

# MINNESOTA TOWARD **ZERO** DEATHS

**TOWARD  
ZERO  
DEATHS**



## Minnesota TZD

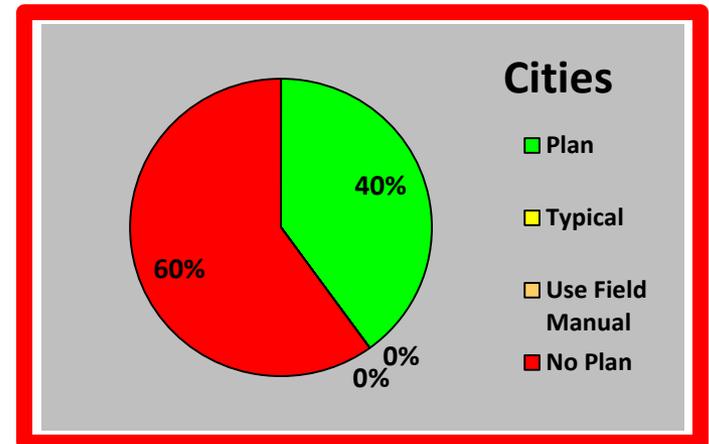
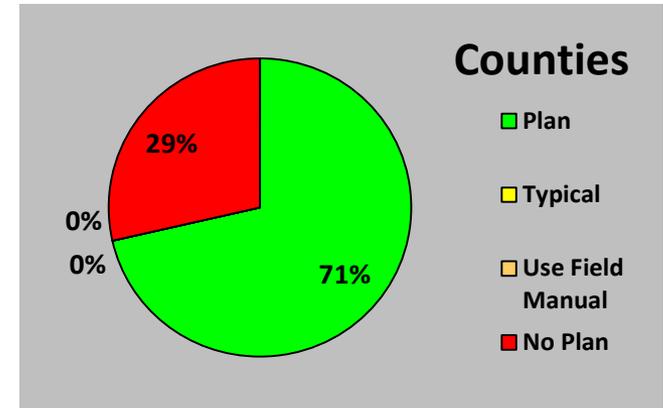
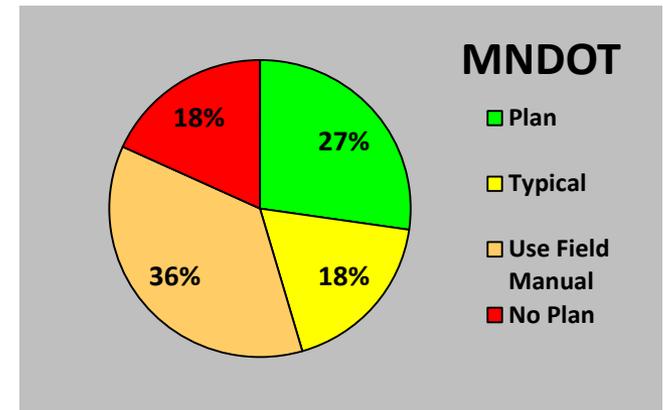
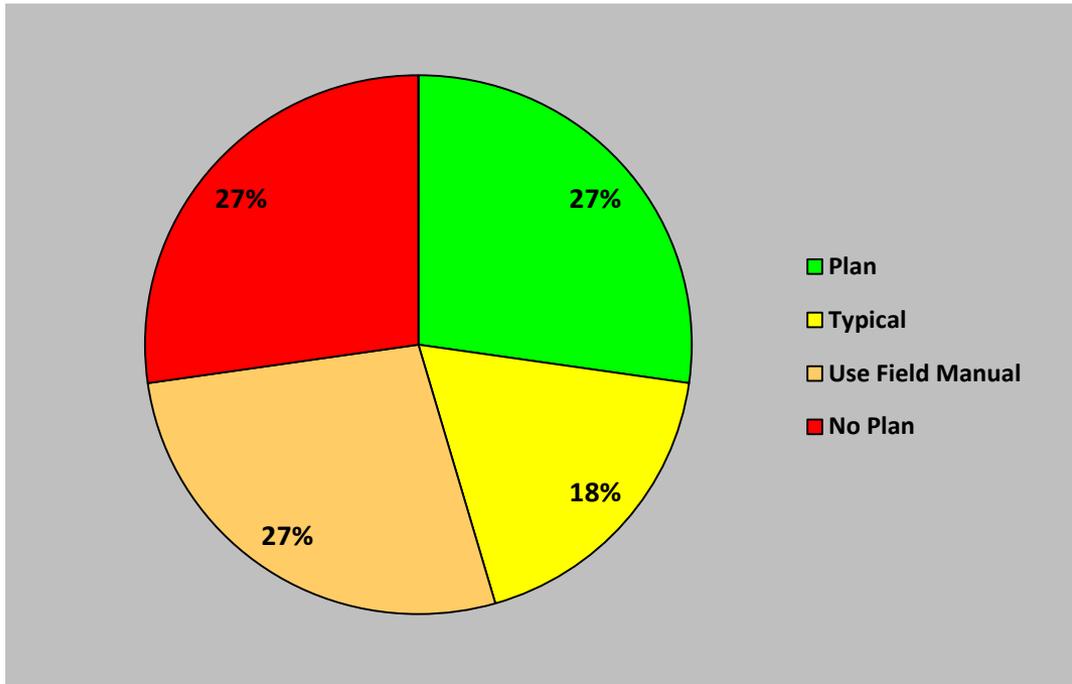
Statewide Conference  
October 27, 2017

