

Collision Diagrams

BEFORE Period
 SS# 14-05-201
 Order# 4100006238
 Henderson County
 BEFORE Period
 4/1/08 - 4/30/08

AFTER Period
 SS# 14-05-201
 Order# 4100006238
 Henderson County
 AFTER Period
 2/1/07 - 2/30/1

Collision Version: 2012:6:12:0

Accident Details
 Time: [] On Road: 10000095
 Crash Type: ANIMAL
 Injury: B TYPE INJURY (EVIDENT)
 Road Cond: WET
 Light Cond: DAYLIGHT

Road Details
 Traffic Ctrl: NO CONTROL PRESENT
 Road Config: TWO-WAY, NOT DIVIDED
 Speed Limit: 70 Est. Speed: 70
 In Reference To Dist (feet): 1 Direction: South From Road: 30000046

Vehicle Details
 Crash ID: (1)101895561 Plot Scale: 1 Load Crash ID File Load TEAAS Input File
 Vehicle: 1 of 2 Direction: South Impact Speed: 70
 Maneuver: GOING STRAIGHT AHEAD
 Violation: NO CONTRIBUTING CIRCUMSTANCES INDICATED

Legend
 SR 1006 Howard Gap Rd 35-mph
 SR 1734 Sugarloaf Rd 45-mph
 New Signalized Intersection Sig ID 14-1020

TRAFFIC SAFETY UNIT

Contents

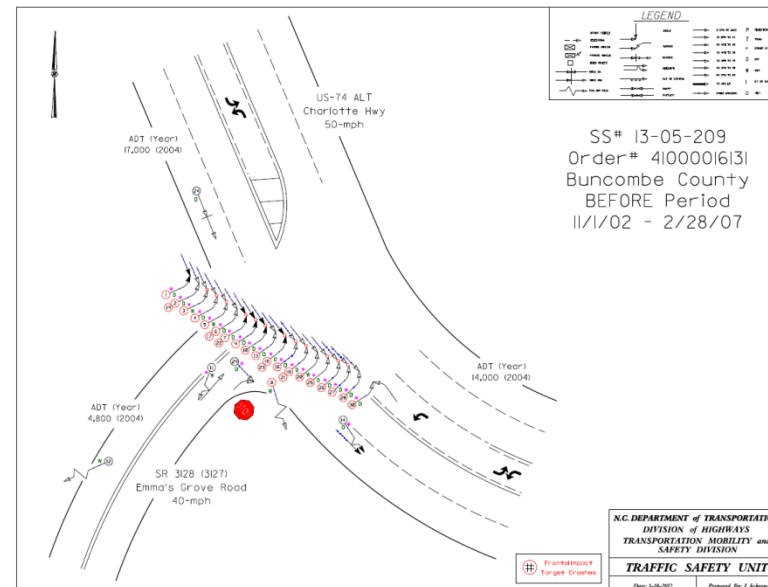
- Introduction
- How to Load and Use the Collision Diagram Program
- Other Notes on Collision Diagrams

- Appendix
 - Example collision diagrams
 - Installation Instructions for ws_update program

Introduction

COLLISION DIAGRAMS

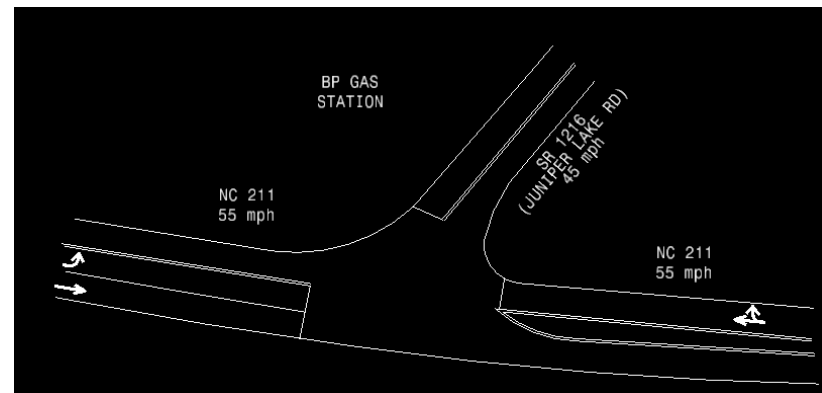
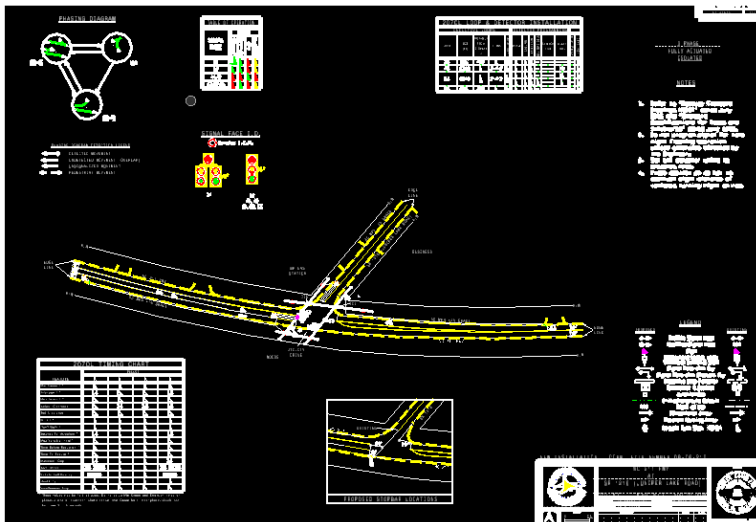
The purpose of collision diagrams is to graphically represent crashes at a particular location. A collision diagram represents the crash type, severity, speed, light conditions, and road conditions for each individual crash report. After a collision diagram is drawn, one may be able to identify potential problem areas with the location through reoccurring patterns. Collision Diagrams are just one of the many tools used to help develop a better understanding of the areas that may need to be looked at for a particular location



Base Mapping

Base mapping is one of the more critical parts of a collision diagram. When drawing a collision diagram for site specific evaluations, the following protocol should be used in order of priority:

1. If a signal plan exists, use it and delete unneeded items. (Signal plans will be provided)
 - Keep pavement edge lines, lane lines, pavement markings (arrows, stop bars), street names, and speed limits.
 - Signal plan will also be used to show signal information on collision diagram. This will be gone over later in the presentation.



Base Mapping (cont)

2. If an aerial exists (google maps, etc), use the aerial and trace over the existing line work (this allows more consistency in lane configurations and skew angles).



