TOWN OF QUEEN CREEK ARIZONA

Transportation Advisory Committee

Traffic Calming

And

Access Management

Information source: ITE





What is Traffic Calming

- Traffic calming is the use of various tools to lower the overall speeds of traffic in specific areas
- Traffic calming features can be added/utilized on a variety of street cross-sections (some devices are reserved only for low-speed local residential streets)





Why is Traffic Calming Necessary

- Regardless of the posted speed, drivers will drive at the speed that they feel comfortable with
- Closely spaced STOP signs *do not work* to control the overall speed on street segments
- There is a strong desire within residential areas, as well as downtown corridors, to maintain a more “livable” feel that is pedestrian friendly and inviting

Speed Humps

- The use of speed humps are limited to local residential streets (homes fronting) with a posted speed of no greater than 25 mph
- Typical speed humps are 3-3 ½” in height and 12-14’ wide

Speed Humps

- Installation can increase noise in the neighborhood;
- Typically work well to control overall speeds if placed properly

Speed Humps

Potential Impacts:

- Studies indicate **volumes** have been reduced on average by 18% depending upon alternate routes
- No effects on non-emergency access;
- **Speeds** have been observed to be reduced on average between 20-25%
- Increase in speeds between humps apx. .5 mph





Speed Humps

<u>Emergency Response Issues:</u>

- Concern over jarring of emergency rescue vehicles
- Approximate delay of 3-5 seconds per hump for fire trucks and up to 10 seconds for ambulance with patient

Neighborhood Traffic Circles

- Not always circular – can be other shapes
- Can be landscaped
- Controlled by YIELD signs on all approaches for larger streets

Neighborhood Traffic Circles

Potential Impacts:

- No effect on access
- Reduction in midblock speeds of about 10% (effective a couple hundred feet on each side)
- Average intersection collision reduction up to 70% and overall up to 28%
- Can result in bicycle/auto conflicts at intersections due to narrowing

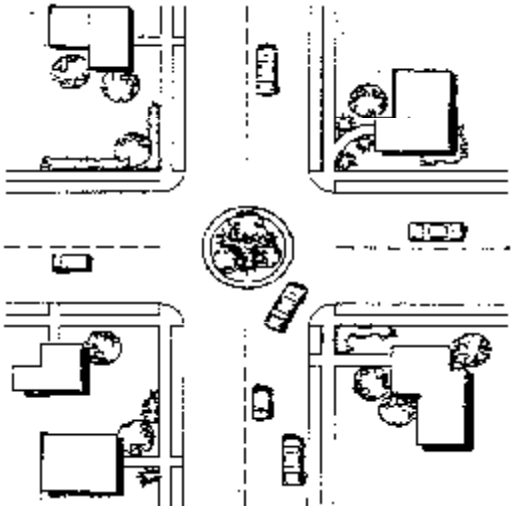




Neighborhood Traffic Circles

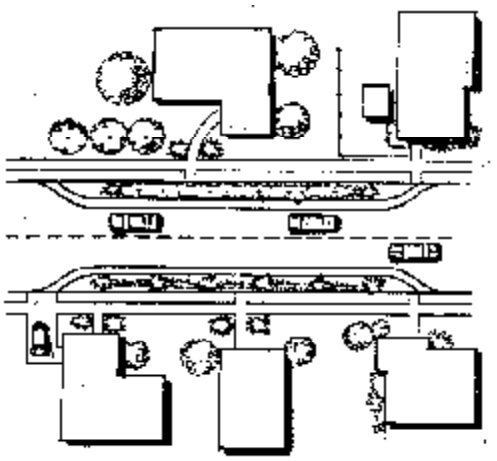
Emergency Access Issues:

- Emergency vehicles typically slow to apx. 13 mph with an apx. Delay of 5-8 seconds per circle for fire trucks
- Parking must be restricted close to the circle to avoid delays by emergency vehicles



Street Narrowing

- Called curb extensions or “chokers”
- Installed in the middle of the block
- Can be used on local and collector streets



Street Narrowing

Potential Impacts:

- Can reduce on-street parking and driveway access
- Speeds have typically been reduced an average of 4% (2-lane) and 14% (1-lane)
- Some decrease in volume has been observed

Street Narrowing

Emergency Response Issues:

