

Traffic-Transportation 101: Being a City Traffic Engineer

January 27, 2022



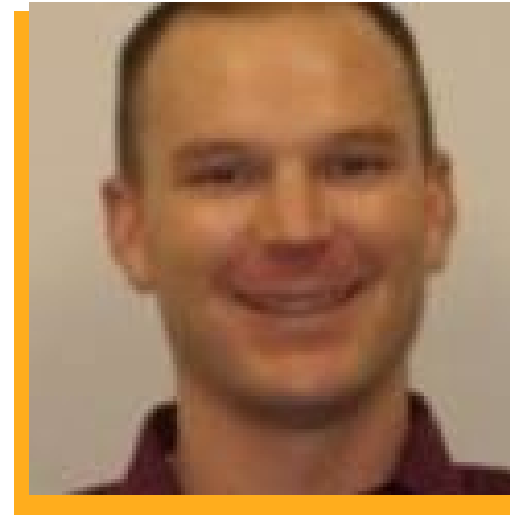
CITY ENGINEERS ASSOCIATION OF MINNESOTA

Engineering Our Cities' Futures

Presenters



Bryant Ficek, PE, PTOE
*Minnesota Department of
Transportation*



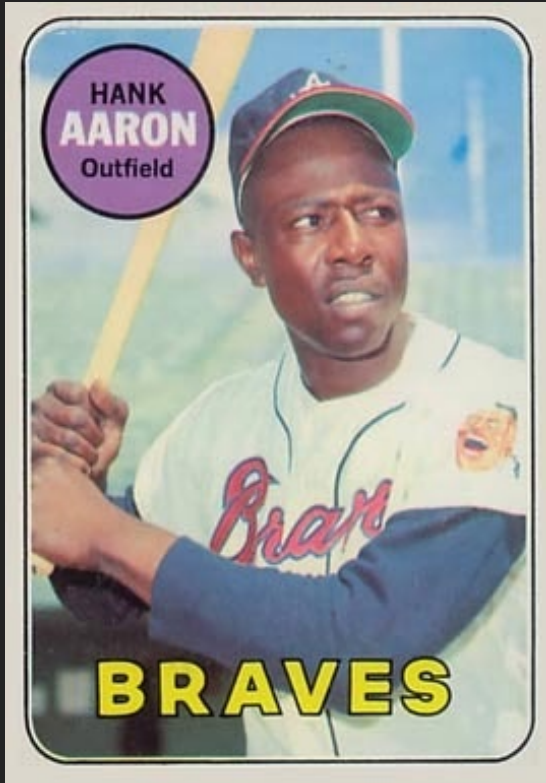
Tony Kutzke, PE
City of Woodbury

Being a Traffic Engineer

- Numbers to Remember
- Working with Councils/Commissions
- Working with Residents



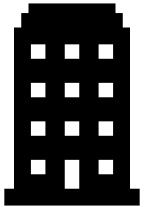
Numbers to Remember



Trip Generation



For each Home: 10 trips / day 1 trip / peak hour



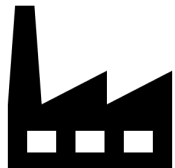
For each Unit: 7 trips / day 0.7 trips / peak hour