# Work Zones – Are we doing everything we can?



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# How often is there a Traffic Control Plan? (for Construction Projects)



*\* Very small sample*

## PART 6. TEMPORARY TRAFFIC CONTROL

### Chapter 6C. Temporary Traffic Control Elements

#### 6C.1 Temporary Traffic Control Plans

##### SUPPORT:

A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.

TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the complexity of the situation.

“Temporary Traffic Control plans play a critical role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow.”

# PART 6. TEMPORARY TRAFFIC CONTROL

## Chapter 6C. Temporary Traffic Control Elements

### 6C.1 Temporary Traffic Control Plans

#### **GUIDANCE:**

TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection and placement of TTC devices for a TTC plan should be based on engineering judgment.

Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.

Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.

Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals (see Section 4E.6), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.

“Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.”

## PART 6. TEMPORARY TRAFFIC CONTROL

### Chapter 6G. Type of Temporary Traffic Control Zone Activities

#### STANDARD:

For most projects, especially long term projects, it will be necessary to prepare a project specific Traffic Control Plan (TCP). A TCP may range from a reference to Chapter 6K (the Field Manual) to a detailed set of plans and specifications.

#### SUPPORT:

Layouts for long-term TTC zones are not included in Chapter 6K (*the Field Manual*), but examples of long-term applications are shown in Chapter 6J. Normally, a long-term TTC zone will require a project specific Traffic Control Plan (TCP). Implementing a Traffic Control Plan requires advance planning and consultation with the local road authority and Traffic Engineering professionals. Advance notice and good public relations are helpful.

“For most projects, especially long term projects, it will be necessary to prepare a project specific Traffic Control Plan (TCP). A TCP may range from a reference to Chapter 6K (the Field Manual) to a detailed set of plans and specifications.”

“Layouts for long-term TTC zones are not included in Chapter 6K (*the Field Manual*), but examples of long-term applications are shown in Chapter 6J. Normally, a long-term TTC zone will require a project specific Traffic Control Plan (TCP). Implementing a Traffic Control Plan requires advance planning and consultation with the local road authority and Traffic Engineering professionals.”

# Example

- City Reconstruct
  - Should there be a TC Plan?
  - Does a long-term typical layout apply? (kind of / maybe)
  - There's going to be a road closure for pipe work (detour & prewarning notice signing will be required)
    - Does the TC Sub know / realize this?
    - Various factors being initially decided by a TC sub & usually last-minute. Might involve multiple Road Authorities. A lot of factors should be considered.

## PART 6. TEMPORARY TRAFFIC CONTROL

### Chapter 6J. Long Term

#### Temporary Traffic Control Zone Layouts

##### 6J-1 General

###### SUPPORT:

This section illustrates typical layouts which provide additional guidance for individuals with traffic engineering expertise.

###### GUIDANCE:

These layouts should be used during the development of detailed traffic control plans. They should only be used under the direction of a traffic engineering professional. They should be combined with the principles and figures contained elsewhere in this manual.

###### OPTION:

Some of these layouts may be used on short term construction or maintenance projects.

###### SUPPORT:

The concepts shown in the following layouts are only intended to be guidelines.

These [Long Term] layouts should be used during the development of detailed traffic control plans. They should only be used under the direction of a traffic engineering professional.