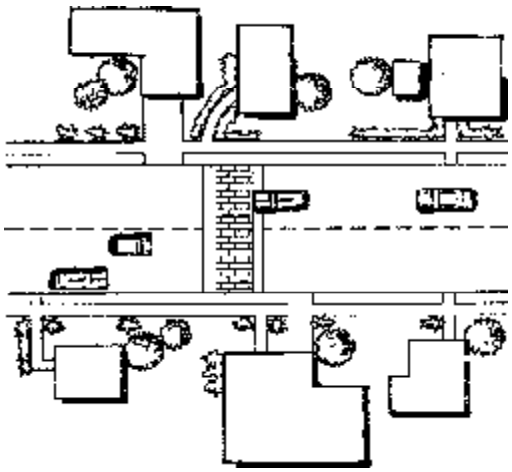
- Preferred by many fire department/emergency response agencies to most other traffic calming measures

Other considerations:

- Regulatory signing may need to be installed

Speed Table/Raised Crosswalk

- Long raised speed humps with a flat section in the middle
- Typically 22’ wide – 3-3 ½” high
- Can include a crosswalk on the top



Speed Table/Raised Crosswalk

Potential Impacts:

- No effect on access
- Speeds are reduced but usually higher than a speed hump (25-27 mph crossing speed)
- Traffic volumes have reduced on average by 12%

Speed Table/Raised Crosswalk

<u>Emergency Response Issues:</u>

- Typically preferred over 12-14’ speed humps
- Generally less than 3 seconds of delay per location for fire trucks

Access Management

What is Access Management

"The process or development of a program intended to ensure that the major arterials, intersections and freeway systems serving a community or region will operate safely and efficiently while adequately meeting the access needs of the abutting land uses along the roadway."

www.ite.org/library/IntersectionSafety/access.pdf

Access Management

Proper use of techniques can:

- Increase roadway capacity
- Manage congestion
- Reduce crashes

Access Management

Without an access management plan that utilizes good planning and proper use of the techniques, communities can "*face more rapid deterioration of the quality of traffic flow…*"





Access Management

The lack of an access management plan can negatively affect a community by:

- Reduction in overall safety reflected by the increase of crashes
- Greater number of conflicts and potential hazards between vehicular bicycle and pedestrian movements
- Diversion of through traffic into abutting neighborhoods in attempt to bypass added congestion