Per 1,000 SF: 10 trips / day 1.5 trips / peak hour

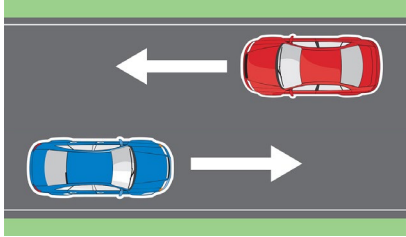


Per 1,000 SF: 38 trips / day 4.2 trips / peak hour



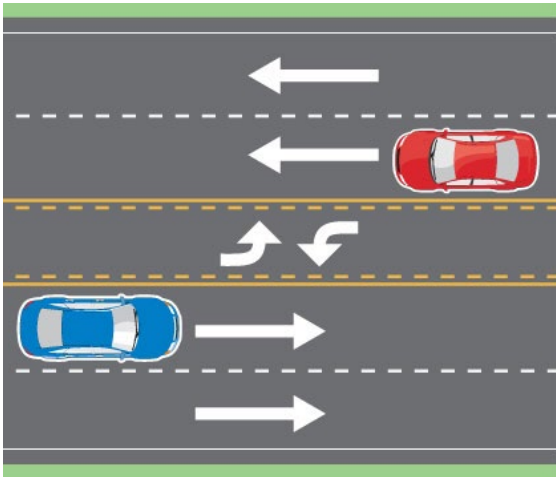
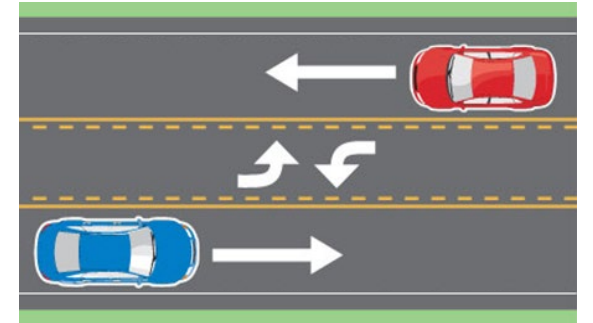
Per 1,000 SF: 5 trips / day 0.9 trips / peak hour

Daily Roadway Capacity



2-Lane Residential: 1,000 – 3,000 / Day (Livability)

2-Lane with Turn Lanes: 18,300 / Day (HCM)



4-Lane with Turn Lanes: 36,800 / Day (HCM)

Daily Roadway Capacity (cont.)

City of Woodbury - Residential Level of Service

LOS	ADT	Peak Hr ADT	85th % (mph)	Characteristics
A	300	30	< 25	Local traffic, Comfortable
B	600	60	25-30	Local traffic, Comfortable
C	1,200	120	33-34	Neighborhood traffic, Comfortable
D	1,800	180	35	6 block traffic, Caution needed, education, enforcement, engineering
E	2,400	240	> 35	Cut-thru, High level of caution, design without driveways
F	> 2,400	> 240	> 35	Cut-thru, High level of caution, design without driveways

