



Sustainable Transportation ▪ Planning ▪ Engineering Solutions, LLC

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July 17, 2019

Farhang Mojgani, P.E.
CIVILAND, LLC
P.O. Box 650206
Sterling, Va. 20165

Dear Mr. Mojgani,

This Access Management report is prepared for the Red Apple Pediatric Site Plan # 19152735 located at 1003 Garrisonville Road (Route 610) in Stafford County, Virginia. The site is proposed for 6,224 square feet of medical office. STS Consulting, MCV Associates (WZTC prepared by Reju Vijaya Radhakrishnan who successfully completed the WZTC certification expiring in 04/30/2023) and Civiland have cooperatively prepared this report. The followings are included in this report:

1. Turn lane warrant analysis
2. Minimum spacing standards for commercial Entrances and intersections
3. Work Zone Traffic Control Plan

1. Turn lane warrant analysis

Vehicle trip generation analysis was conducted using the ITE Trip Generation Report (10th edition) for Land Use code 720 (Medical-Dental Office). The AM/PM peak hour inbound traffic was estimated at 15 and 6 vehicles, respectively.

ITE Code	Land Use	Size (Sq.ft.)	AM Peak Hour				PM Peak Hour				Weekday	
			Average Rate	Equation	IN (%)	OUT (%)	Average Rate	Equation	IN (%)	OUT (%)	Equation	Average Rate
720	Medical-Dental Office	6224	2.78	$0.89Ln(X) + 1.3$	0.78	0.22	3.46	$3.39(X) + 2.02$	0.28	0.72	$38.42(X) - 87.62$	34.8

ITE Code	Land Use	Size (Sq.ft.)	AM Peak Hour			PM Peak Hour			Daily
			IN (Trips)	OUT (Trips)	TOTAL (Trips)	IN (Trips)	OUT (Trips)	TOTAL (Trips)	
720	Medical-Dental Office	6224	15	4	19	6	17	23	152

ADT	16,000
K-Factor	0.092
D-Factor	0.622
PHV	916

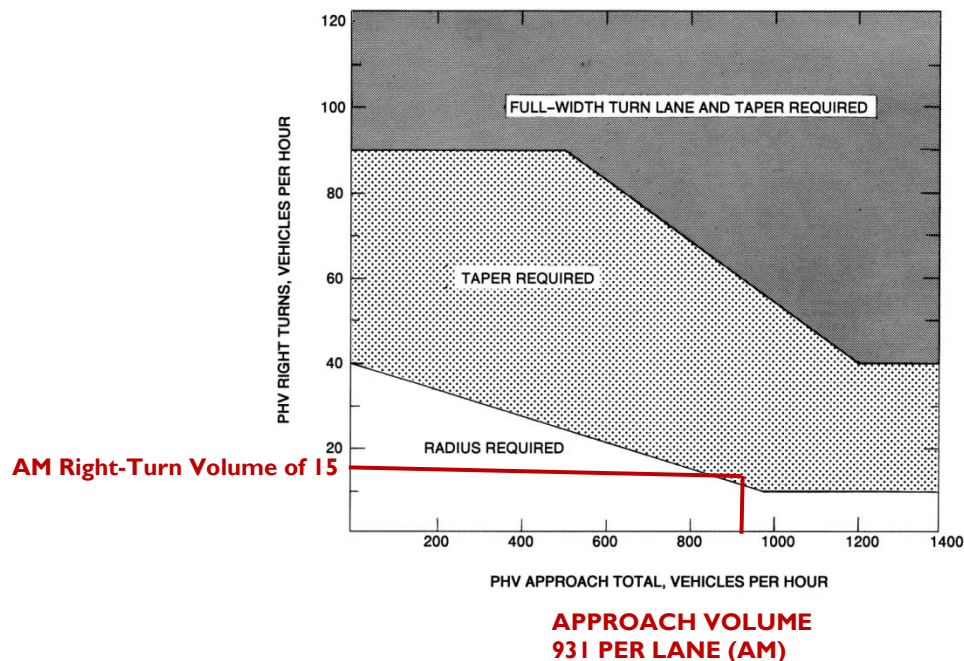
Intersection Volume	AM	PM
Right Turn Volume	15	6
Total Approach Volume	931	922

ADT data along with the K and D factors were taken from VDOT's traffic data for the year 2018. The posted speed limit on Garrisonville Road is 45 mph. Figure 3-27 Warrants for Right Turn Treatment in VDOT's Design Manual for a 4-lane highway was utilized to determine the need for right turn treatment.

As shown in the chart (Below), the AM peak hour volumes require a right turn taper.