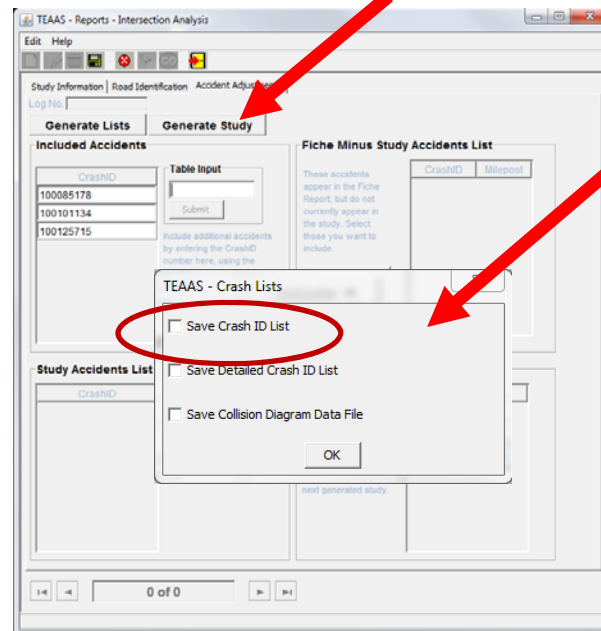
3. Free hand as a last resort, but at a minimum the lane configurations and skew angles should be as close as possible to actual. If no other visual of the intersection exists, the DMV crash report drawings can be used.

How to Load and Use the Collision Diagram Program

Step 1 - Creating Collision Diagram Input File (Method 1 - For State Network Users)

STEP 1: Create an input file of crash id's you wish to plot

- For Intersections and Strips (Preferred method for Greenfield users and others connected to the State network)
 - Complete Intersection or Strip Analysis Report in TEAAS and click “Generate Study”
 - The following box opens

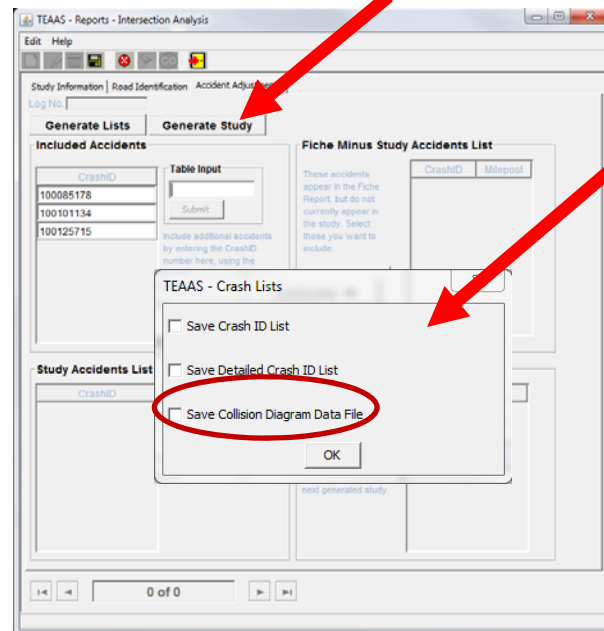


- Check the box next to “Save Crash ID List,” then “OK”

Step 1 - Creating Collision Diagram Input File (Method 1 - For Non-State Network Users)

STEP 1: Create an input file of crash id's you wish to plot

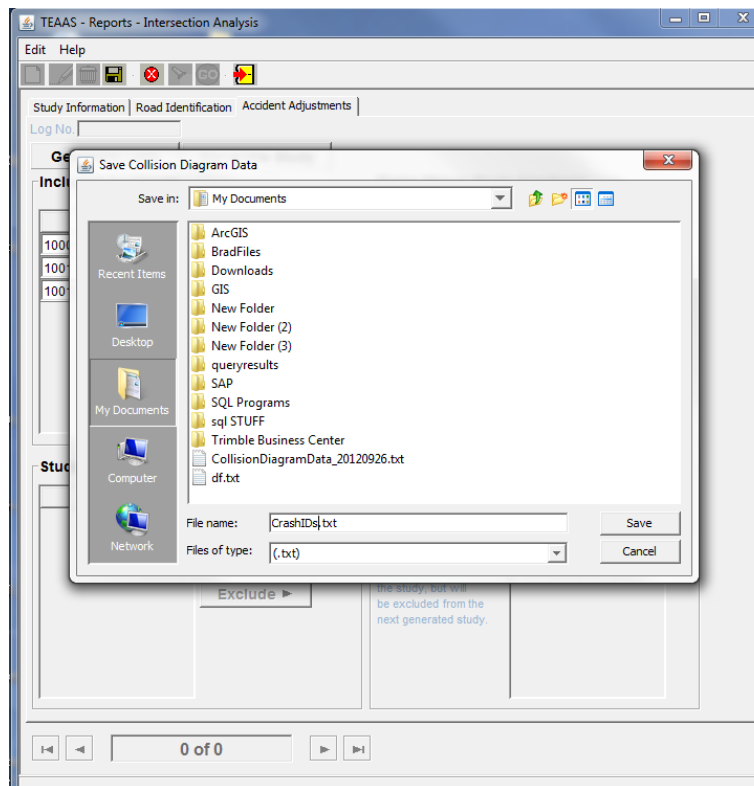
- For Intersections and Strips (For contractors and other users not connected to the State network)
 - Complete Intersection or Strip Analysis Report in TEAAS and click “Generate Study”
 - The following box opens



- Check the box next to “Save Collision Diagram Data File,” then “OK”

Step 1 - Creating Collision Diagram Input File (Method 1)

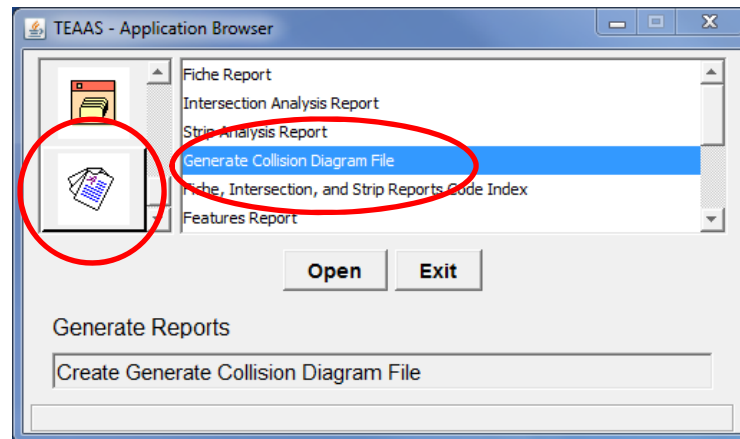
- Choose name and location and save the text file



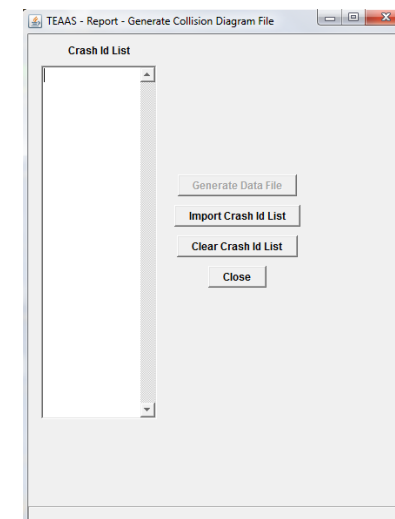
Step 1 - Creating Collision Diagram Input File (Method 2)

Create an input file of crash id's you wish to plot – Second Method

- If you just have a list of Crash IDs that you want to plot
 - In TEAAS go to the 'Generate Reports' tab and click on 'Generate Collision Diagram File'