Level of Service



35 seconds



35 seconds



55 seconds

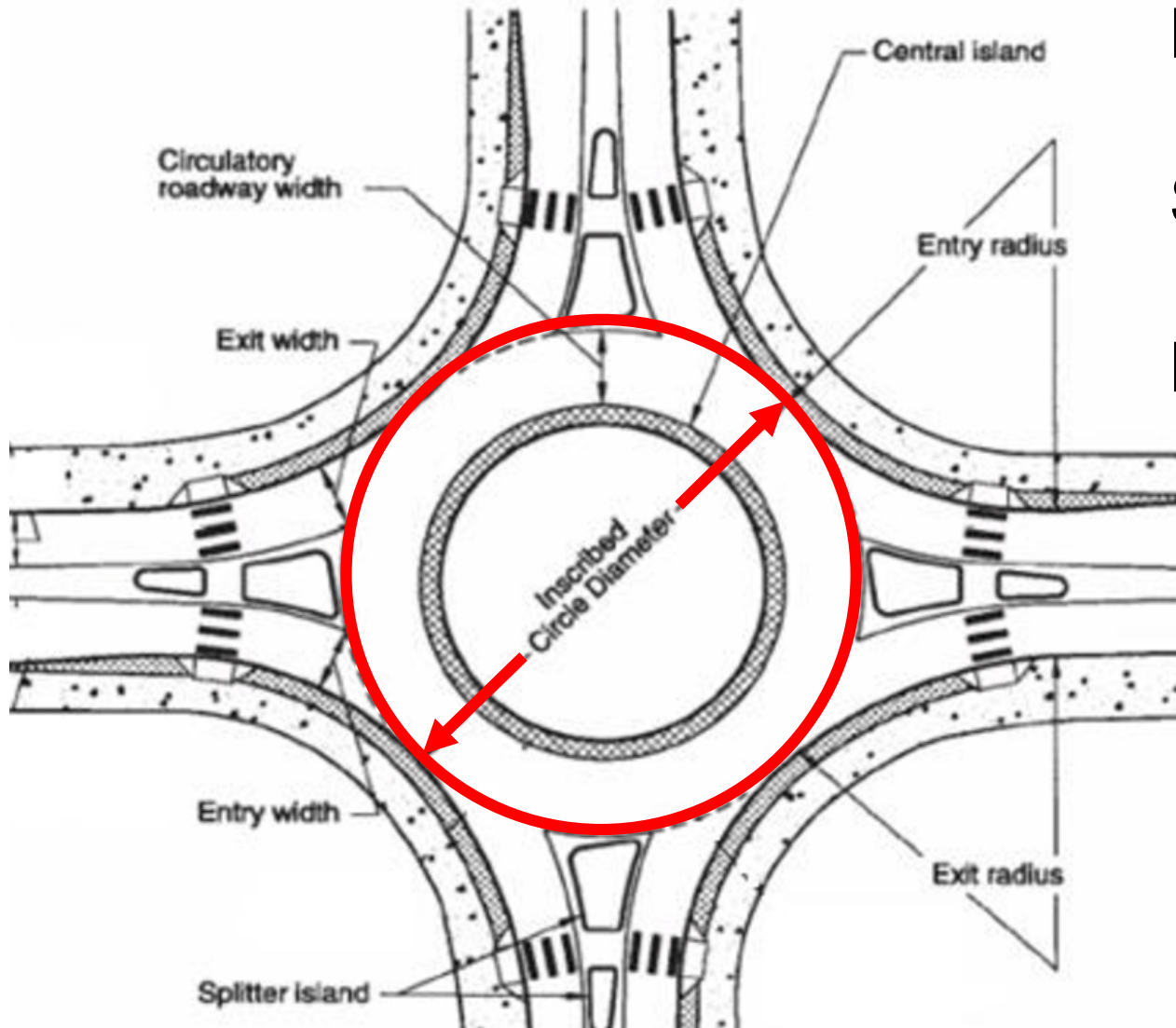
Access Spacing

Type of Access Being Requested	Type of County Highway Function Affected by Access			
	Principal Arterial	Minor Arterial A and B Minor	Collector	Local
A. Private Residential (3 or less shared driveways)	Not Permitted	Not Permitted ¼ mile in Agricultural & Transition Area	1/8 Mile	Determination based on other criteria
B. Commercial Driveways, or Private Streets	Not Permitted	Not Permitted	Full access at ¼ Mile Limited access at 1/8 Mile	Determination based on other criteria
C. Local Streets	Not Permitted	Full access at ¼ Mile Limited access at 1/8 Mile	1/8 Mile	1/8 Mile
D. Collector Streets	1 Mile Full Access (rural) Limited access at ½ Mile (urban)	Full access at ¼ Mile Limited Access at 1/8 Mile	¼ Mile	¼ Mile
E. Minor Arterial	1 Mile Full Access (urban) 1 Mile Full (rural)	½ to 1 Mile (urban) ½ Mile to 1 Mile (rural)	¼ to 1 Mile (urban) ½ to 1 Mile (rural)	¼ to 1 Mile (urban) ½ to 1 Mile (rural)

Source: Scott County



Roundabout Sizes



Mini or Compact: 45 to 90 feet

Single-Lane: 90 to 180 feet

Multi-Lane: 150 to 300 feet

Pedestrians



If hit by a person driving at:

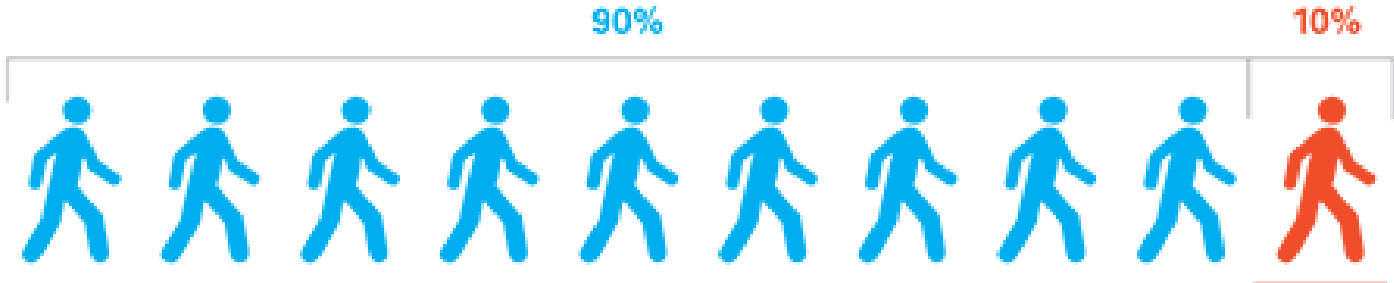


Person Survives the Collision



Results in a Fatality

20 MPH



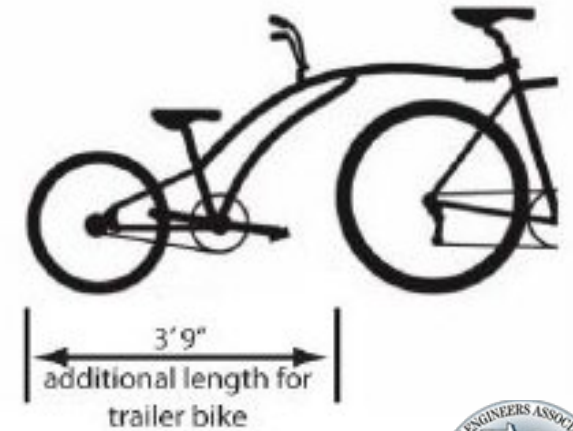
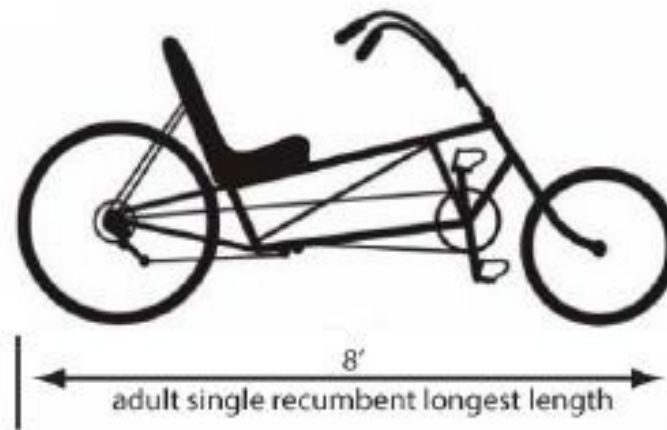
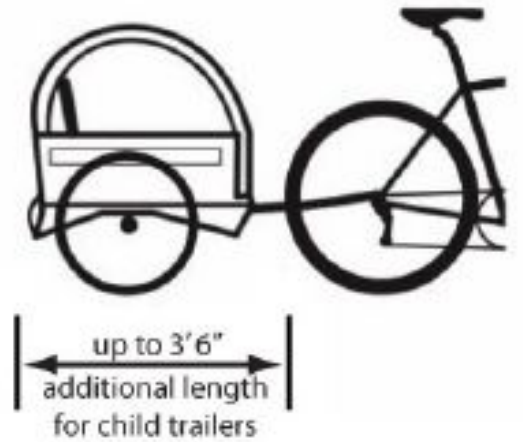
30 MPH



