

CONSULTANT NARRATIVES

TRAFFIC ASSESSMENT REPORT

APPX. A - **h**

MEMORANDUM

TO: Drummey Rosane Anderson, Inc.
FROM: Bryan Zimolka, PE, ENV SP
DATE: November 5, 2020
RE: Northeast Metropolitan Regional Vocational High School – Site Alternative Traffic Assessment
Nitsch Project #13872

Nitsch Engineering has prepared this memorandum to describe the current site-design alternative and the impacts to site circulation and roadway traffic conditions for proposed improvements to Northeast Metropolitan Regional Vocational High School in Wakefield, Massachusetts. We will discuss the existing conditions, the current site plan layout, traffic impacts, and mitigation recommendations.

Existing Conditions

The site includes the school building, parking lot, baseball and football field, and basketball court. It is bound by Water Street and residential properties to the north, Breakheart Reservation to the east and south, and Wakefield Memorial High School to the west.

Site access is provided via Hemlock Road, which is a two-way private roadway. Hemlock Road extends from Farm Lane, where it forms a three-legged unsignalized intersection, to the entrance to the Northeast Metropolitan Regional Vocational High School. The roadway also serves as a main access point to Wakefield Memorial High School.

Based on site observations, traffic volumes on Farm Street were approximately a 50-50 split for directional distribution; however, most of the site-generated traffic entered and exited Hemlock Road onto Farm Lane to and from the north. At the school entrance along Hemlock Road, we observed extensive queuing in the morning peak arrival period. Similarly, we observed extensive queuing along Hemlock Road approaching Farm Lane during the afternoon peak dismissal period.

Site Design Alternative

The current site plan provides four parking lots for students, faculty, and visitors, as well as a new driveway (“South Driveway”) that connects to Farm Street. Sketch SK-001 shows the current site plan along with comments to increase site-circulation efficiency, reduce conflict points, and install a traffic signal at the intersection of Farm Street and the South Driveway. Sketch SK-002 shows the proposed Farm Street/South Driveway intersection with a conceptual sketch of the traffic signal layout.

We recommend making the circulation in the parking lots one-way and restricting all left turns exiting the school, south of Hemlock Road, to force most traffic to exit via the South Driveway, thereby limiting queuing on Hemlock Road.

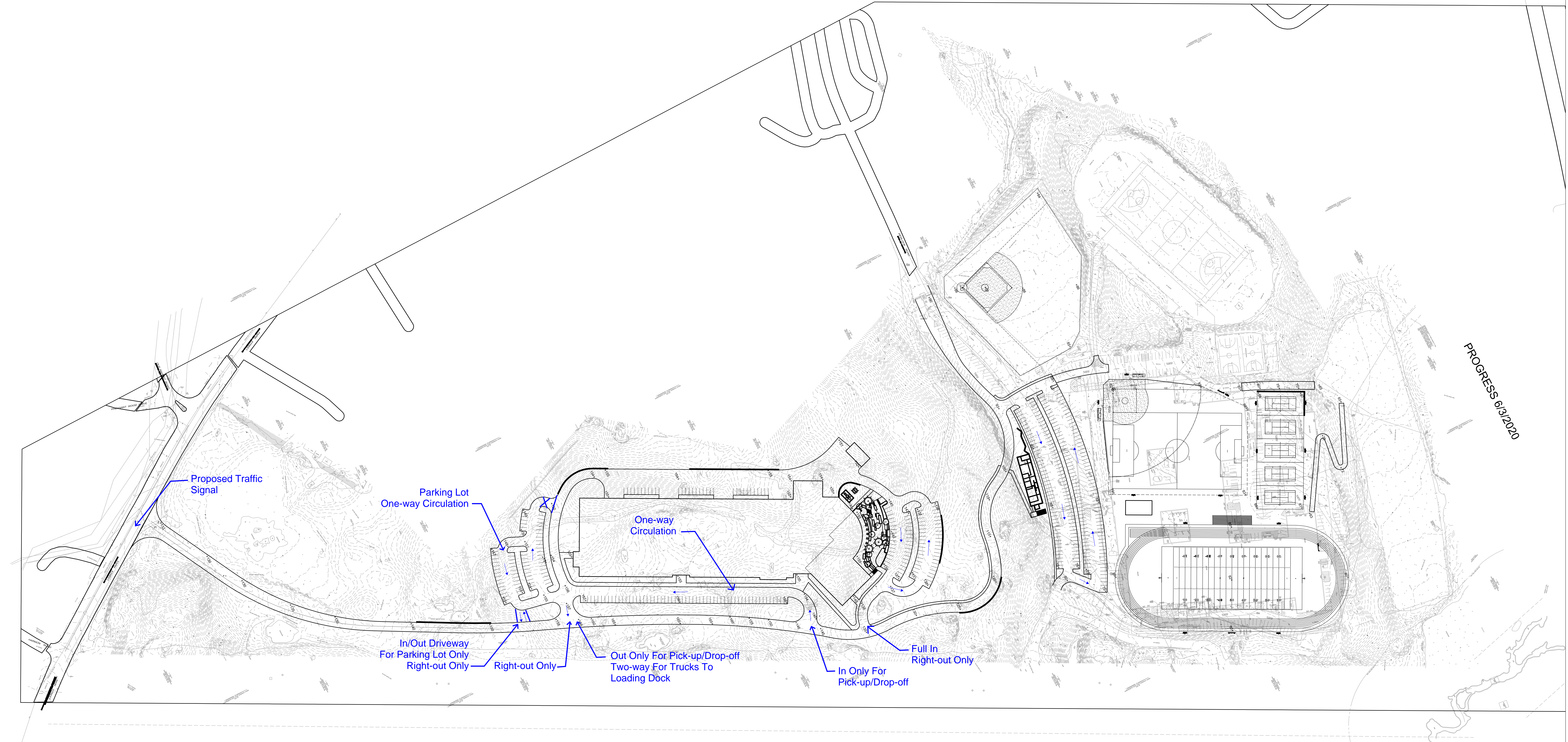
Farm Street and South Driveway Traffic Signal

The goal of adding a driveway along Farm Street is to limit school traffic use of Hemlock Road. By restricting exiting maneuvers and forcing most vehicles to exit via the South Driveway, most traffic can be separated from Wakefield High School traffic that solely uses Hemlock Road. We expect that this configuration would divert approximately 75% of site-generated traffic to the South Driveway.

