised area of pavement typically 12 to 14 feet in length and typically spaced between 300 and 600 feet apart. Speed humps are typically placed along roadway segments with minimal roadway slopes and should not be located where the roadway slop is greater than 8%. The Institute of Transportation Engineers (ITE) discusses that traffic volumes reduced on average by 18 percent and speeds between humps have been observed to be reduced between 20 and 25 percent on average after the implementation of speed humps.

Potential speed hump locations and existing stop locations are depicted on Figure 6. Seven speed humps were placed throughout the area, generally being placed near the middle of each roadway segment in areas within locations having minimal existing slopes. The recommended locations of speed humps were placed based on the existing roadway lengths and grades within the Miller Park neighborhood. Additional speed humps could be placed in relatively level areas if desired by the Board to further reduce travel speeds.

The design of traffic calming measures in the Miller Park neighborhood is feasible.

D. H-Bridge over Metro North Railroad

The H-Bridge currently operates with a yield condition for vehicles making turns from the bridge section which spans over Metro North railroad and vehicles traveling on the ramp sections have free movements. The installation of coordinated traffic signals at the east and west sides of the bridge over Metro North railroad where the ramps connect to the structure was assessed. Traffic signal poles can likely be installed in the location of existing street lights located across from the center of the bridge section review and design by a structural engineer. Figure 9 shows the existing light poles on the H-Bridge. The foundations may possibly be located partially within the existing travel lane and protected with curbs and/or guide rails. A potential traffic signal head layout is depicted on Figure 8.

As part of the FEIS for Ferry Landings a structural engineer, Pustola & Associates PE, concluded that the bridge is structurally sound and capable of handling the projected traffic volumes. Traffic signals were considered in conjunction with the Ferry Landings project.

The concept of traffic signals is feasible at the H-Bridge intersections. The details of the design would need to involve a structural engineer as part of the design team.

E. West Franklin Street & White Street

The intersection of West Franklin Street and White Street currently operates as an all-way stop. The eastern leg of the intersection is a one-way approach exiting the intersection. The installation of a traffic signal at this location was evaluated and is depicted on Figure 10. With the right-of-way and utility constraints in the area a traffic signal pole has been located in the northwest corner of the intersection, adjacent to the existing firehouse building. There is a curbed area underneath the roof overhang of the firehouse, within which the existing sidewalk can be widened to provide sufficient sidewalk space around the proposed traffic signal pole. This area is depicted on Figure 11.

The design of a traffic signal is feasible at the intersection of West Franklin Street & White Street.

We look forward to addressing any questions you may have at a Village Board of Trustees meeting. If you have any questions in the interim, please contact us at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying PLLC