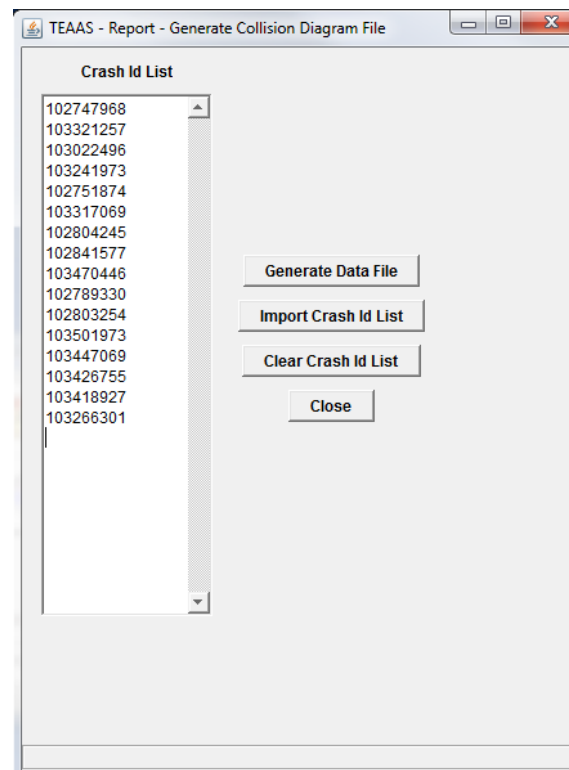
- The following box should pop up:



Step 1 - Creating Collision Diagram Input File (Method 2)

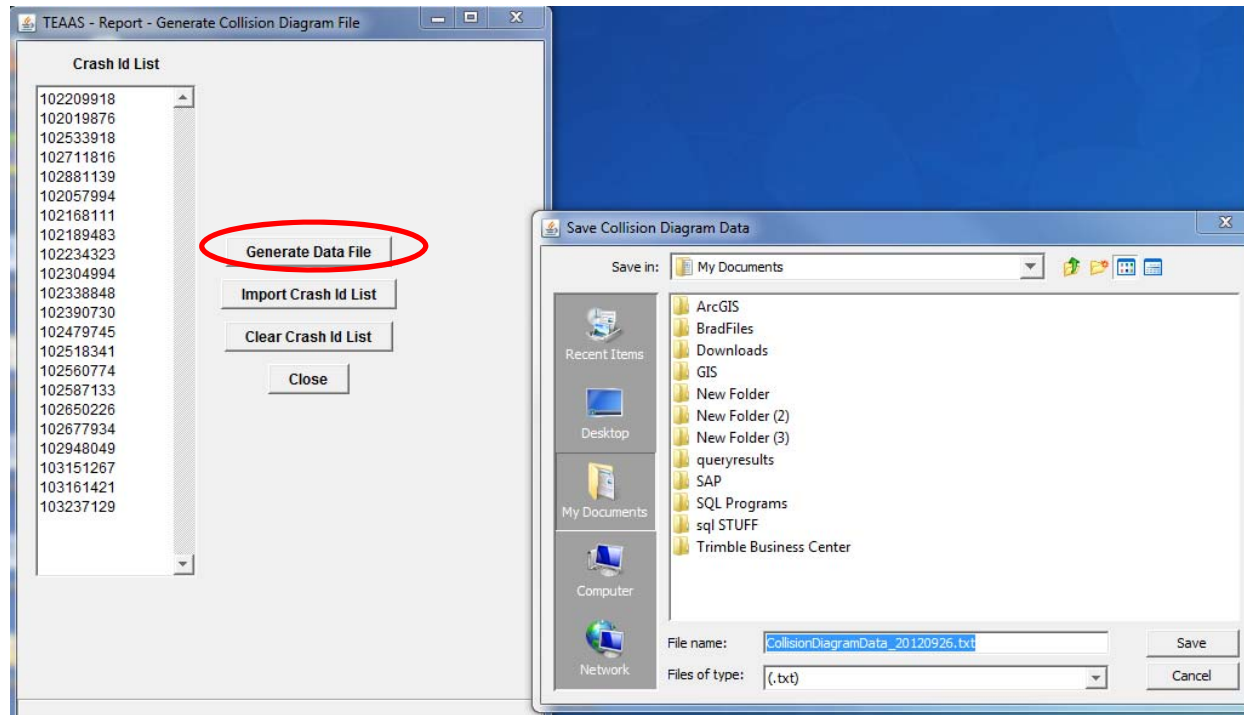
Copy and paste the crash id's that you want plotted into the text box on the left

- You can also import a text file of the crash id's
- Note: If using this method, make sure crash id's are in order that you want them to be plotted
 - Intersection Crash IDs should be ordered by date
 - Strip Crash IDs should ordered by milepost, then by date



Step 1 - Creating Collision Diagram Input File (Method 2)

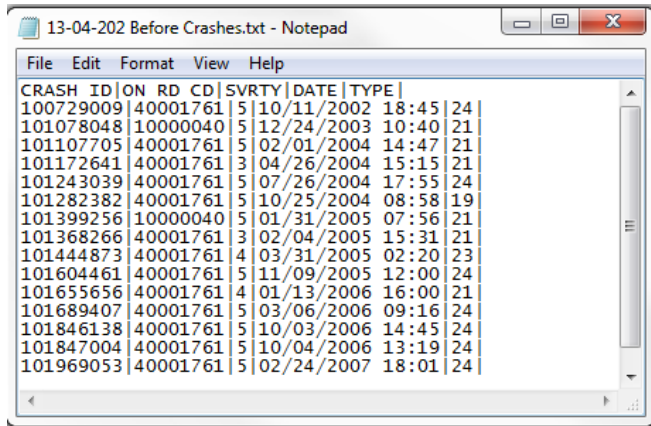
- Click “Generate Data File”
- Choose the name and location for the file to be saved.



Step 1 - Creating Collision Diagram Input File

If opened, the collision diagram file will look similar to one of the following:

If created using "Save Crash ID" list (preferred method for State network users)