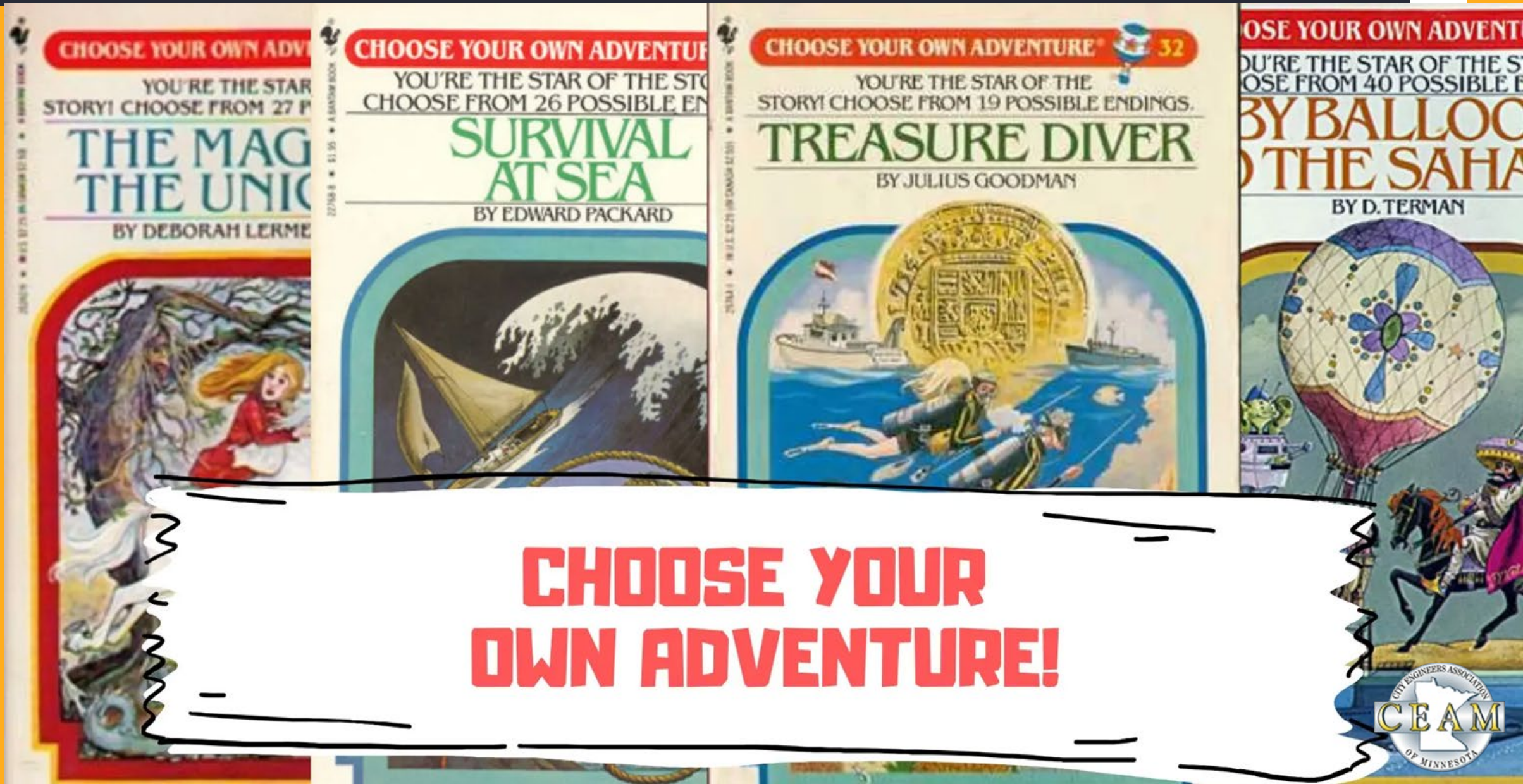
40 MPH



Bicycles



Others?



**CHOOSE YOUR
OWN ADVENTURE!**

Working with Councils and Commissions

Foundation



Expectations



Suggestions

1. Create Policies (clear guidance)
2. Encourage more Communication
3. Routine Reviews
4. Build in Coordination
5. Training and Education



A large crowd of people, including Homer Simpson and other Springfield residents, holding torches at night. The scene is set in a town with houses visible in the background. The crowd is diverse, with people of various ages and appearances. Homer Simpson is in the center, wearing his signature blue suit and red tie. To his left is a man with a large red beard and green overalls. To his right is a woman in a pink dress. The crowd is holding torches, and the scene is lit with a warm, orange glow from the flames. The text "Working with Residents" is overlaid in the center of the image.