# PART 6. TEMPORARY TRAFFIC CONTROL

## Chapter 6C. Temporary Traffic Control Elements

### 6C.1 Temporary Traffic Control Plans

#### **GUIDANCE:**

TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection and placement of TTC devices for a TTC plan should be based on engineering judgment.

Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.

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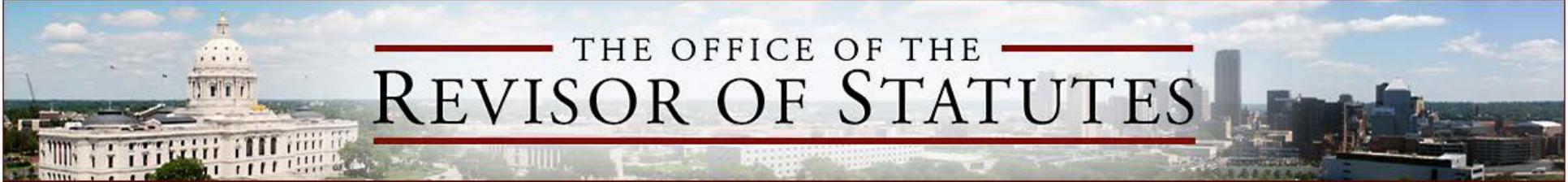
Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals (see Section 4E.6), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.

“TTC Plans should be prepared by persons knowledgeable (for example trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection and placement of TTC devices for a TTC plan should be based on engineering judgement.”



**Engineering Judgment** - the evaluation of available pertinent information, and the application of appropriate principles, provisions, and practices as contained in this Manual and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required.

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THE OFFICE OF THE  
REVISOR OF STATUTES

## 2017 Minnesota Statutes

Subd. 3. **Practice of professional engineering.** (a) Any person shall be deemed to be practicing professional engineering within the meaning of sections [326.02](#) to [326.15](#) who holds out as being able to perform or who does perform any technical professional service, such as planning, design or observation of construction for the purpose of assuring compliance with specifications and design, in connection with any public or private structures, buildings, utilities, machines, equipment, processes, works, or projects wherein the public welfare or the safeguarding of life, health, or property is concerned or involved, when such professional service requires the application of the principles of mathematics and the physical and applied engineering sciences, acquired by education or training, and by experience.

(b) No person other than one licensed under sections [326.02](#) to [326.15](#) as a professional engineer may:

(1) use the term "professional engineer";

(2) use any other abbreviation or term, including the initials "P.E." or "PE" by signature, verbal claim, sign, advertisement, letterhead, card, or similar means that would lead the public to believe that the person was a professional engineer; or

(3) use any means or in any other way make a representation that would lead the public to believe that the person was a professional engineer.

(c) A professional engineering license satisfies any requirements by the state or its political subdivisions to perform any actions authorized under the professional engineering license. A person licensed as a professional engineer under sections [326.02](#) to [326.15](#) shall only be required to obtain a license, certification, or other form of approval for a skill or service in addition to a professional engineering license if the state or political subdivision has made an affirmative written determination in statute, rule, or ordinance that such additional license or certification is necessary to safeguard life, health, or property, or promote the public welfare. This section does not preclude the state or a political subdivision from including additional requirements when soliciting public contracts for engineering services. This paragraph does not apply to practice areas where licenses or certifications are required prior to August 1, 2015.

Any person shall be deemed to be practicing engineering... who does perform any technical professional service, such as planning, design... in connection with any public or private...projects wherein the public welfare or safeguarding of life, health or property is concerned...

# Yeah but...

It's a waste of time to draw plans...

The plans always get thrown out the window as the Primes want to build it differently...

Performance based... want / need flexibility...

It depends on how the Prime is going to build the job...

# STAGING AND TRAFFIC CONTROL NOTES

- 7 IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS SIGNED BY A QUALIFIED INDIVIDUAL LICENSED BY THE STATE OF MINNESOTA AS A PROFESSIONAL ENGINEER. THE CONTRACTOR MUST PROVIDE 14 DAYS FOR REVIEW OF SUBMITTED REVISED/ALTERNATE TRAFFIC CONTROL PLANS. THIS CAN BE EXPECTED TO INCLUDE POST MOUNTING AND PROPERLY BRACING ALL SIGNS THAT ARE NOT ALREADY POST MOUNTED.