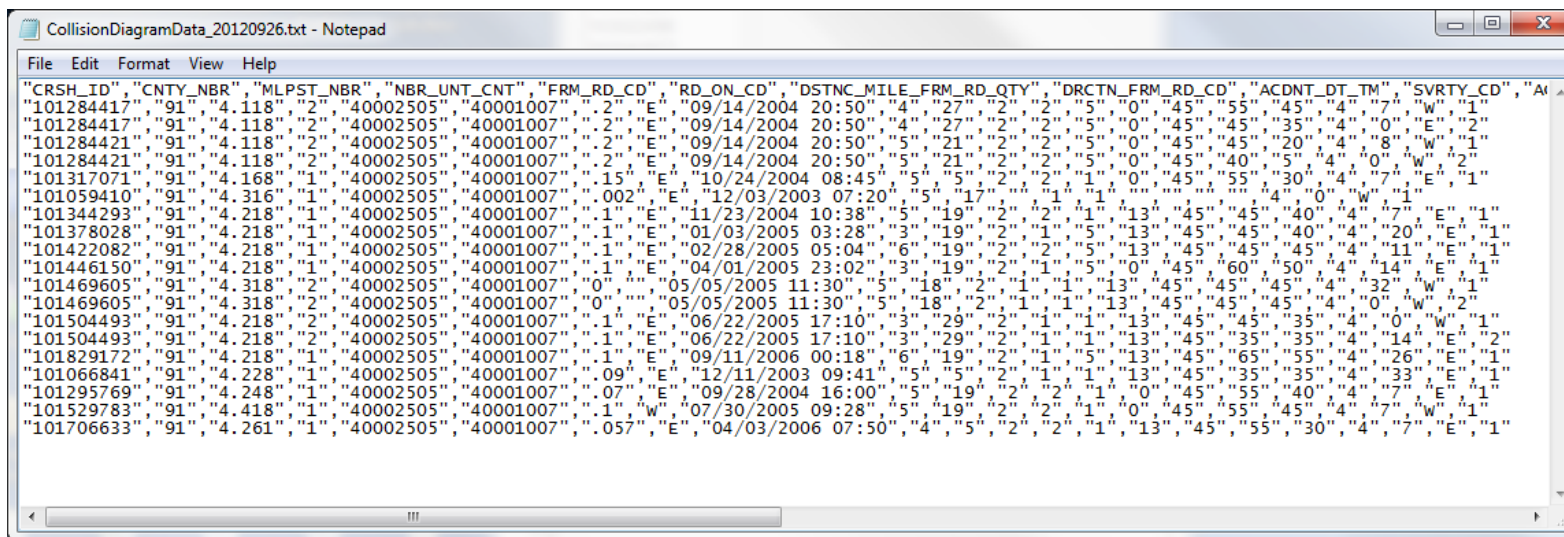


13-04-202 Before Crashes.txt - Notepad

CRASH ID	ON RD CD	SVRTY	DATE	TYPE
100729009	40001761	5	10/11/2002 18:45	24
101078048	10000040	5	12/24/2003 10:40	21
101107705	40001761	5	02/01/2004 14:47	21
101172641	40001761	3	04/26/2004 15:15	21
101243039	40001761	5	07/26/2004 17:55	24
101282382	40001761	5	10/25/2004 08:58	19
101399256	10000040	5	01/31/2005 07:56	21
101368266	40001761	3	02/04/2005 15:31	21
101444873	40001761	4	03/31/2005 02:20	23
101604461	40001761	5	11/09/2005 12:00	24
101655656	40001761	4	01/13/2006 16:00	21
101689407	40001761	5	03/06/2006 09:16	24
101846138	40001761	5	10/03/2006 14:45	24
101847004	40001761	5	10/04/2006 13:19	24
101969053	40001761	5	02/24/2007 18:01	24

OR

If created using "Save Collision Diagram Data File" or the "Generate Collision Diagram File" method



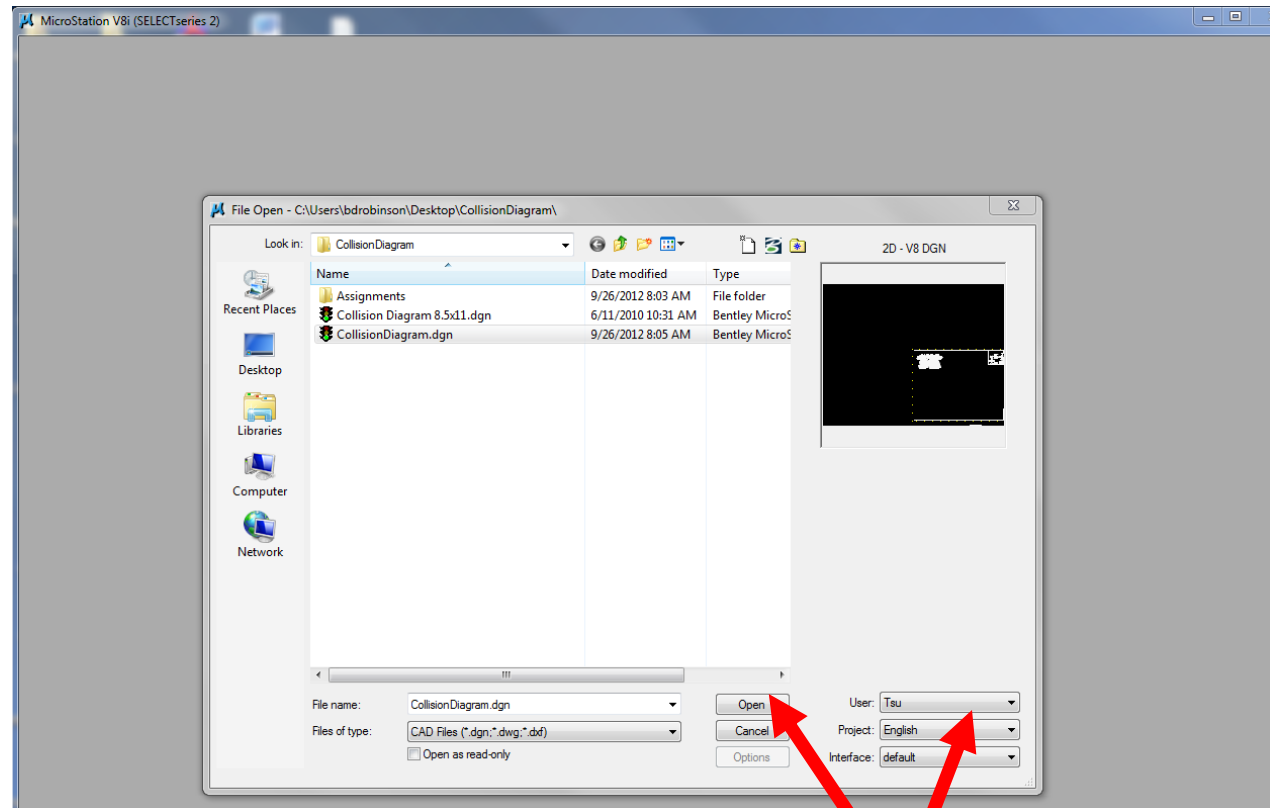
CollisionDiagramData_20120926.txt - Notepad