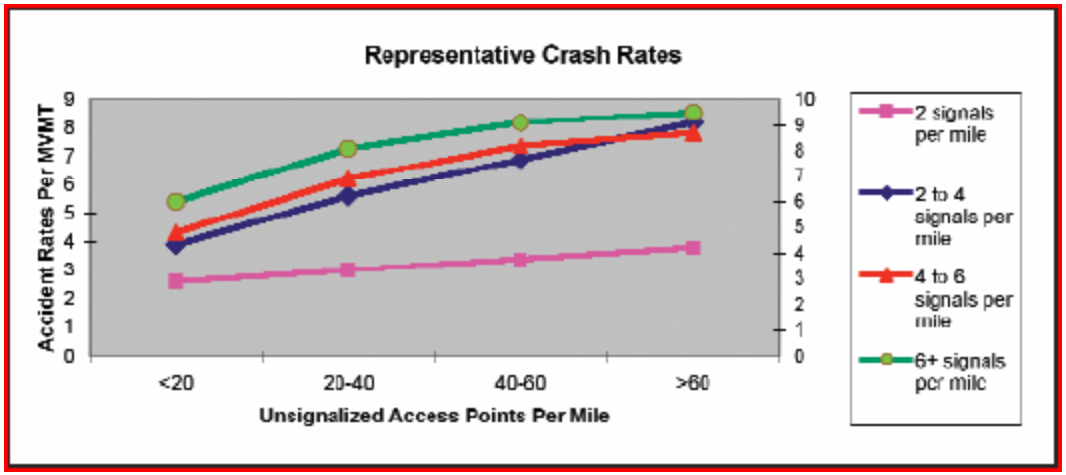


Design Considerations

Traffic Signals

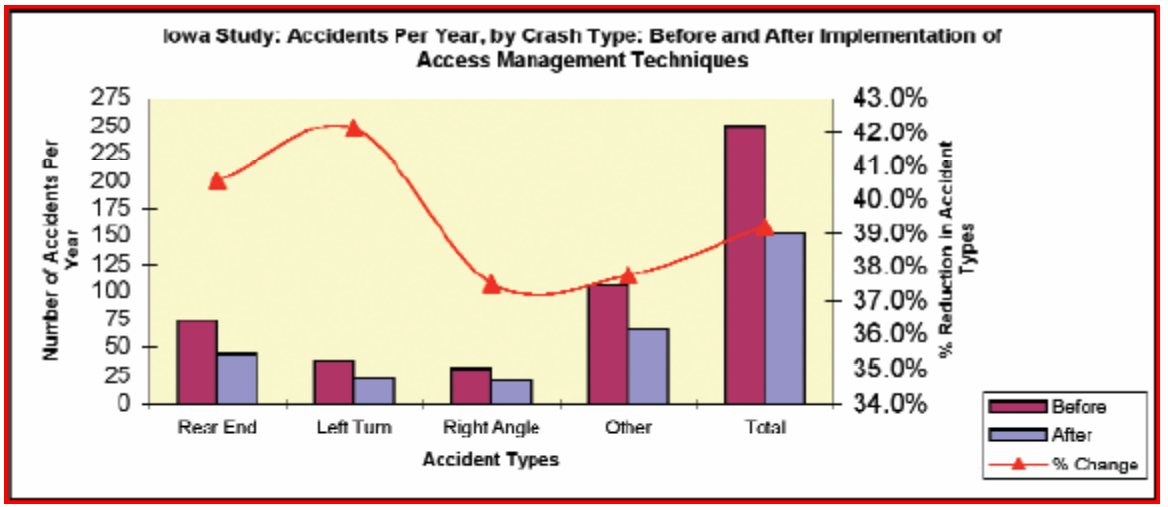
- Traffic signals, if properly located, can be very effective tools of regulating access to arterial streets, and can help the overall function of the street network
- Access points should therefore be planned to maximize the use of traffic signals

Design Considerations



- Comparative crash rates for a given signal density and number of unsignalized access points per mile
- Greater number of access points and signals per mile increase crash rates

Design Considerations



- Iowa study shows the number and type of crashes per year and % reduction prior to and after plan implementation.
- Total crashes were reduced by apx. 39% - rear end and left-turn by 41 and 42%

Tools and Techniques

- Consolidate and minimize left turn exits from driveways
- Use center TWLTL's
- Use of raised center median islands
- Encourage shared driveways for adjacent land parcels/developments
- Provisions for adequately designed turn lanes





Medians and TWLTL's

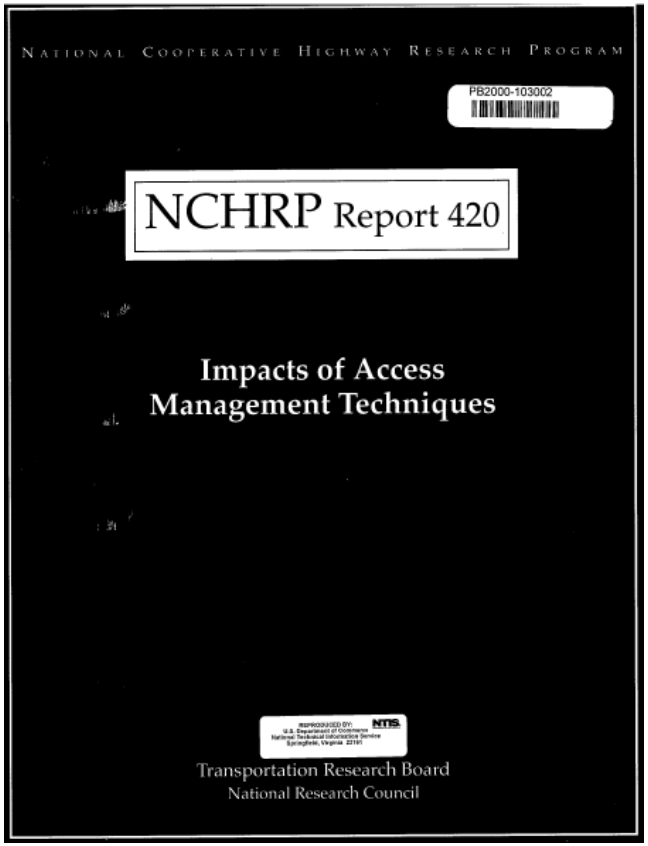
- Safety Implications

  Accident rates (summary of 11 studies)

  – 5.2 per million VMT (raised median)

  – 7.3 per million VMT (TWLTL)