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STAGING & TRAFFIC CONTROL PLAN	OF 474

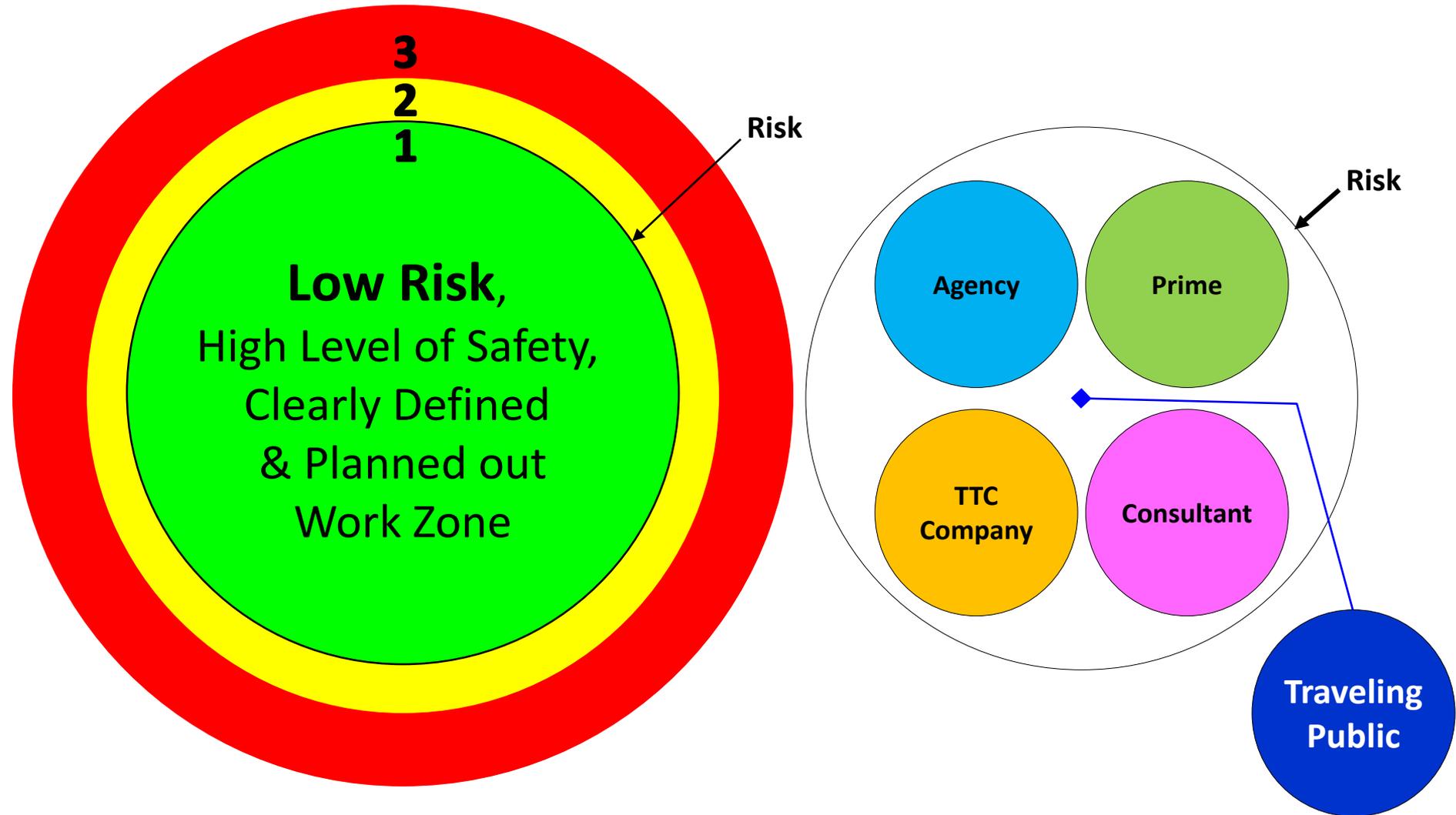
# Who's involved?