Richard J. Pearson, PE, PTOE
Senior Associate Principal

Kevin R. Masciovecchio, EIT
Senior Designer

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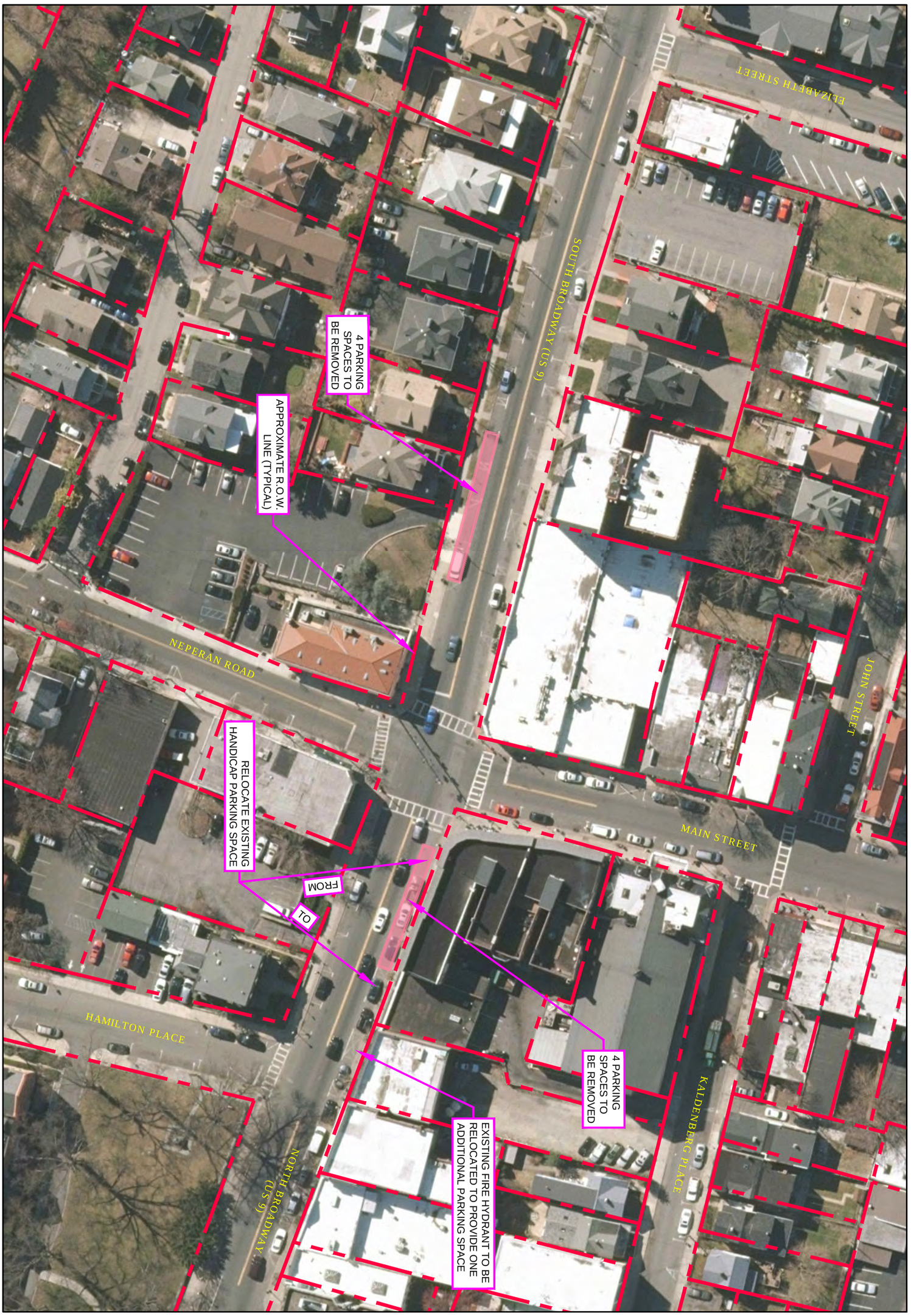

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

BROADWAY (US 9) & NEPERAN ROAD/MAIN STREET

BYPASS LANES

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 1

SCALE: 1" = 40'

120 BEDFORD RD
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16177-GIS-BASE.dwg; US9&MAIN.tab; MAINST-VILLAGE.scr

VIEW OF EAST SIDE OF BROADWAY SOUTH OF MAIN STREET A

VIEW OF FIRE HYDRANT TO BE RELOCATED FROM WEST SIDE OF BROADWAY TO EAST SIDE B

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

BROADWAY (US 9) & NEPERAN ROAD/MAIN STREET

PHOTOGRAPHS

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 2

SCALE: N.T.S.

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RECORD VIEW OF SOUTHBOUND BROADWAY ADJACENT TO WASHINGTON IRVING MIDDLE SCHOOL (MAY 2016) C

CURRENT VIEW OF SOUTHBOUND BROADWAY ADJACENT TO WASHINGTON IRVING MIDDLE SCHOOL (OCTOBER 2016) D

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

SOUTH BROADWAY (US 9) & FRANKLIN STREET

PHOTOGRAPHS

DATE: 11/11/2016 JMC PROJECT: 16177

FIGURE: 3 SCALE: N.T.S.

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CURRENT VIEW OF SOUTHBOUND BROADWAY ADJACENT TO WASHINGTON IRVING MIDDLE SCHOOL (OCTOBER 2016) E

VIEW OF EXISTING TREE AT NORTHWEST CORNER OF INTERSECTION F

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

SOUTH BROADWAY (US 9) & FRANKLIN STREET

PHOTOGRAPHS

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 4

SCALE: N.T.S.