  – 29% reduction in crashes



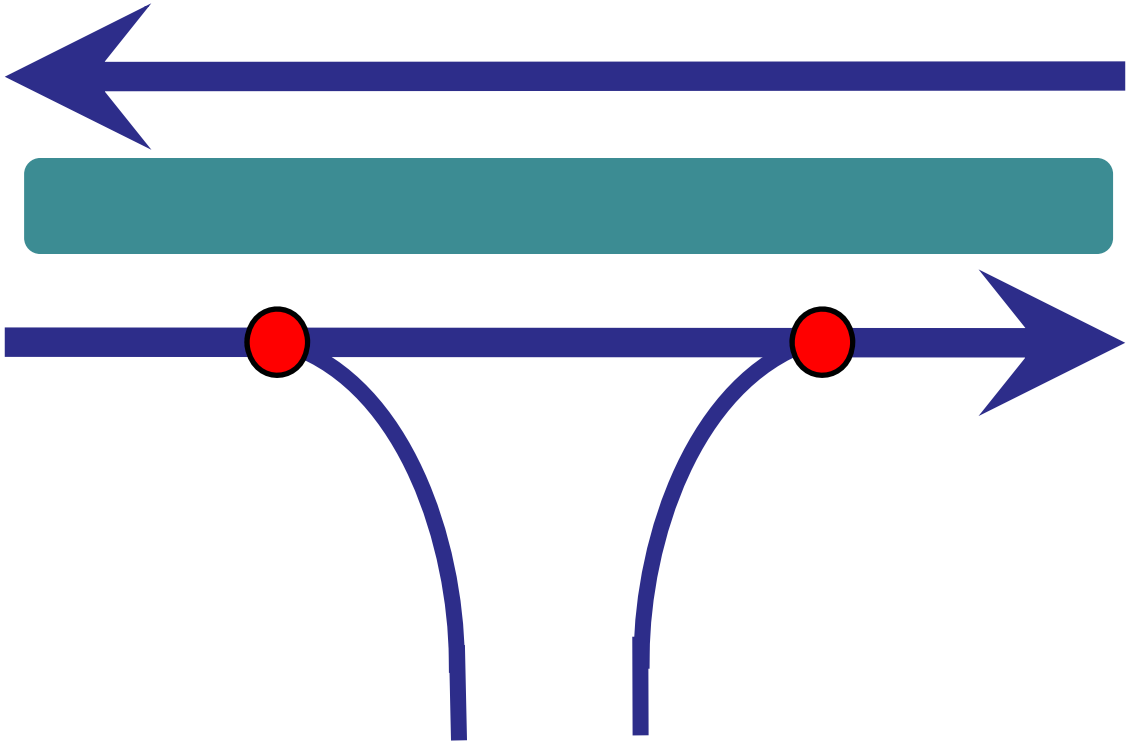




Raised Median Access

1/2-Access (right-in, right-out)