The applicant is unable to provide a taper due to lack of sufficient frontage along Garrisonville Road (Route 610). Additionally, other limitation to provide a taper is due to the location of Deshields Lane adjacent to the left of the property frontage, making it impossible to provide standard right turn taper

Acceleration lane is not required since the design speed is less than 50 mph and WB 67 vehicles will not be entering the roadway from the site.



Appropriate Radius required at all intersection and Entrances (Commercial or Private

LEGEND

PHV - - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turn

If PHV is not known use formula – $ADT \times K \times D$

K = the percent of AADT occurring in the peak hour

D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice

When right turn facilities are warranted, see Figure 3-1 for design criteria

FIGURE 3-27 WARRANTS FOR RIGHT RUN TREATMENT (4-LANE HIGHWAY)

2. Minimum Spacing Standards for Commercial Entrances and Intersections

The site access location spacing requirements was analyzed according to VDOT's "Access Management Design Standard for Entrances and Intersections, Appendix F, Table 2," where it indicates that for a "legal speed of 35-45 miles per hour on a Collector Road, the spacing between a partial access to any other entrances or signalized intersections must be a minimum of 250 feet. The proposed site access on Garrisonville Road (Route 610) is approximately 50 feet from Deshields Lane and 295 feet from Seneca Lane.

Accordingly, the site access is not meeting the minimum spacing requirements to Deshields Lane.

Applicant is unable to provide sufficient spacing between the site access and the adjacent intersections due to limited property frontage. Table 3 below shows VDOT standards.

Table 3. Minimum Spacing Standards for Commercial Entrances, Intersections, and Median Crossovers

Highway Functional Classification	Legal Speed Limit (mph) ²	Minimum Centerline to Centerline Spacing (distance) in Feet			
		Spacing from Signalized Intersections to Other Signalized Intersections	Spacing from Unsignalized Intersections & Full Median Crossovers to Signalized or Unsignalized Intersections & Full Median Crossovers	Spacing from Full Access Entrances & Directional Median to Other Full Access Entrances and Any Intersection or Median Crossover ³	Spacing from partial Access One or Two Way Entrances to Any Type of Entrance, Intersection or Median Crossover
Principal Arterial	≤ 30 mph	1,050	880	440	250
	35 to 45 mph	1,320	1,050	565	305
	≥ 50 mph	2,640	1,320	750	495
Minor Arterial	≤ 30 mph	880	660	355	200
	35 to 45 mph	1,050	660	470	250
	≥ 50 mph	1,320	1,050	555	425
Collector	≤ 30 mph	660	440	225	200
	35 to 45 mph	660	440	335	250
	≥ 50 mph	1,050	660	445	360
Local Street	Commercial entrance spacing: See Figure 4-11				

Appendix F TABLE 2-2 MINIMUM SPACING STANDARDS FOR COMMERCIAL ENTRANCES, INTERSECTIONS AND MEDIAN CROSSEVERS

3. Work Zone Traffic Control Plan

- The work zone of the contract is along Route 610 (Garrisonville Rd) at point 0.077 miles east of Furnace Rd and at point 0.091 mile west of Soaring Eagle Drive. This is a Type "A" Traffic Management Plan. Offsite detours are not needed.
- Unless otherwise approved or directed by the Engineer (VDOT), the Contractor shall plan and prosecute the work in accordance with the following:
 - Generally, construction activities will be conducted while highway travel is temporarily limited. Notification shall be in accordance with the VDOT permit.