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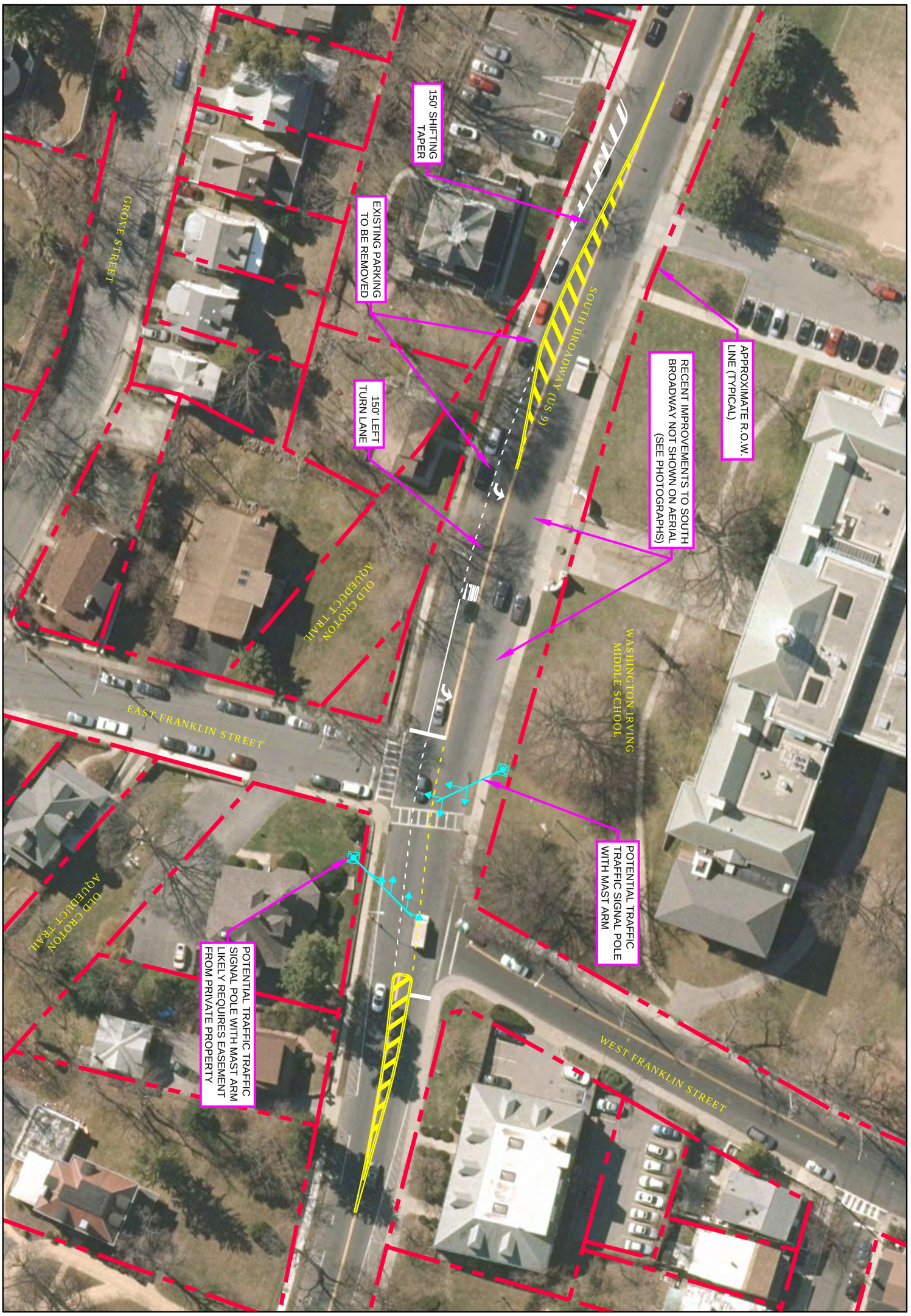

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

SOUTH BROADWAY (US 9) & FRANKLIN STREET

TRAFFIC SIGNAL POLE - ALTERNATIVE 1

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 5

SCALE: 1" = 50'