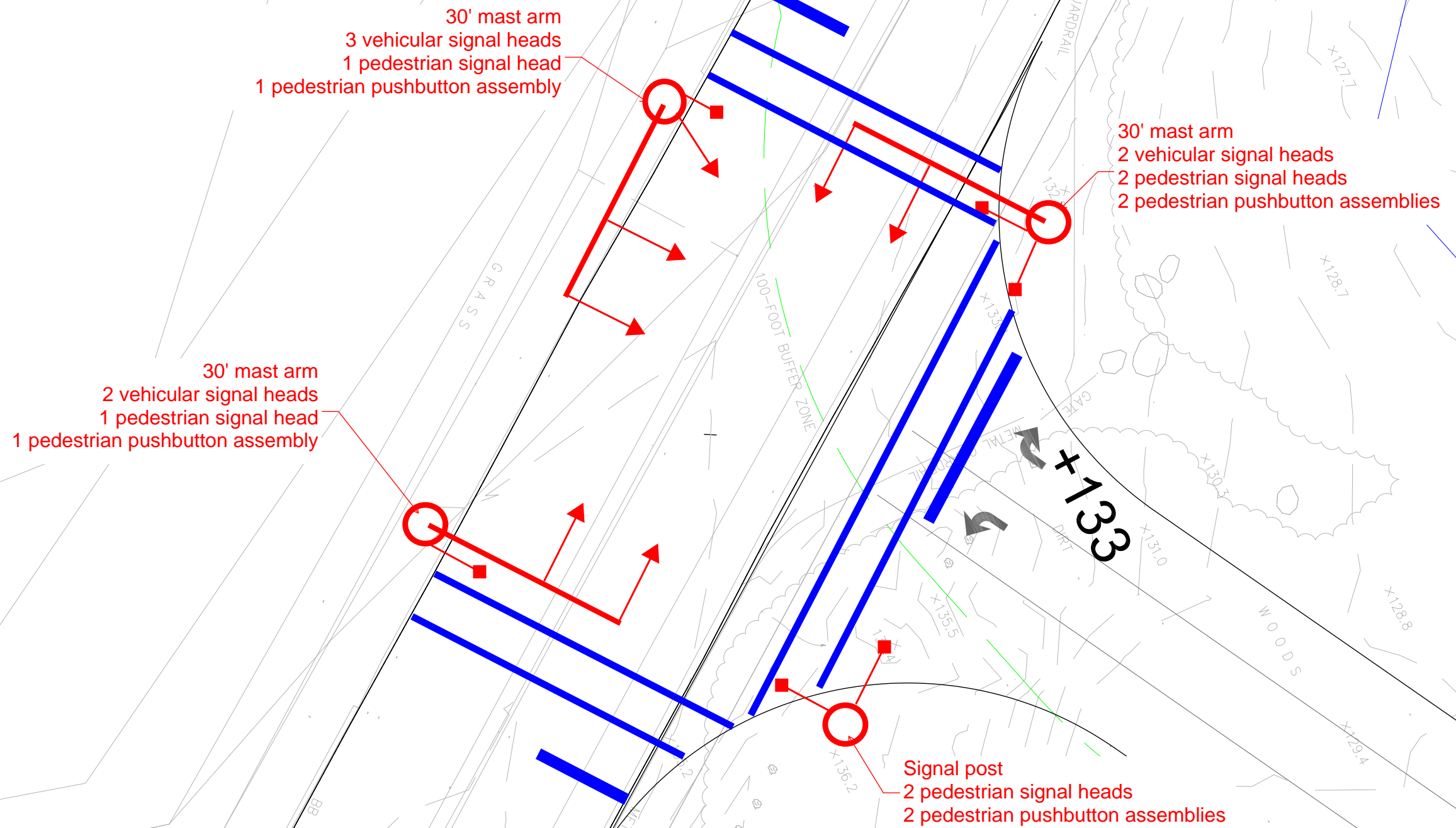
Given the heavy volumes observed during the school arrival and dismissal periods, a traffic signal most likely would be warranted at the South Driveway. Sketch SK-002 shows three signal mast arm signal posts with additional pedestrian signal heads for safe pedestrian crossings. The intersection modifications would include the following:

- Installing three 30-foot mast arm traffic signal posts;
- Installing one pedestrian signal post;
- Installing a minimum of two vehicular traffic signal heads for each approach;
- Installing pedestrian signal heads for each crossing;
- Installing ADA-compliant pushbutton assemblies for each crosswalk;
- Installing new pavement markings, including stop bars and crosswalks; and
- Installing vehicle detection for traffic signal actuation.

A full Traffic Impact Study will determine if intersection geometry modifications will be necessary to increase lane capacity along Farm Street. The Traffic Impact Study will include traffic volume data collection, crash data collection, a capacity analysis at the Farm Street intersections with Hemlock Road and the South Driveway, and a traffic signal warrant analysis at the South Driveway. The intersection and traffic signal design will have to meet current Massachusetts Department of Transportation (MassDOT) design standards.



November 5, 2020



Scale 1'=20'