Sanhita Lahiri, P.E., PTOE
Central Office Traffic Engineering Division
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Read before using the VDOT Junction Screening Tool (VJuST)

1) Before starting to use VJuST, make sure it is the latest version. The latest version can be downloaded at: http://www.virginiadot.org/innovativeintersections. For Technical Support or Help, email vjustsupport@vdot.virginia.gov.

2) VJuST is most stable when used from the hard drive (e.g. C: drive).

3) When opening VJuST for the first time after downloading, you may see the following warning - "This file originated from an Internet location and might be unsafe." Please proceed to open the file by clicking on the "Enable Editing" button.

4) VJuST contains macros, therefore once you open it, you will need to enable macros by clicking on the "Enable Content" button.

5) After enabling macros, view the disclaimer and confirm that you have obtained the most up-to-date version of VJuST. Acknowledge the disclaimer by selecting "Yes" from the drop-down list.

6) VJuST is best viewed at 100% zoom level.

7) Please review the instructions thoroughly in the "Instructions" worksheet before using the tool.

PLEASE NOTE:
** If you do not acknowledge "Yes" in the "Disclaimer & Acknowledgments" worksheet, you will **not** be able to use the tool.

Technical Notes for VJuST:
1) There are three metrics to narrow down design options (i) Congestion, (ii) Safety, and (iii) Pedestrian Accommodation.

i) Congestion - It is the only metric that is user defined. It is based on FHWA CAP-X tool. The Critical Lane Volume methodology is used to evaluate congestion for all the designs, except Roundabouts and Two-Way Stop Control.

ii) Safety - It uses conflict points as surrogate for crashes. Conflict diagrams are based on FHWA Alternative Intersections/Interchanges: Informational Report (AIIR) Publication Number: FHWA-HRT-09-060, Date: April 2009.

Note: The average crash cost per conflict type was based on 2011-2015 crashes in Virginia and the crash cost by severity, which was obtained from the *Highway Safety Manual 1st Edition.*

iii) Pedestrian Accommodation – It reflects the potential to accommodate pedestrians by taking into consideration relative impact of safety, wayfinding and delay. It is a qualitative metric not dependent on vehicular volumes, pedestrian volumes, or number of lanes and is relative to conventional intersection or traditional diamond interchange.

PLEASE NOTE:
** VJuST is a sketch level screening tool that is intended to narrow down design options based on congestion, safety, and pedestrian accommodation. In order to make traffic operations decisions, the narrowed options must be analyzed using appropriate analysis tool(s) from the VDOT Traffic Operations and Safety Analysis Manual (TOSAM).

** VJuST Versions 1.0-1.1 do not consider costs (e.g., construction, life cycle) or right of way. Informed decisions must be made by considering these factors.

Revisions:
Any changes made to VJuST in the future will be logged in this section.

Version 1.01 – December 1, 2017
- Updated cell references for the number of through lanes on the Partial Displaced Left Turn worksheet

Version 1.02 – June 1, 2018
- Added restrictions for the number of lanes on the major or minor streets for two-way stop controlled intersections based on the methodology in the *Highway Capacity Manual, 6th Edition*
- Updated calculations for two-way stop controlled intersections to match the methodology in the *Highway Capacity Manual, 6th Edition*. Calculations were changed to be based on vehicles per hour instead of passenger cars per hour
- Added functionality to consider signalized and unsignalized zones at Restricted Crossing U-Turns, Median U-Turns, Partial Median U-Turns, and Quadrant Roadways. Added assumptions to the respective lane configuration worksheets to state that CLV calculations for signalized zones are based on vehicles per hour while calculations for unsignalized zones are based on passenger cars per hour
- Updated calculations for the Roundabout, Single Roundabout, Double Roundabout, and Bowtie configurations to match the methodology in the *Highway Capacity Manual, 6th Edition*
- Updated assumptions for the mini roundabout configurations to reference the article *Determination of Mini-Roundabout Capacity in the United States*

Version 1.03 – December 4, 2019
- Updated cell references for volumes on the Roundabout and Single Roundabout worksheets
- Updated calculations for unsignalized zones for all Quadrant Roadway worksheets

Version 1.1 – January 25, 2021
- Added Thru-Cut as a possible configuration