CRSH_ID	CNTY_NBR	MLPST_NBR	NBR_UNT_CNT	FRM_RD_CD	RD_ON_CD	DSTNC_MILE_FRM_RD_QTY	DRCTN_FRM_RD_CD	ACDNT_DT_TM	SVRTY_CD	AI											
"101284417"	"91"	"4.118"	"2"	"40002505"	"40001007"	"2"	"E"	"09/14/2004 20:50"	"4"	"27"	"2"	"2"	"5"	"0"	"45"	"45"	"45"	"4"	"7"	"W"	"1"
"101284417"	"91"	"4.118"	"2"	"40002505"	"40001007"	"2"	"E"	"09/14/2004 20:50"	"4"	"27"	"2"	"2"	"5"	"0"	"45"	"45"	"35"	"4"	"0"	"E"	"2"
"101284421"	"91"	"4.118"	"2"	"40002505"	"40001007"	"2"	"E"	"09/14/2004 20:50"	"5"	"21"	"2"	"2"	"5"	"0"	"45"	"45"	"20"	"4"	"8"	"W"	"2"
"101284421"	"91"	"4.118"	"2"	"40002505"	"40001007"	"2"	"E"	"09/14/2004 20:50"	"5"	"21"	"2"	"2"	"5"	"0"	"45"	"40"	"5"	"4"	"0"	"W"	"2"
"101317071"	"91"	"4.168"	"1"	"40002505"	"40001007"	"15"	"E"	"10/24/2004 08:45"	"5"	"5"	"2"	"2"	"1"	"0"	"45"	"55"	"30"	"4"	"7"	"E"	"1"
"101059410"	"91"	"4.316"	"1"	"40002505"	"40001007"	"002"	"E"	"12/03/2003 07:20"	"5"	"17"	"1"	"1"	"1"	"0"	"45"	"45"	"4"	"0"	"W"	"1"	
"101344293"	"91"	"4.218"	"1"	"40002505"	"40001007"	"1"	"E"	"11/23/2004 10:38"	"3"	"19"	"2"	"2"	"1"	"13"	"45"	"45"	"40"	"4"	"7"	"E"	"1"
"101378028"	"91"	"4.218"	"1"	"40002505"	"40001007"	"1"	"E"	"01/03/2005 03:28"	"3"	"19"	"2"	"1"	"5"	"13"	"45"	"45"	"40"	"4"	"20"	"E"	"1"
"101422082"	"91"	"4.218"	"1"	"40002505"	"40001007"	"1"	"E"	"02/28/2005 05:04"	"6"	"19"	"2"	"2"	"5"	"13"	"45"	"45"	"45"	"4"	"11"	"E"	"1"
"101446150"	"91"	"4.218"	"1"	"40002505"	"40001007"	"1"	"E"	"04/01/2005 23:02"	"3"	"19"	"2"	"1"	"5"	"0"	"45"	"60"	"50"	"4"	"14"	"E"	"1"
"101469605"	"91"	"4.318"	"2"	"40002505"	"40001007"	"0"	"E"	"05/05/2005 11:30"	"5"	"18"	"2"	"1"	"1"	"13"	"45"	"45"	"45"	"4"	"32"	"W"	"1"
"101469605"	"91"	"4.318"	"2"	"40002505"	"40001007"	"0"	"E"	"05/05/2005 11:30"	"5"	"18"	"2"	"1"	"1"	"13"	"45"	"45"	"45"	"4"	"0"	"W"	"2"
"101504493"	"91"	"4.218"	"2"	"40002505"	"40001007"	"1"	"E"	"06/22/2005 17:10"	"3"	"29"	"2"	"1"	"1"	"13"	"45"	"45"	"35"	"4"	"0"	"W"	"1"
"101504493"	"91"	"4.218"	"2"	"40002505"	"40001007"	"1"	"E"	"06/22/2005 17:10"	"3"	"29"	"2"	"1"	"1"	"13"	"45"	"35"	"35"	"4"	"14"	"E"	"2"
"101829172"	"91"	"4.218"	"1"	"40002505"	"40001007"	"1"	"E"	"09/11/2006 00:18"	"6"	"19"	"2"	"1"	"5"	"13"	"45"	"65"	"55"	"4"	"26"	"E"	"1"
"101066841"	"91"	"4.228"	"1"	"40002505"	"40001007"	"09"	"E"	"12/11/2003 09:41"	"5"	"5"	"2"	"1"	"1"	"13"	"45"	"35"	"35"	"4"	"33"	"E"	"1"
"101295769"	"91"	"4.248"	"1"	"40002505"	"40001007"	"07"	"E"	"09/28/2004 16:00"	"5"	"19"	"2"	"2"	"1"	"0"	"45"	"55"	"40"	"4"	"7"	"E"	"1"
"101529783"	"91"	"4.418"	"1"	"40002505"	"40001007"	"1"	"W"	"07/30/2005 09:28"	"5"	"19"	"2"	"2"	"1"	"0"	"45"	"55"	"45"	"4"	"7"	"W"	"1"
"101706633"	"91"	"4.261"	"1"	"40002505"	"40001007"	".057"	"E"	"04/03/2006 07:50"	"4"	"5"	"2"	"2"	"1"	"13"	"45"	"55"	"30"	"4"	"7"	"E"	"1"

Step 2 - Loading the Collision Diagram Program

STEP 2: Go to MicroStation and load the collision diagram program

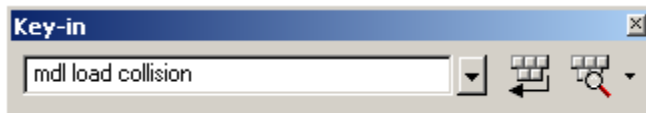
- Open MicroStation



- Select Tsu in the user box if it is not already selected
- Click Open to open MicroStation

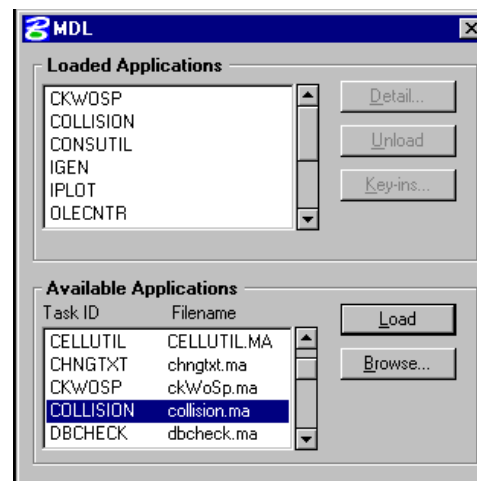
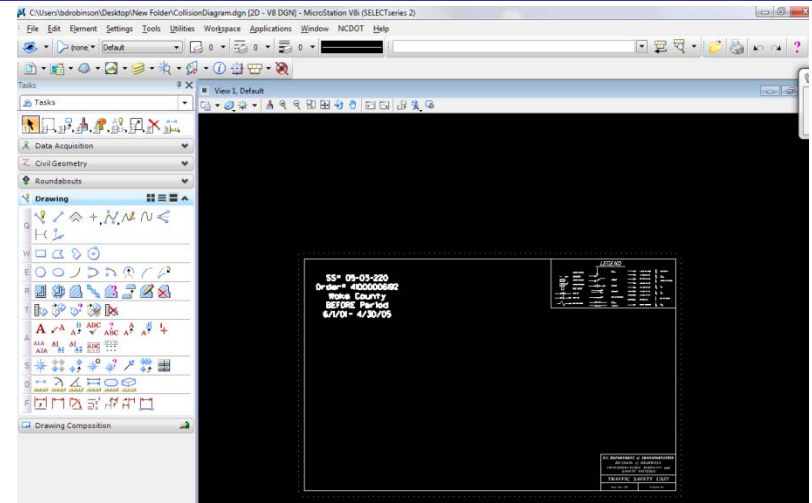
Step 2 - Loading the Collision Diagram Program

- There are two ways to load the program:
 - (1) In the key-in window, type in “mdl load collision”



OR

- (2) Pull down the **Utilities** menu and select **MDL Applications**. Scroll through the **Available Applications** until you see **collision**. Double-click on collision to bring up the program interface.



