

Traffic Simulation / Modeling Presentation

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Purpose of Traffic Simulation / Modeling

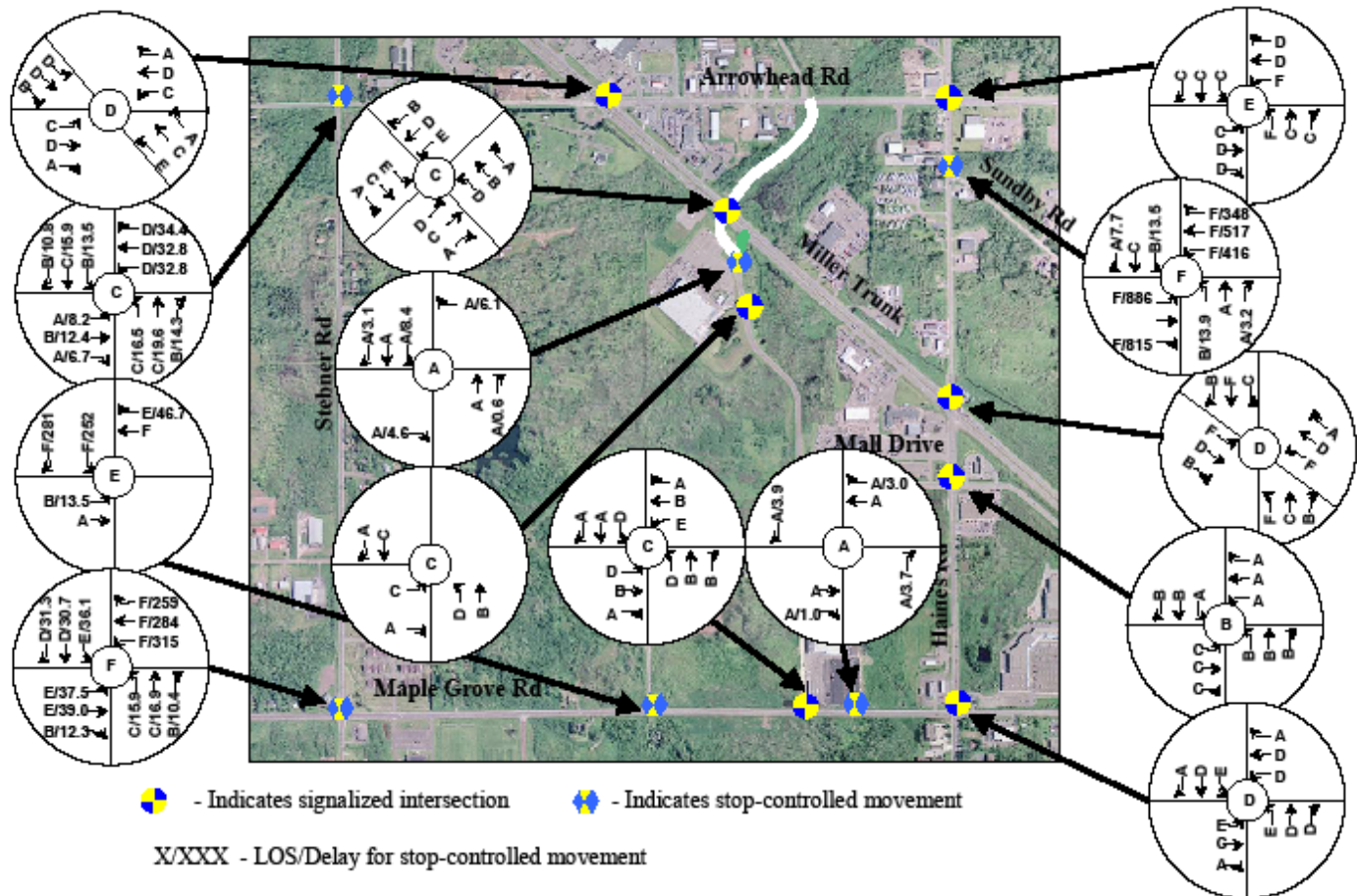
- **Provide accurate assessment of existing conditions**
- **Tool to simulate traffic conditions**
 - **Current (or “existing”) conditions**
 - Gives background traffic levels and helps provide insight into existing issues, if any
 - Calibrate model
 - Basis for growth
 - **Future years**
 - Major interim stages plus full build out
 - Staging of development and associated transportation changes
 - Assess improvements scenarios