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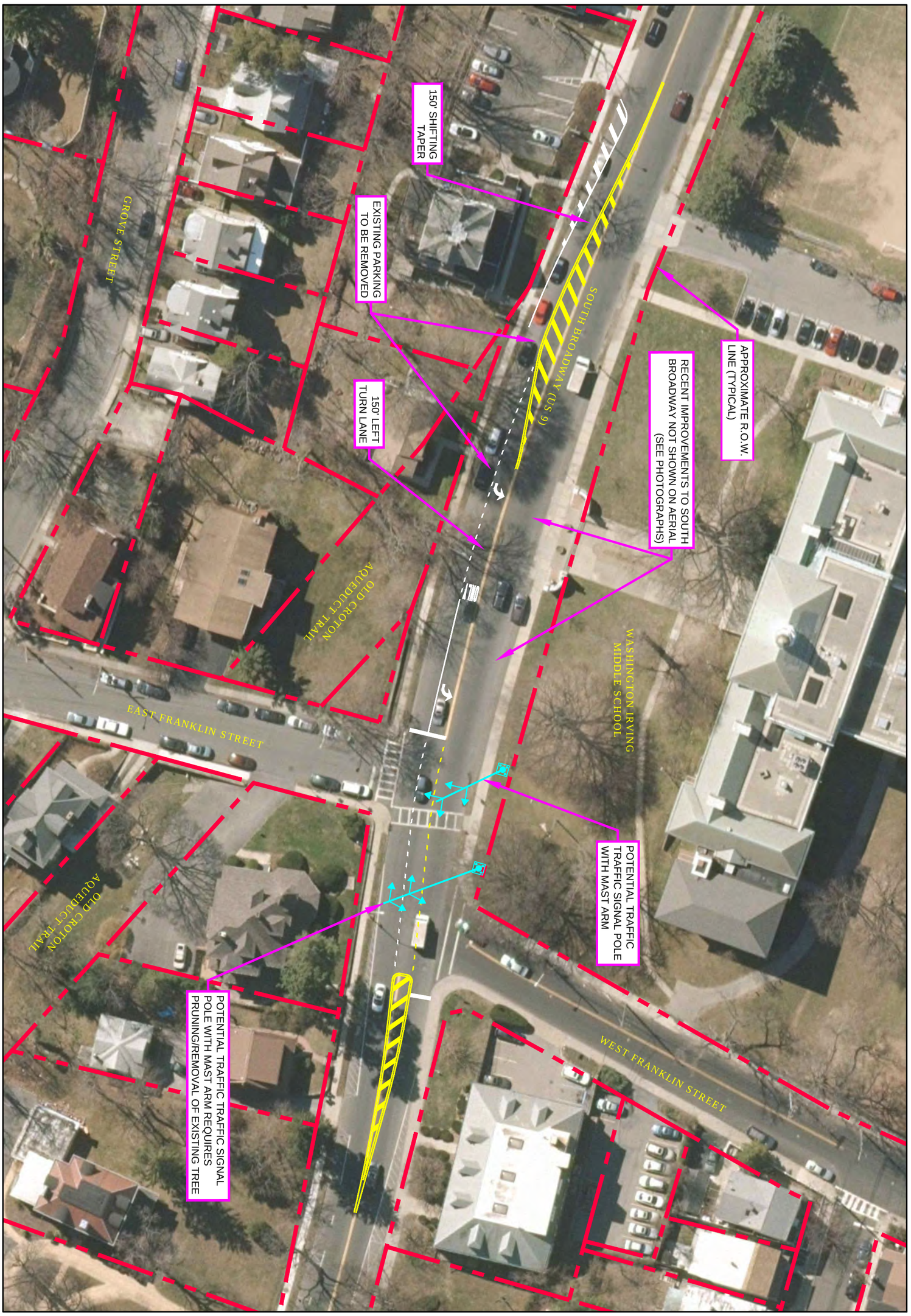

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

SOUTH BROADWAY (US 9) & FRANKLIN STREET

TRAFFIC SIGNAL POLE - ALTERNATIVE 2

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 6

SCALE: 1" = 50'