Step 2 - Loading the Collision Diagram Program

- The program is now loaded and the following screen should appear (may take a few seconds):

Collision Version: 2012:6:12:0

Accident Details

Time On Road

Crash Type UNKNOWN

Injury N UNKNOWN

Road Cond UNKNOWN

Light Cond UNKNOWN

Road Details

Traffic Ctrl NO CONTROL PRESENT

Road Config UNKNOWN

Speed Limit Est. Speed

In Reference To
Dist (feet) Direction Not Stated From Road

Vehicle Details

Crash ID < > Plot

Vehicle < of 0 >

Scale 1 Load Crash ID File Load TEAAS Input File

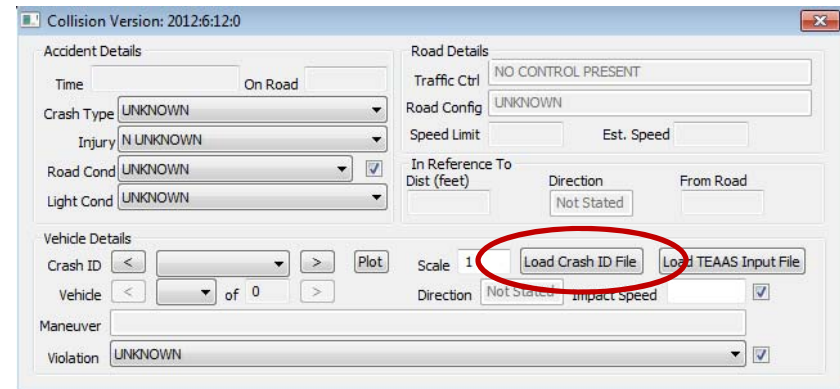
Direction Not Stated Impact Speed

Maneuver

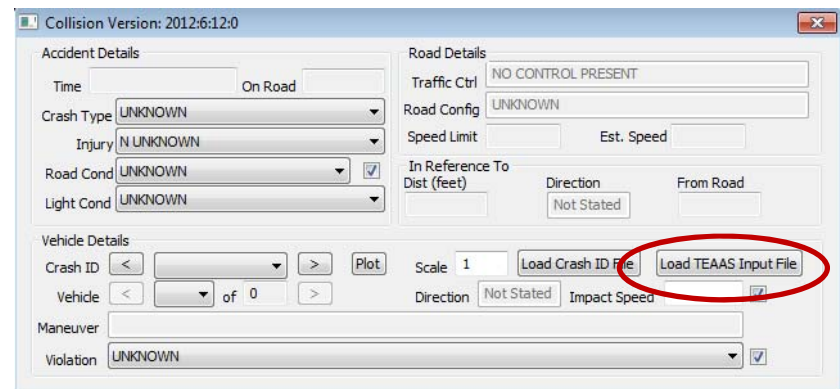
Violation UNKNOWN

Step 3 - Loading the Input File

- **STEP 3:** Load your crash id input file. Depending on how you created your list of Crash IDs this is done in one of two ways:
 - For lists created using “Save Crash ID List” (Preferred method for Greenfield users and others connected to the State network): Click on the “Load Crash ID File” button.

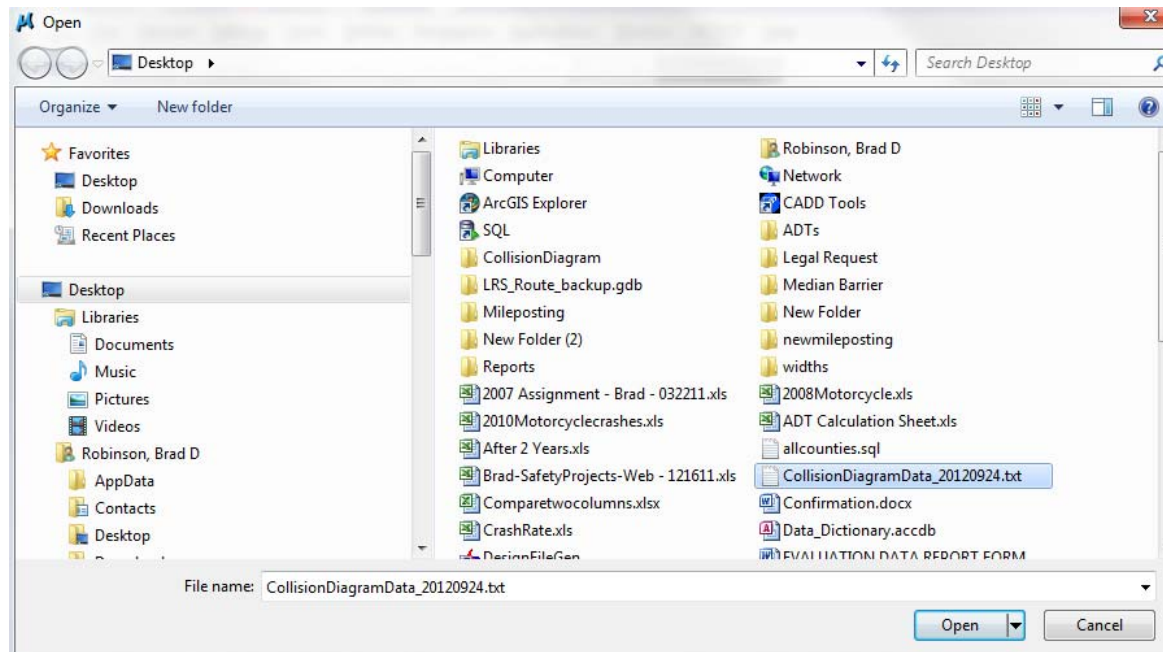


- For lists created using “Save Collision Diagram Data File” or the “Generate Collision Diagram File” method (non State network-users): Click on the “Load TEAAS Input File” button.



Step 3 - Loading the Input File

- Navigate to the input file and select “Open”. Once you click “Open”, the program will connect to the TEAAS database and gather the information necessary to plot the crashes in MicroStation. This may take a few seconds.



Step 3 - Loading the Input File

- The program is now ready to use. All of the fields not grayed out can be changed by clicking on the arrow button at the right of the field and selecting another valid value.

-- NOTE: The information on this screen should be checked for each crash. Coding errors could cause some of the information to come in wrong. Also, some crashes can not be plotted in an automated manner. Certain crash types will still have to be plotted manually. More on this will be discussed later in presentation.