- b. It is anticipated that the following 2011 Virginia Work Area Protection Manual Revision 1 typical traffic control applications will be used to perform the contract work: TTC-16.1 During periods that operations are performed under traffic, the speed limit shall be, as posted. In addition, "ROAD WORK AHEAD" signs shall be placed in advance of the work zone.
 - c. The contractor shall submit maintenance of traffic schedule, including all proposed lane and shoulder closures, at least two weeks prior the actual closures are to begin for review and approval.
 - d. The contractor shall submit the final plan of all proposed lane and shoulder closures by close of business Wednesday for work in the following week requiring the lane or shoulder closures in order for the Department to notify the general public, appropriate public entities, Traffic Management Center, and the District Traffic Engineer.
 - e. An onsite review of the project's work zone traffic control by the project management team, District Traffic Engineer and contractor shall be conducted within 24 hours of any fatal incident/crash within the work zone.
 - f. Periodic work zone reviews shall be conducted jointly by the project management team, District Traffic Engineer and contractor.
 - g. All traffic control devices and signs necessary for the maintenance of traffic are to be supplied, installed, maintained and removed by the contractor.
 - h. All traffic control device locations shall be marked by the Contractor and reviewed by the Engineer prior to installation.
 - i. Construction signs shall be fabricated and installed in accordance with the Manual of Uniform Traffic Control Devices 2009 Edition, Standard Highway Sign Manual 2011 Edition, Virginia Work Area Protection Manual 2011 Edition Revision 1, 2016 Road and Bridge Standards and the 2016 Road and Bridge Specifications.
 - j. All signs will be either removed from the roadway when not needed or covered per section 6F.04 of the Virginia Work Area Protection Manual, 2011 Edition Revision 1.
 - k. Some sketches and drawings are not to scale and shall be used for reference only.
 - l. Traffic consists of Residents, commuters, and delivery trucks. (Residents, commuters, delivery trucks, school busses, etc)
 - m. Sidewalk closures shall be in accordance with TTC-35.0 and TTC-36.1, if applicable.
3. Group 2 channelizing devices are to be placed as directed by the Va. WAPM, page A-7.
 4. Work activity in the roadway will be allowed from 10:00am and 03:00pm Monday thru Friday. For alternate work hours the contractor must submit in writing the proposed alternate hours to the Fredericksburg District Permit Office for review and approval. Holiday restrictions outlined in the 2007 Road and Bridge Specifications Section 108.02.
 5. Lane closures will be permitted.

6. Temporary lane widths are not to be less than the existing lane width (desirable 11' minimum) without concurrence of the Regional Traffic Engineer.
7. No objects, equipment, or stored materials may interfere with sight distance of entrances and intersections.
8. Portable changeable message signs shall be placed per the Virginia Work Area Protection Manual or as directed by the Engineer.
9. VDOT will not assist contractor in securing staging area for equipment and materials within the State R/W.
10. Contractor shall maintain access to private entrances during operations.
11. The contractor needs to contact Central Region Operations Traffic Signals at (855)475-2335 for a mark out of the traffic signal equipment a minimal of 72 hours prior to work beginning when working within 1,000 feet of a traffic signal.
12. All areas excavated below existing pavement surfaces at the conclusion of each workday shall be backfilled to form a 4:1 wedge against pavement surface for the safety and protection of vehicular traffic.
13. The contractor shall provide temporary drainage as required to prevent ponding of water on the roadway and adjacent properties at no cost to VDOT.
14. Contractor shall protect any existing guardrail and supports within construction area from damage. Any guardrail or supports damaged during construction operations shall be repaired or replaced to pre-construction conditions by the contractor.
15. Maintenance of traffic shall be done in accordance with the Virginia Work Area Protection Manual dated 2011 Revision 1 and the 2009 Edition of the Manual of Uniform Traffic Control Devices.
16. All coordination for maintenance of traffic shall be performed by the Fredericksburg District Land Use Permits Office. The contact numbers are:

David Beale, PE, VDOT (Fredericksburg Residency Land Use Engineer) 540-654-1973 VDOT Permit Inspector:

540-374-3398 Tracey White (Spotsylvania) 540-907-8641 Kim Gordon (South Stafford) 540-654-1612 John Pataky (North Stafford) 540-907-5107 Jason Brook (Caroline)

17. This Traffic Management Plan was prepared by Reju Vijaya Radhakrishnan who successfully completed the WZTC in 04/30/2023

