

# ODOT SPEED & CAPACITY CALCULATORS + NETWORK SUPPORT TOOLS

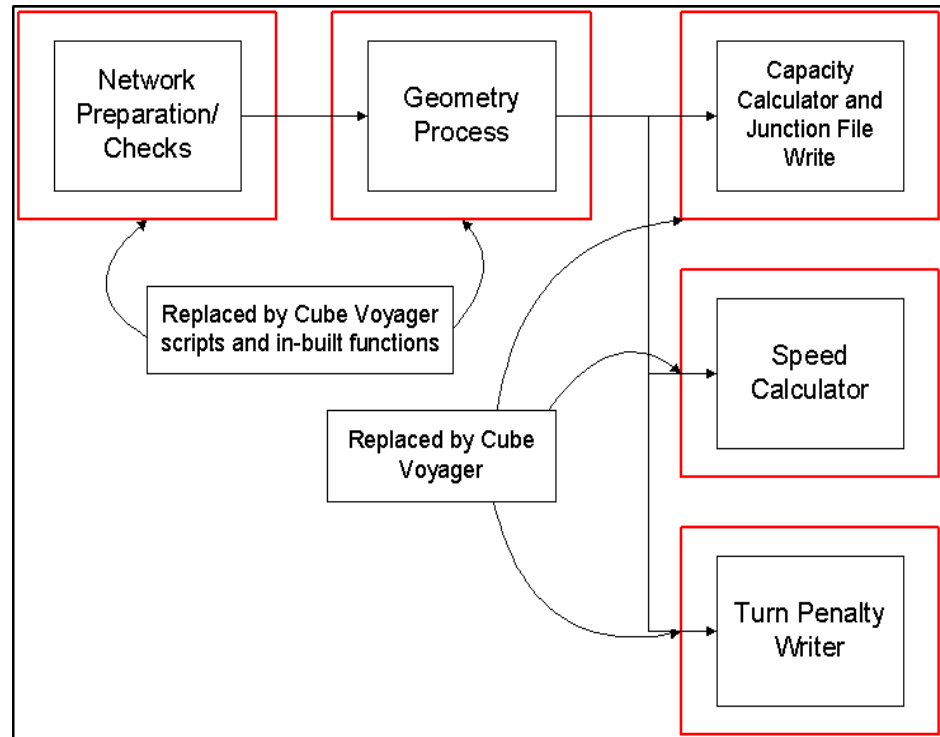
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MARCH 3<sup>RD</sup>, 2016



# PROJECT MOTIVATION AND VALUE

- Create easily customizable network tools: move from FORTRAN to customized Cube Voyager applications
- Enhance existing methodologies with new HCM 2010 and other studies undertaken by ODOT



# ODOT CAPACITY CALCULATOR

**Computes capacities for all roadway types using HCM 2010**

- **Freeways:**
  - Uses modified equations for basic freeway segment capacity calculations
  - Inclusion of freeway weaving analysis and corresponding reduction factors
  - Inclusion of total ramp density
- **Non-Freeways:**
  - Uses modified equations for multi-lane and two lane highways
  - Uses enhanced capacity values for two-way stop, four-way stop and roundabouts
  - Considers number of lanes, facility type, area-type, left/through/right lanes, parking lanes, and intersection control type
  - Uses cross-street attributes

# ODOT SPEED CALCULATOR

Computes speeds for all roadway types using HCM 2010

- Calculates two speeds: with and without intersection delay
- Calculates base speeds using link and cross street attributes based on ODOT floating car studies
- Incorporates free flow speed adjustments from Chapter 17 of HCM 2010 that uses the area-type, distance between two consecutive signals (*from geometry step*), and two-way-left-turn lane coding to incorporate mid-block delay

# ODOT NETWORK SUPPORT TOOLS

- **Roadway Network Quality Control**
  - conduct data consistency and completeness checks
  - write a network diagnostic summary file for the users' reference
- **Intersection Geometry Calculator**
  - Adds down-stream intersection information to link for use in subsequent capacity and speed calculations
    - intersection control type and characteristics
    - identify the merging/diverging points for freeway merging / weaving analysis using HCM
    - types of movements
    - distances between movement nodes
- **Turn Penalty File Writer**
  - Writes turn penalty files in Cube format using geometry information
  - Incorporates user-specified penalty values. Can also apply turn penalties to through and right turn movements
- **Junction File Writer**
  - Writes Cube junction file by time period for controlled intersections based on adjoining link information
  - Outputs two-way stops, four-way stops, roundabout junctions in HCM 2010 format and methodology
  - Introduction of new signal phases
    - split phasing based on link attributes
    - forced left-turn phases or prohibition of left-turn phases



# THANK YOU

## Any Questions?

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