The screenshot displays the 'Collision Version: 2012:6:12:0' software interface. It is divided into several sections for data entry:

- Accident Details:** Includes fields for Time, On Road (10000095), Crash Type (ANIMAL), Injury (B TYPE INJURY (EVIDENT)), Road Cond (WET), and Light Cond (DAYLIGHT).
- Road Details:** Includes Traffic Ctrl (NO CONTROL PRESENT), Road Config (TWO-WAY, NOT DIVIDED), Speed Limit (70), and Est. Speed (70).
- Vehicle Details:** Includes Crash ID ((1)101895561), Vehicle (1 of 2), Maneuver (GOING STRAIGHT AHEAD), and Violation (NO CONTRIBUTING CIRCUMSTANCES INDICATED).
- Reference Information:** Includes In Reference To Dist (feet) (1), Direction (South), and From Road (30000046).

Buttons for 'Plot', 'Load Crash ID File', and 'Load TEAAS Input File' are visible. Checkmarks are present next to 'WET', 'DAYLIGHT', and 'NO CONTRIBUTING CIRCUMSTANCES INDICATED'.

Other Notes on Collision Diagrams

Breakdown of Collision Diagram Program Interface

The screenshot shows the 'Collision Version: 2012:6:12:0' interface. It is divided into several sections: Accident Details, Road Details, and Vehicle Details. The Accident Details section includes fields for Time, On Road (10000095), Crash Type (ANIMAL), Injury (B TYPE INJURY (EVIDENT)), Road Cond (WET), and Light Cond (DAYLIGHT). The Road Details section includes Traffic Ctrl (NO CONTROL PRESENT), Road Config (TWO-WAY, NOT DIVIDED), Speed Limit (70), Est. Speed (70), In Reference To (checked), Dist (feet) (1), Direction (South), and From Road (30000046). The Vehicle Details section includes Crash ID ((1)101895561), Vehicle (1 of 2), Maneuver (GOING STRAIGHT AHEAD), and Violation (NO CONTRIBUTING CIRCUMSTANCES INDICATED). There are also buttons for Plot, Scale (1), Load Crash ID File, and Load TEAAS Input File. Checkboxes are present for In Reference To and Impact Speed (70).

Use these buttons to switch between crash id's

Use these buttons to switch between units

Can change the scale at which the crashes plot to best fit your base map

Press the plot button to plot your crash based on the values selected

Button used to select an input file of crash id's

Can toggle these fields by using the check boxes

Checking Data in Collision Diagram Program

Check data against crash report to make sure it was entered correctly

(1) Locality
1 Rural (~30% developed)
2 Mixed (30% to 70% developed)
3 Urban (>70% developed)

(2) Predominant Development Type
1 Farms, woods, pastures
2 Residential
3 Commercial
4 Institutional
5 Industrial

(3) Road Surface Condition
1 Dry
2 Wet
3 Water (standing, moving)
4 Ice
5 Snow
6 Slush
7 Sand, Mud, Dirt, Gravel
8 Fuel, Oil
9 Other*
10 Unknown

(4.5) Weather Condition (Maximum - two per crash)
1 Clear
2 Cloudy
3 Rain
4 Snow
5 Fog, smog, smoke
6 Sleet, hail, freezing rain/ice
7 Severe crosswinds
8 Blowing sand, dirt, snow
9 Other*

(6) Weather Contributed to the Crash
1 Yes 2 No 3 Unknown

(7) Ambient Light
1 Daylight
2 Dusk
3 Dawn
4 Dark - lighted roadway
5 Dark - roadway not lighted
6 Dark - unknown lighting
7 Other*
8 Unknown

(21) Vehicle Number 1, 2, 3, etc.

(22) Person Type
1 Driver
2 Passenger
Non-Motorist (including)
3 Pedestrian
4 Pedalcyclist

(23) Seating Position
1 Front - left (Driver, motorcycle driver)
2 Front - middle
3 Front - right
4 Second seat - left (motorcycle passenger)
5 Second seat - middle
6 Second seat - right
7 Third row - left (motorcycle passenger)
8 Third row - middle
9 Third row - right

(24) DOB
mm/dd/yyyy (if unavailable, approx. Age)

(25) Ethnicity
W White
B Black
N Native American
H Hispanic

(27) Occupant/Non-Motorist Protection
0 None used
1 Lap belt only

(28) Air Bag Deployed
0 No Air Bag(s)
1 Not deployed
2 Deployed front
3 Deployed side
4 Deployed both front and side
5 Unknown

(29) Air Bag Switch Status
0 No ON-OFF switch
1 Lap belt only

(30) Trapped
1 Yes
2 No
3 Unknown

(31) Ejection
1 Not ejected
2 Totally ejected
3 Partially ejected
4 Unknown

(32) Injury Status

North Carolina Crash Report Form DMV-349

A reportable motor vehicle crash must meet at least one of the following criteria:

- results in a fatality, or
- a non-fatal personal injury, or
- property damage of \$1,000 or greater, or
- property damage of any amount to a vehicle seized

In addition, a reportable motor vehicle crash must occur on a trafficway (any land way open to the public as a matter of right or custom for moving persons or property from one place to another) or occur after the motor vehicle runs off the roadway out before events are stabilized.

The terms collision, accident, and crash are synonymous when describing a motor vehicle crash.

(FILLING OUT THE DMV-349)

(*) EXPLAIN IN CRASH NARRATIVE (-) IF QUESTION DOES NOT APPLY, USE A DASH
(If a section does not apply, draw diagonal line through section)

ONLY USE "CHECK BLOCKS" IF THEY APPLY

The Division of Motor Vehicles (DMV) requests that:

- The DMV-349 should be typewritten or if handwritten the officer should use black ink.
- The report should be legible. This is of the utmost importance for clarity, when reports are microfilmed or imaged for later storage, and
- The original should be submitted to the DMV Traffic Records Section.

(20) Commercial Motor Vehicle (CMV)

A commercial motor vehicle (CMV) is defined as a motor vehicle or combination of motor vehicles used in commerce to transport passengers or property if the motor vehicle:

- Has a gross combination weight rating of 10,001 or more pounds inclusive of a towed unit, or
- Is designed to transport 16 or more passengers, including the driver, or
- Is of any size and is used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR Part 172, Subpart F).