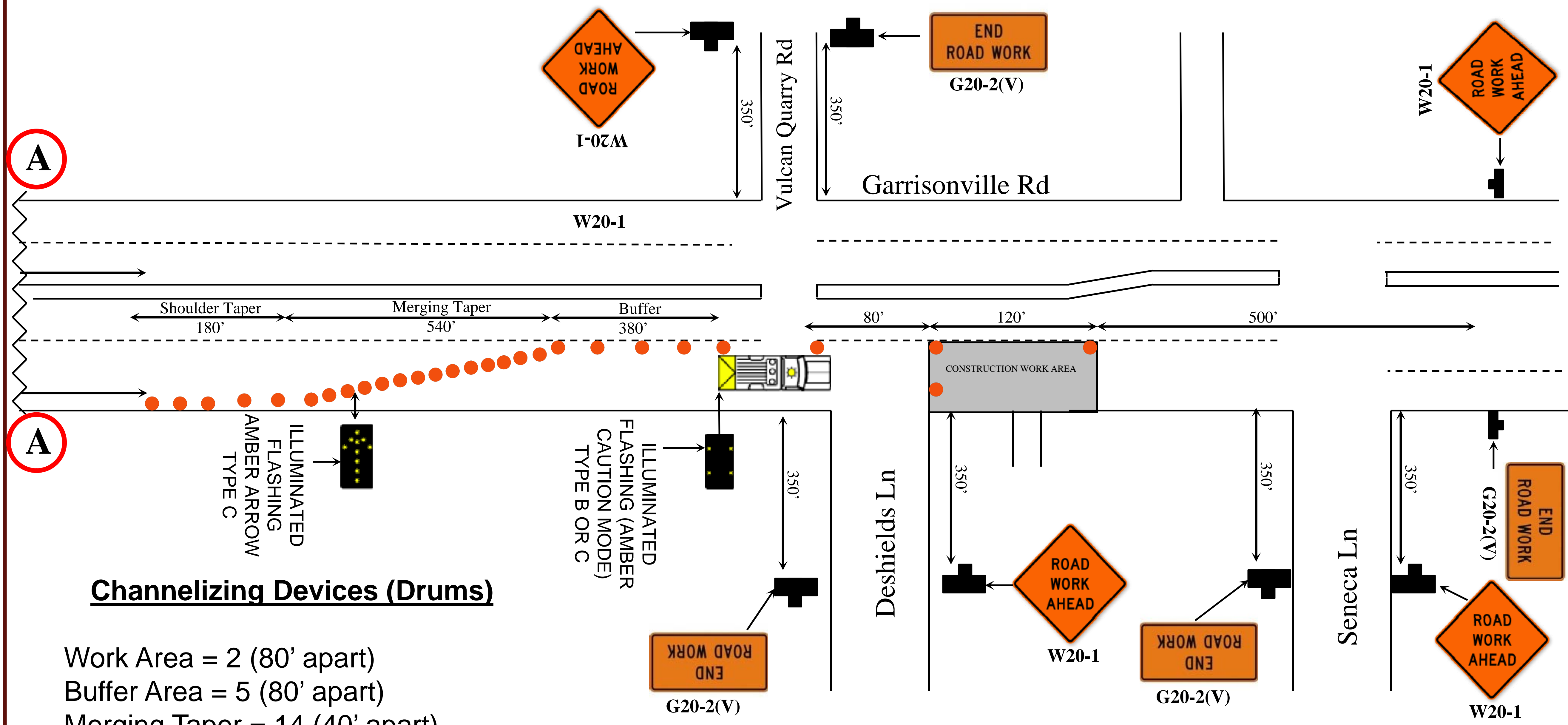
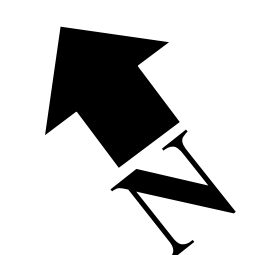
PUBLIC COMMUNICATIONS PLAN

Notification of construction start/end dates and work zone information will be entered into the VA. Traffic system.

Transportation Operations Plan

1. The process to notify the Regional Traffic Operation Center to place lane closure information on the 511 system and Va. Traffic will be:

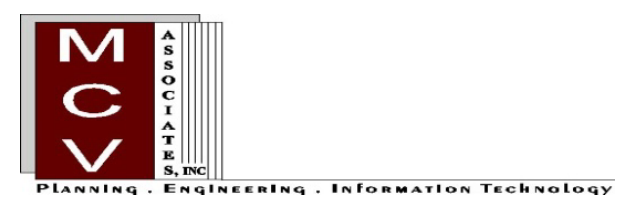
- a. Contractor is to advise the VDOT project inspector and/or Construction Manager of planned lane closures a minimum of 24 hours in advance of proposed lane closure.
 - b. Construction Manager is to advise the Residency Maintenance Manager of proposed lane/road closure. RMA is to have (VA. Traffic) operator enter data into (VA. Traffic) and also advise TOC.
2. The following is a list of Local Emergency contact agencies:
 - a. Virginia State Police—800-572-2260
 - b. Haz-Mat Center (If Spill Involved) 911
3. Procedures to respond to Traffic Incidents that may occur in the work zone:
 - a. Contractor to notify Virginia State Police and VDOT inspector in charge and Regional Traffic Operation Center.
 - b. Depending upon severity of incident, contractor may have to shut down work.
 - c. Upon arrival on scene, Virginia State Police will determine response necessary to allow traveling public around incident.
 - d. Inspector to notify Construction Manager/Residency Administrator of incident and take pictures as necessary, especially pictures of contractor's work zone to verify the proper setup.
4. Process of notification of incident to followed is: Contractor to call:
 - a. Regional Traffic Operations Center: Shift Supervisor District Work Zone safety coordinator: Jeffrey Stone 540-899-4547 or 540-226-7107
 - b. District Traffic Engineer Peter Hedrich 540-899-4540
 - c. Stafford County Sheriff's Office 540-658-4400
5. The Virginia State Police report of the incident will be reviewed by the Residency Administrator to determine if any modification of the Temporary Control Plan is necessary. If it is necessary to alter the plan, then a meeting will be called with the contractor, VDOT personnel, VDOT safety representatives and the Virginia State Police (If Necessary) to discuss modification and implementation of an approved Traffic Control Plan.