- 1. Agencies (MnDOT, Counties, Cities, Met Council, etc.)**
  - As the Owners of Construction Projects, when doing Maintenance and when issuing Permits.
- 2. Prime Contractors**
  - Responsible for meeting Contract requirements
- 3. Temporary Traffic Control subs / providers**
  - Typically used for Construction Projects (unless the Prime is covering themselves)
- 4. Consultants**
  - When hired to Design (by the Agency or by the Prime)
  - When hired to Administer (by the Agency)
- 5. The Traveling Public**

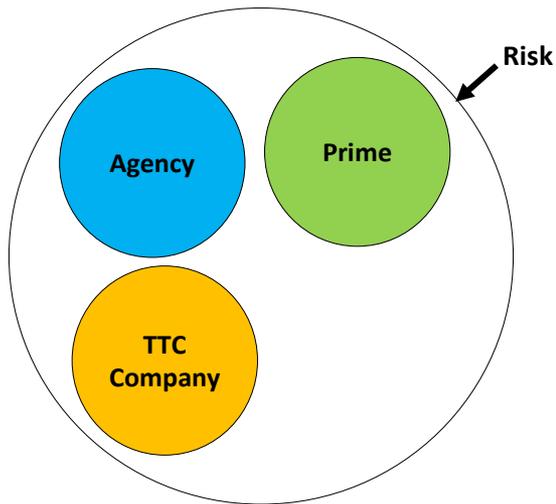
# Planning for **Safety** & to minimize **Risk**

1. The (Owner) Agency designs a Temporary Traffic Control (TTC) Plan
2. The Agency hires a Consultant to design a TTC Plan
3. The Agency does not provide a TTC Plan, rather they require the Prime Contractor to submit one, signed by a P.E. (Consultant)
4. The Agency does not provide a TTC Plan, rather they require the Prime to submit one, however there is no requirement that it be signed by a P.E. (typically the TTC Provider will create a layout)
5. The Agency does not provide a TTC Plan and does not require one to be submitted by the Prime.
6. The Agency hires a Consultant, but does not require they design a TTC Plan or that one be submitted by the Contractor.

# Risk & Safety



# Construction (scenario #1)

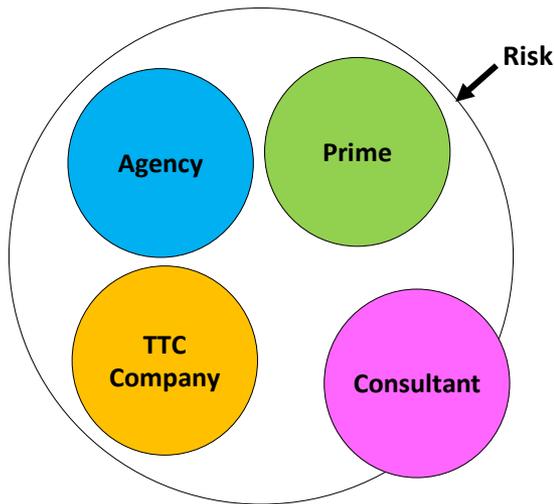


## The Agency designs the TTC Plan

RISK FACTOR:		
Agency:	Low	1
Prime:	Low	1
TTC Sub:	Low	1
Consultant:	N/A	0
Traveling Public:	Low	1
	<b>Safety Score:</b>	<b>4</b>

# Construction (scenario #2)

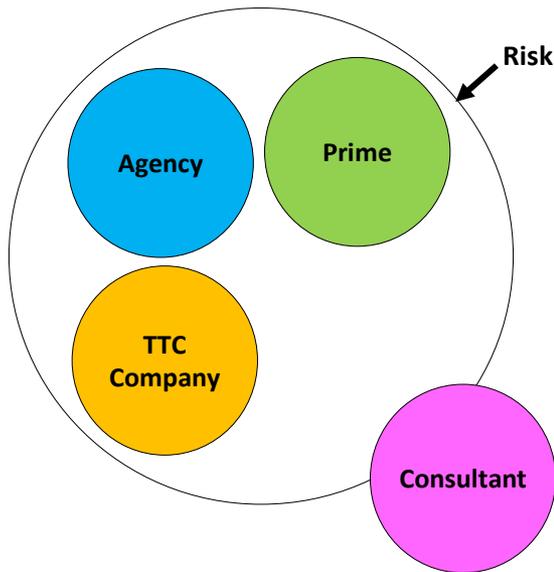
The Agency hires a Consultant to design a TTC Plan



RISK FACTOR:		
Agency:	Low	1
Prime:	Low	1
TTC Sub:	Low	1
Consultant:	Medium	2
Traveling Public:	Low	1
	<b>Safety Score:</b>	<b>6</b>