- **Inputs**
 - Intersection geometrics
 - Traffic volume and signal timings/phasing
- **Evaluation**
 - Perform capacity analysis for signalized and unsignalized intersections
 - Develop and test optimum signal timing plans that reduce delays and congestion
 - Test physical mitigation measures
- **SimTraffic (a microsimulation software)**
 - Evaluate intersection operations for "isolated" and "network-wide" intersection operations

Measures of Effectiveness

- **Intersection Operational Level of Service**
- **Turn Movements Level of Service**
- **Average Travel Time**
- **Average Travel Speed**
- **Queue Lengths**

Example: Hermantown Section 13 Build Conditions



Hermantown Section 13
Traffic Impact Study



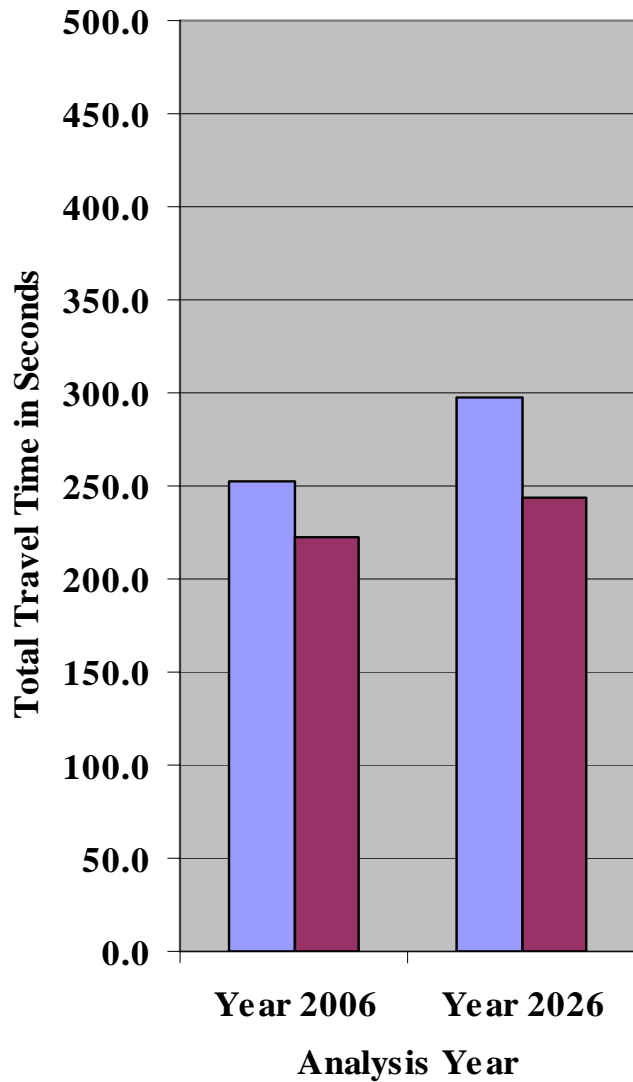
No Scale

Figure 9. Year 2015 Build Condition
PM Peak Hour LOS



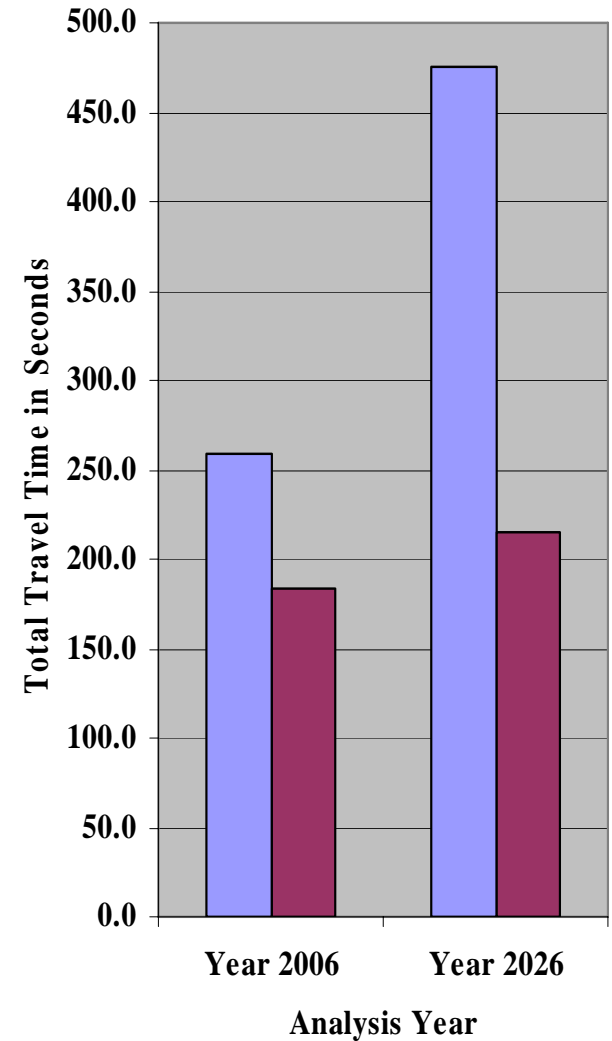
Example: Corridor Travel Time – Future Year

Southbound



■ No-Build
■ Preferred Alternative

Northbound



Example: Hermantown Section 13 SYNCHRO/SIMTRAFFIC 2D



Created using Wink

Example: 3D Simulation Example



Example: 3D Simulation Example



Traffic Calming Impacts on Land Use

- **Perception that traffic calming has negative impacts on commercial activity, some anecdotal evidence**
- **Studies both ways: largely dependent on site and implementation**
- **Arguments against tend to relate to reducing pass-by traffic and therefore potential customers**

“Traffic calming attempts to make cars more compatible with bicycles, pedestrians and other vehicles, and it works to make streets nicer places to live—without restricting access”
San Francisco Traffic Calming Program

Traffic Calming Impacts on Land Use

General arguments in favor of traffic calming in commercial area tend to be:

- More attractive environments, makes area a destination
- Reduces auto speed, may induce pass-by traffic to stop
- Increases safety for pedestrians, bicyclists, drivers, and other users of the street, increasing attractiveness to those users and therefore potential customers
- On-street parking can have traffic calming impact, opportunity to reconfigure on- and off-street parking
- Two-way streets slow down traffic, but increase accessibility and pass-by traffic over one-way traffic
- Can improve site access, reduce intersection delay so customers don't have to worry about running out of "blinker fluid" getting back on main road

Traffic Calming Impacts on Land Use

- **There are both examples of what not to do and success stories**
- **Experience with traffic calming has increased considerably**
- **Any project success depends on understanding the issues, constraints and opportunities**

Traffic Calming Impacts on Land Use

- **Dan Burden's** design principles (from 2001 Distinguished Lecture at the Transportation Research Board Annual Meeting):
 - Build for everyone. Streets have multiple uses that must be balanced.
 - Create many linkages. Develop a well-connected street network that offers multiple routes and modes to destinations.
 - Make sidewalks that are comfortable, and streets that are easy to cross.
 - Build narrow streets and compact intersections.
 - Keep urban traffic dispersed, low speed and moving.
 - Build green streets that include trees and boulevards.
 - Provide ADA access / universal design practices
 - Build public space. Recognize that streets are primary component of the public realm, where people can interact and build community.
 - Build with proper size and scale. Scale for people, not just for cars.
 - Encourage diversity.