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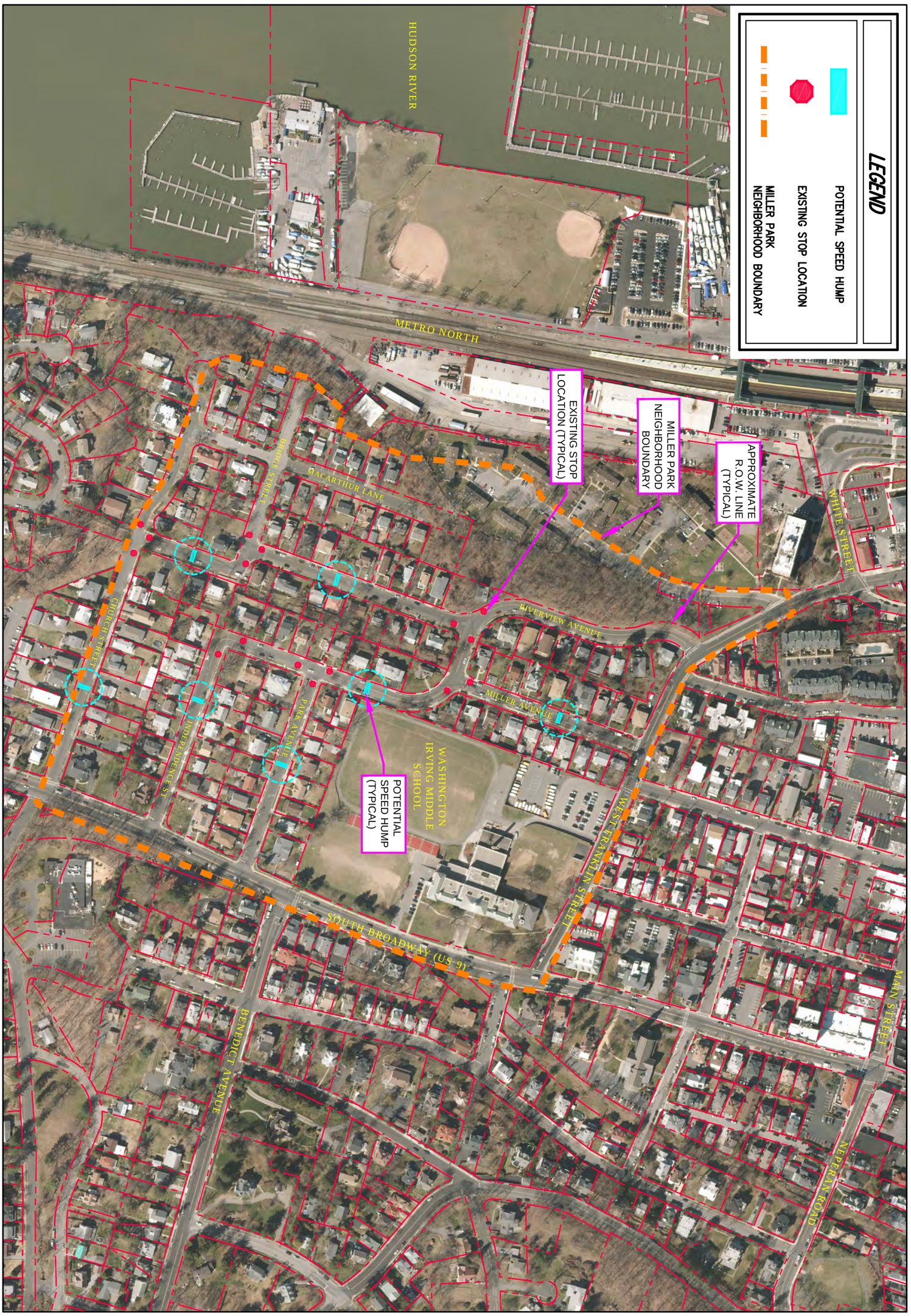

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

MILLER PARK NEIGHBORHOOD

DATE: 11/11/2016

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FIGURE: 7

SCALE: 1" = 250'