# Construction (scenario #3)

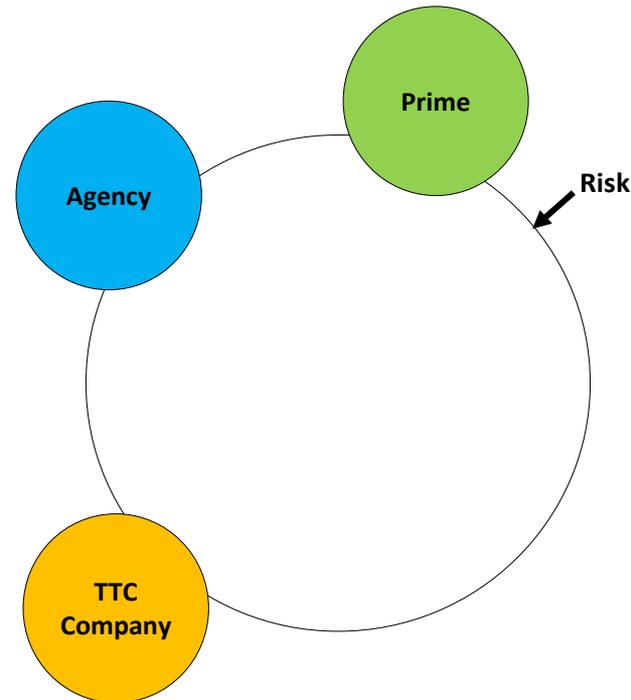
Agency requires Contractor to submit a TTC Plan signed by a P.E.



RISK FACTOR:		
Agency:	Low	1
Prime:	Low	1
TTC Sub:	Low	1
Consultant:	High	3
Traveling Public:	Low	1
	<b>Safety Score:</b>	<b>7</b>

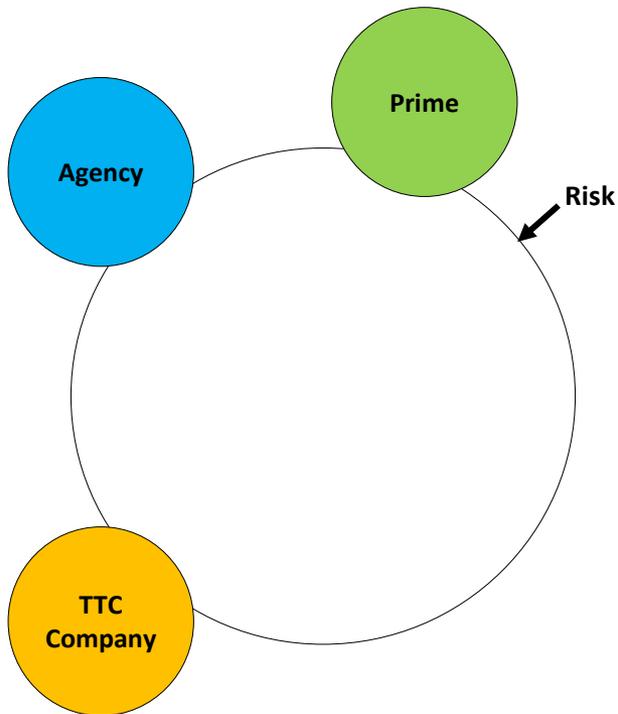
# Construction (scenario #4)

**Contractor to submit TTC Plan, but not required to be signed by a P.E.**



RISK FACTOR:		
Agency:	High	3
Prime:	High	3
TTC Sub:	High	3
Consultant:	N/A	0
Traveling Public:	Medium	2
	<b>Safety Score:</b>	<b>11</b>