2 potential conflict points



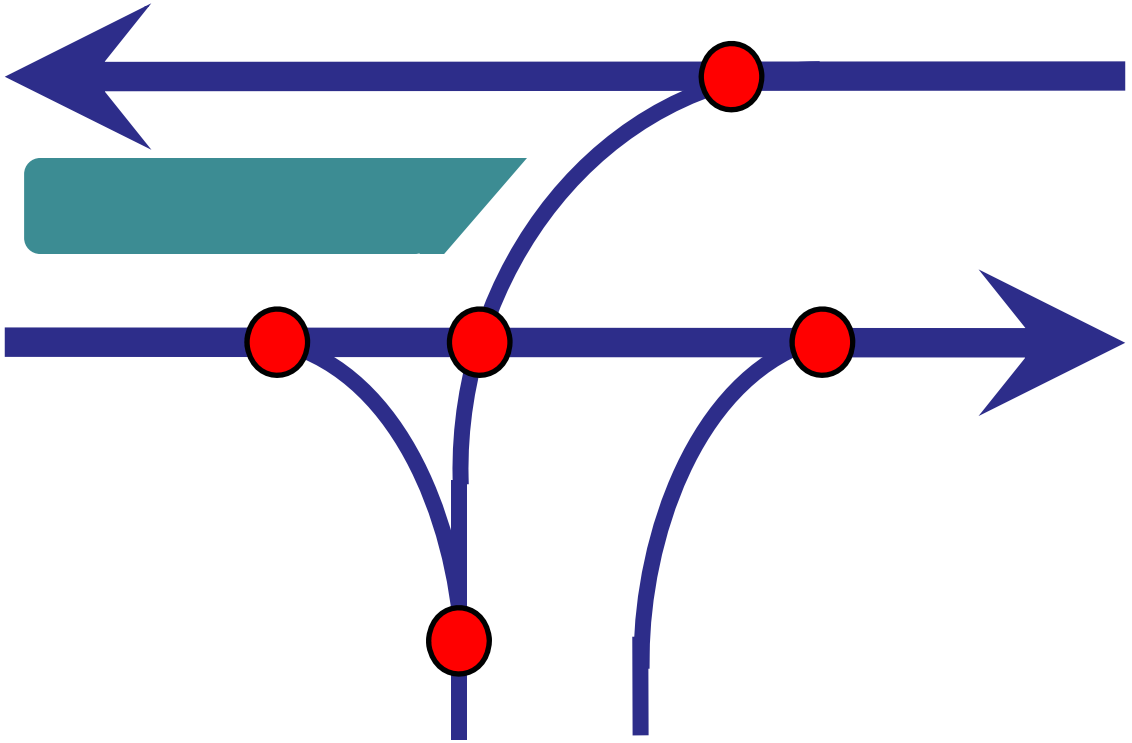




Raised Median Access

3/4-Access (left-in, right-in, right-out)

5 potential conflict points



Raised Median Access

3/4-Access (left-in, right-in, right-out)

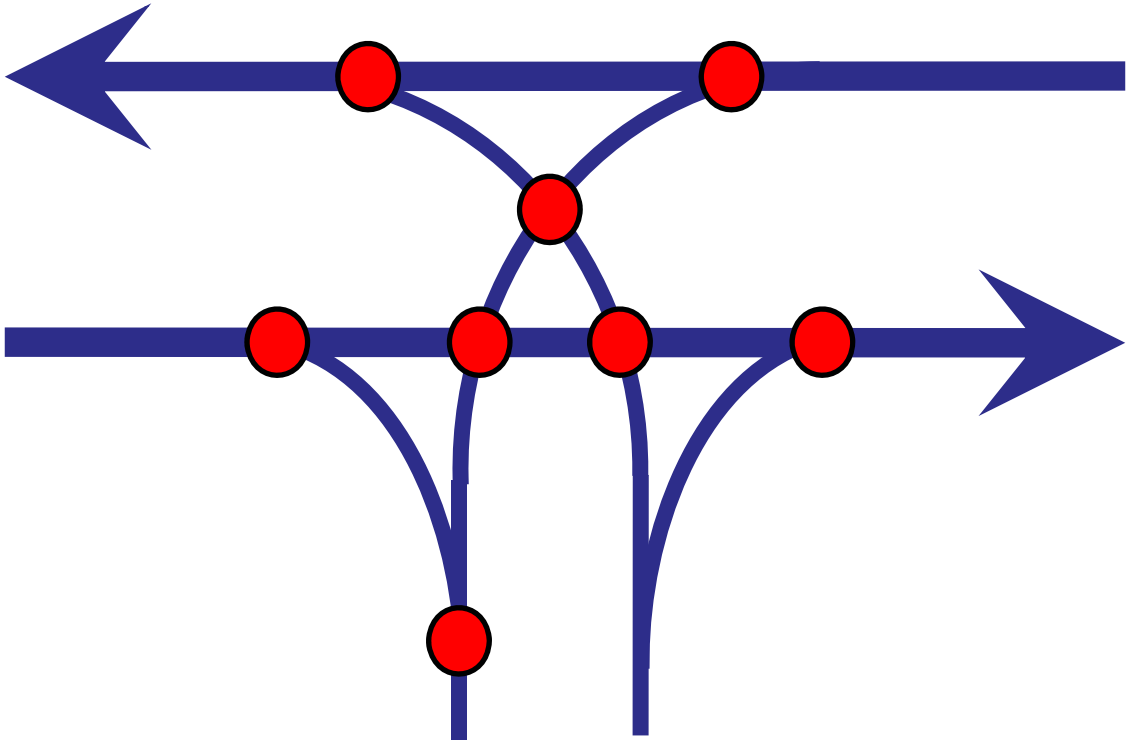




TWLTL Access

Full-Access (all movements permitted)

8 potential conflict points



Questions?