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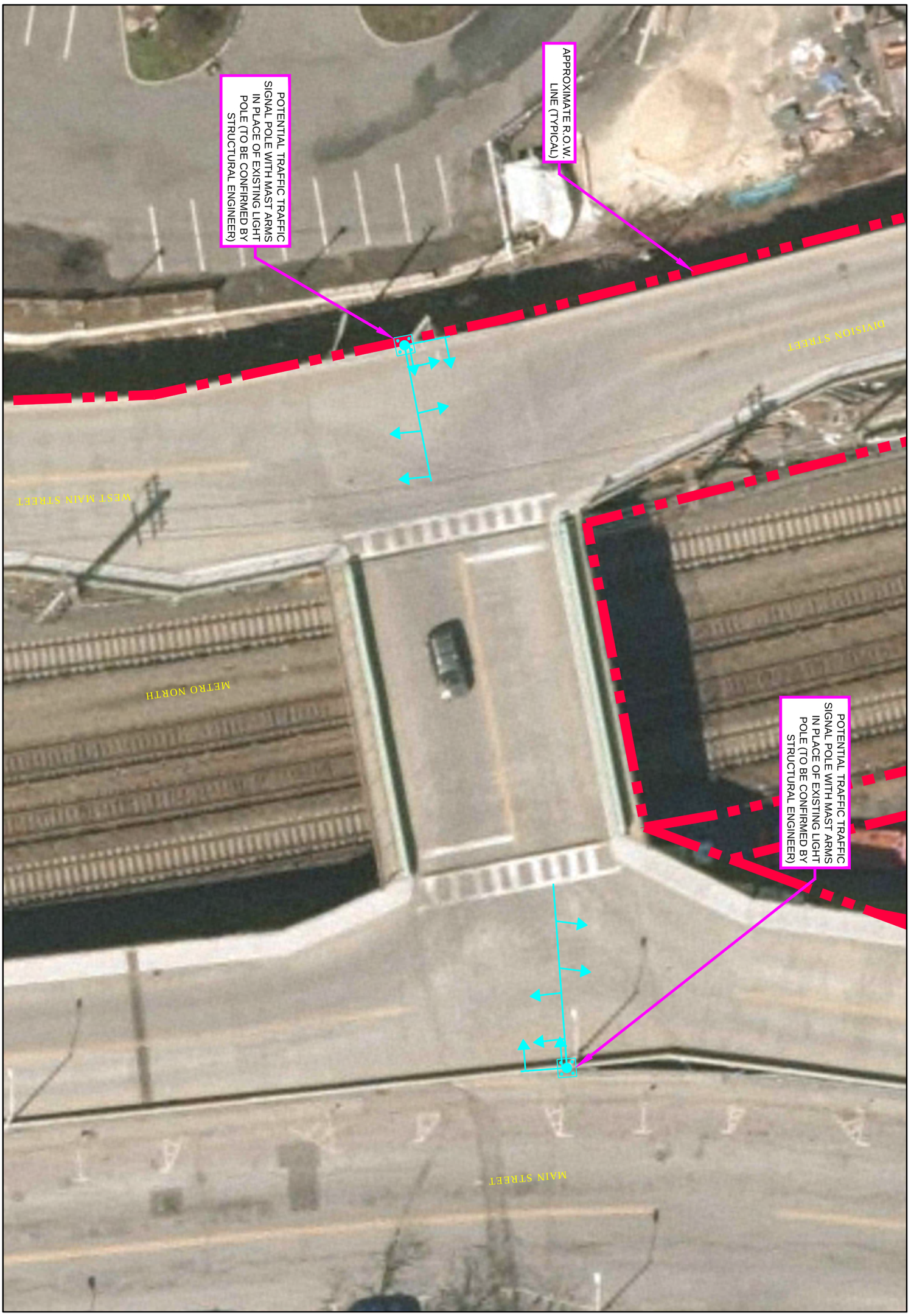

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

H-BRIDGE OVER METRO NORTH RAILROAD

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 8

SCALE: 1" = 20'

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16177-GIS-BASE.dwg; H-BRIDGE.tab; AERIAL.scr

VIEW OF EAST SIDE OF H-BRIDGE G

VIEW OF WEST SIDE OF H-BRIDGE H

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRRYTOWN, NEW YORK

TARRYTOWN TRAIN STATION H-BRIDGE

PHOTOGRAPHS

DATE: 11/11/2016 JMC PROJECT: 16177

FIGURE: 9 SCALE: N.T.S.