# Construction (scenario #5)

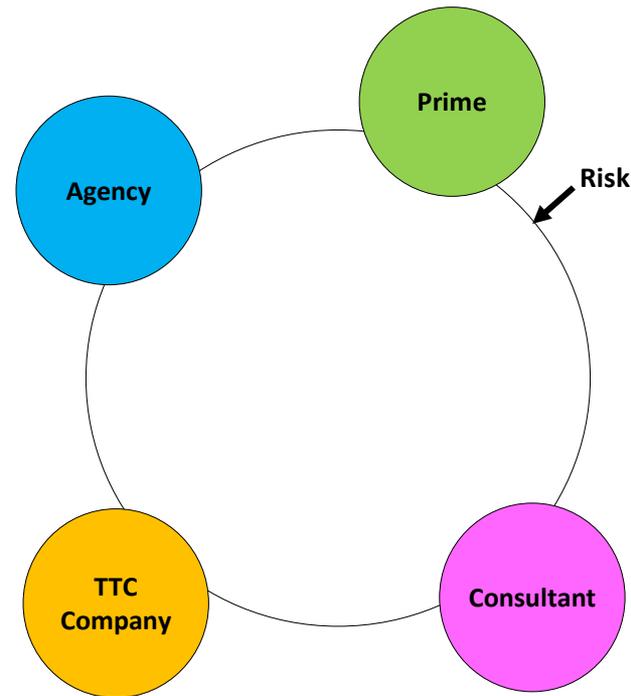


Agency does not design a Plan and does not require one be submitted

RISK FACTOR:		
Agency:	High	3
Prime:	High	3
TTC Sub:	High	3
Consultant:	N/A	0
Traveling Public:	High	3
	<b>Safety Score:</b>	<b>12</b>

# Construction (scenario #6)

Agency hires a Consultant but does not require they design a TTC Plan and does not require one be submitted by the Contractor



RISK FACTOR:		
Agency:	High	3
Prime:	High	3
TTC Sub:	High	3
Consultant:	High	3
Traveling Public:	High	3
	<b>Safety Score:</b>	<b>15</b>

# Does having a Traffic Control Plan = Less Risk to all Stakeholders & Safer Work Zones?

	Scenario	Agency / Owner	Prime Contractor	TTC Provider	Consultant	Traveling Public	Safety Ranking
TTC Plan = <b>Yes</b> (designed by the Agency)	1	1	1	1	0	1	4
TTC Plan = <b>Yes</b> (designed by the Agency-hired Consultant)	2	1	1	1	2	1	6
TTC Plan = <b>Yes</b> (designed by the Contractor-hired Consultant)	3	1	1	1	3	1	7
TTC Plan = <b>No</b> (layout by non-P.E.)	4	3	3	3	0	2	11
TTC Plan = <b>No</b> (none required to be submitted)	5	3	3	3	0	3	12
TTC Plan = <b>No</b> (Consultant involved, none required to be submitted)	6	3	3	3	3	3	15

# Summary

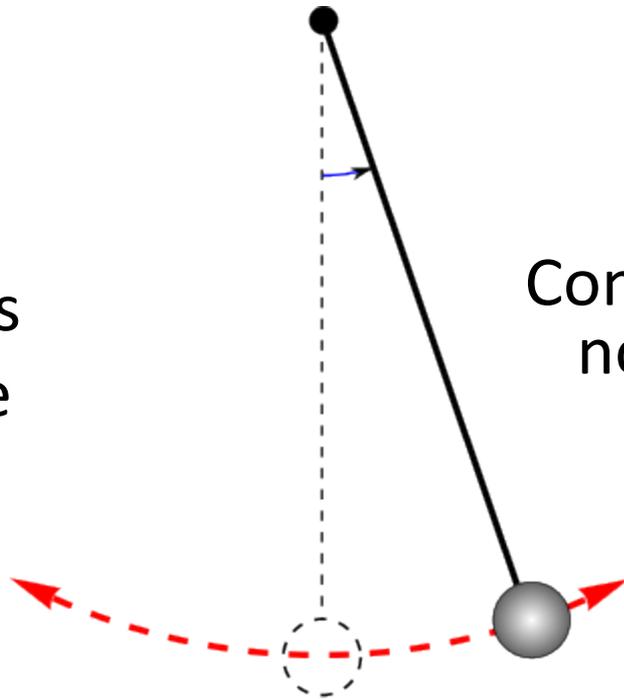
(Workers, Traveling Public, Uniformity, etc.)

- Every Work Zone should setup in accordance to... have a TC Plan.
- Every Construction Project should have a specific TC Plan, ideally it should be designed when the rest of the job is planned out.
  - If it's short term (or parts of it are) and the Field Manual will suffice = OK
  - If it's not short term but a typical truly will suffice = OK
- As a last resort, have the Contractor submit a plan, after the Project is awarded.
  - Have the Road Authority approve the proposed layout.
  - Or require the TC Plan signed by a PE (?)
  - ...otherwise we're in this real gray area...

# “Realistic Balance”

Every TTC Plan is designed on the front end and signed by a PE

Construction project does not have a TTC Plan as part of the bidding documents, but it (obviously) should



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## Minnesota TZD

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*Doing everything we can, on every job, to  
make every Work Zone as safe as possible.*



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