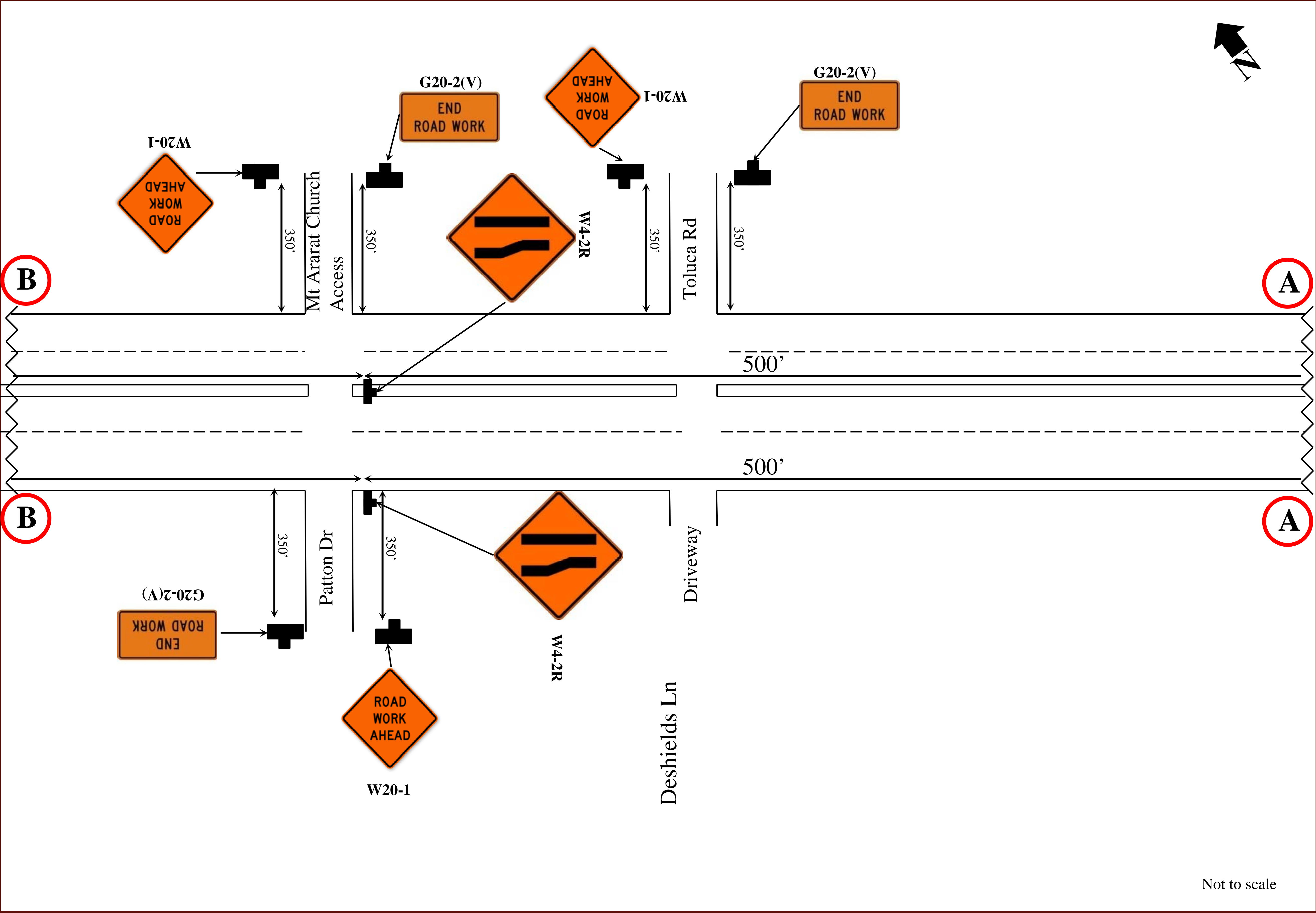
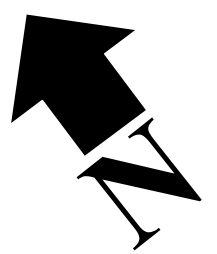


Advance Warning Sign Spacing

500 feet

Not to scale





Not to scale