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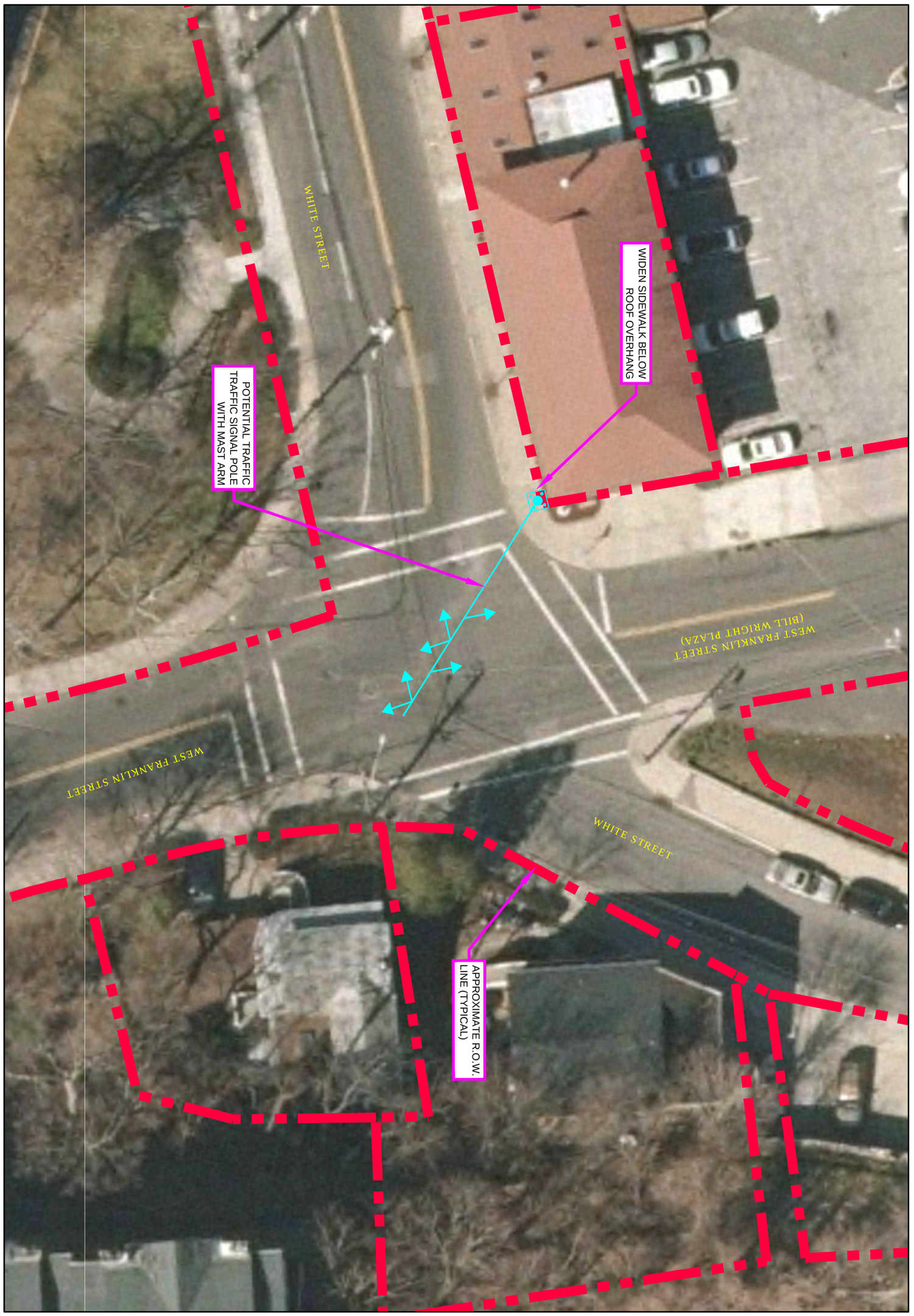

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

WEST FRANKLIN STREET & WHITE STREET

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 10

SCALE: 1" = 20'

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VIEW OF THE NORTHWEST CORNER LOOKING WEST I

VIEW OF THE NORTHWEST CORNER LOOKING EAST J

EVALUATION OF TRAFFIC MITIGATION CONCEPTS

VILLAGE OF TARRYTOWN, NEW YORK

WEST FRANKLIN STREET & WHITE STREET

PHOTOGRAPHS

DATE: 11/11/2016

JMC PROJECT: 16177

FIGURE: 11

SCALE: N.T.S.

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