Working with Residents

Understanding



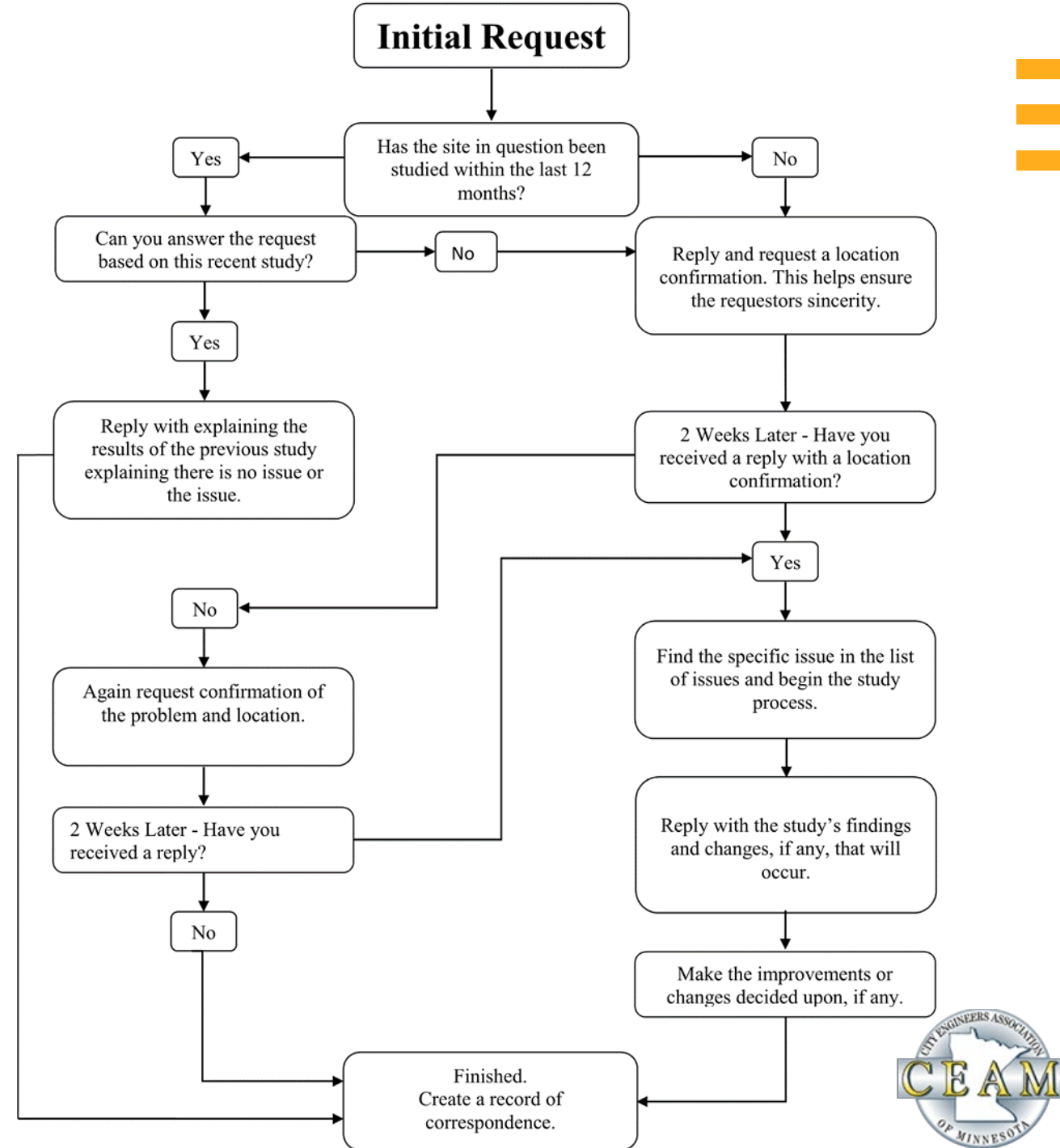
Simplify



Transparency



Process



Record Keeping



Common Requests



Stop Signs



Special Signage (ineffective signage)



Parking restrictions



Crosswalks



Traffic Calming



No Outlet

Speeding

Sightlines

Traffic Control Committee








THANK YOU

Questions?

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FEATURES

-  AUTO
-  BIKE
-  PARKING
-  PEDESTRIAN
-  BUS STOP