✓ If the vehicle is a CMV, check box 20 on the DMV-349

(8-9) Contributing Circumstances, Non-Motorist (Maximum - two per person)

- None
- Coming from behind parked veh.
- Darking
- Lying and/or illegally in roadway
- Failure to yield right of way
- Not visible (dark clothing, etc.)
- Inattentive (talking, eating, etc.)
- Failure to obey traffic signs, signals
- Wrong side of road
- Other*
- Unknown

(10-11) CRASH LEVEL First Harmful Event & Most Harmful Event

Non-Collision

- Unknown
- Ran off road - right
- Ran off road - left
- Ran off road - straight
- Jackknife
- Overturn/hollover
- Other non-collision*

Collision of Motor Vehicle With

- Pedestrian
- Pedalcyclist
- RR train, engine
- Animal
- Movable object*
- Fixed object*

Collision of Two or More Motor Vehicles

- Parked motor vehicle
- Rear end, slow or stop
- Rear end, turn
- Left turn, same roadway
- Left turn, different roadway
- Right turn, same roadway
- Right turn, different roadway
- Head on
- Sideswipe, same direction
- Sideswipe, opposite direction
- Angle
- Backing up
- Other collision with vehicle*

(12-13) Contributing Circumstances, Roadway (Maximum - two per crash)

- None (no unusual conditions)
- Road Surface Condition
- Debris
- Rut, holes, bumps
- Work zone (construction, maintenance, utility)
- Worn/leaved-polished surface
- Obstruction in roadway
- Traffic control device inoperative, not visible or missing
- Shoulders low, soft or high
- No shoulders
- Non-highway work
- Other*
- Unknown

(14-19) Contributing Circumstances, Driver (Maximum - three per driver)

- No contributing circumstances indicated
- Disregarded yield sign
- Disregarded stop sign
- Disregarded other traffic signs
- Disregarded traffic signals
- Disregarded road markings
- Exceeded authorized speed limit
- Exceeded safe speed for conditions
- Failure to reduce speed
- Improper turn
- Right turn on red
- Crossed centerline/going wrong way
- Improper lane change
- Use of improper lane
- Overcorrected/oversteered
- Passed stopped school bus
- Passed on hill
- Passed on curve
- Other improper passing
- Failed to yield right of way
- Inattention
- Improper backing
- Improper parking
- Driver drowsy
- Improper or no signal

Collision Version: 2012:6:12:0

Accident Details
Time: On Road 10000095
Crash Type: ANIMAL
Injury: B TYPE INJURY (EVIDENT)
Road Cond: WET
Light Cond: DAYLIGHT

Road Details
Traffic Ctrl: NO CONTROL PRESENT
Road Config: TWO-WAY, NOT DIVIDED
Speed Limit: 70 Est. Speed: 70
In Reference To Dist (feet): 1 Direction: South From Road: 30000046

Vehicle Details
Crash ID: (1) 101895561
Vehicle: 1 of 2
Direction: South Impact Speed: 70
Maneuver: GOING STRAIGHT AHEAD
Violation: NO CONTRIBUTING CIRCUMSTANCES INDICATED

DMV-349 (Rev. 2009-1)

THIS REPORT IS FOR THE USE OF THE DIVISION OF MOTOR VEHICLES. THE DATA IS COLLECTED FOR STATISTICAL ANALYSIS AND SUBSEQUENT HIGHWAY SAFETY PROGRAMMING. DETERMINATIONS OF "FAULT" ARE THE RESPONSIBILITY OF INSURERS OR OF THE STATE'S COURTS.

Crash Date: 1-23-2009
County: NORTHAMPTON
Time: 1521
Local Use/Patrol Area: 131 / A3

Crash Location: I-95
Milepost: 3.00
Milepost Range: N/A
Milepost Direction: N/A

Address: NICHOLS
City: LAUREL
State: MD
Zip: 20708

Driver 1: Name: [REDACTED], Address: [REDACTED], City: [REDACTED], State: AR, Zip: 72212

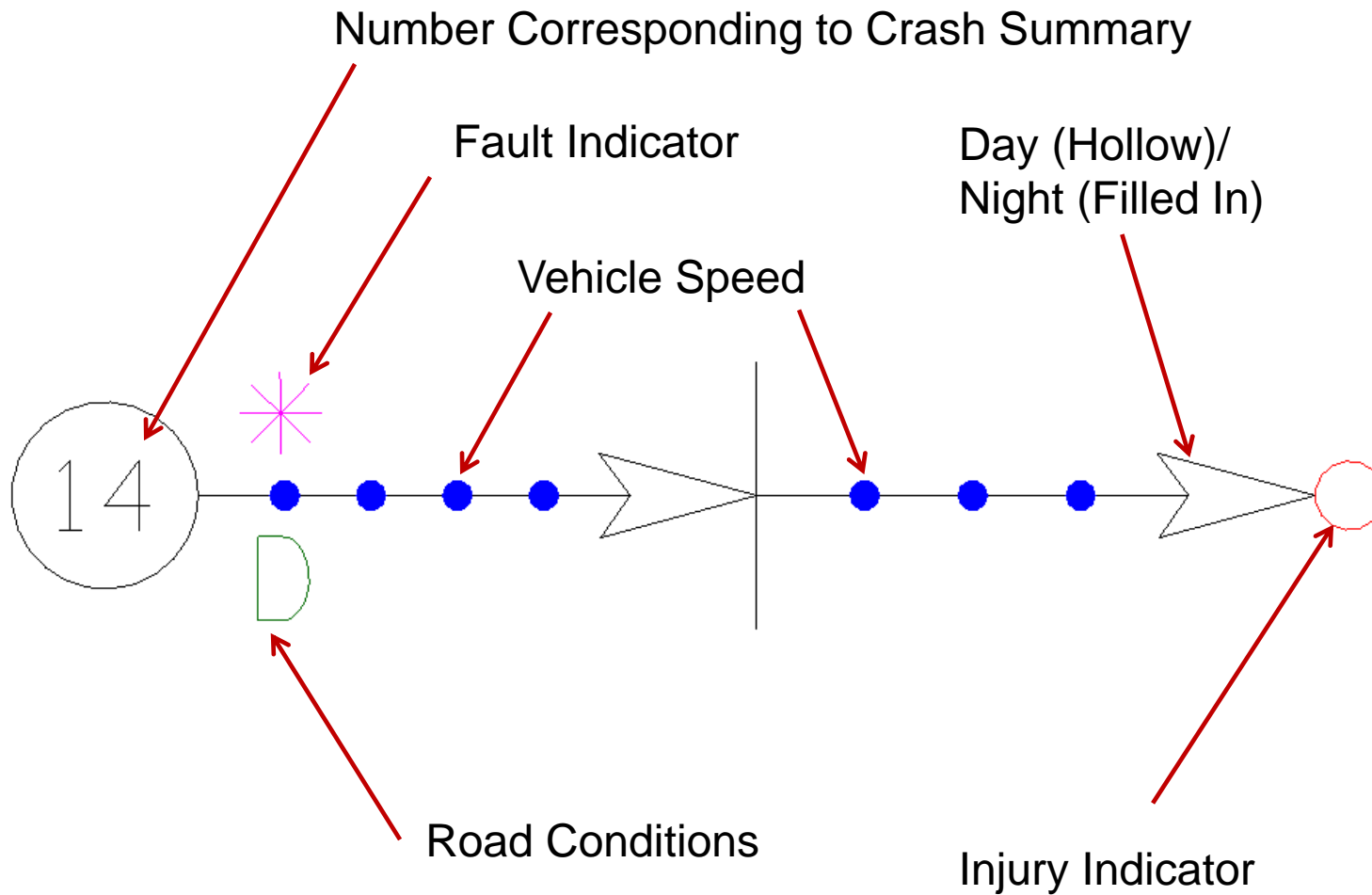
Driver 2: Name: [REDACTED], Address: [REDACTED], City: [REDACTED], State: VA, Zip: 22027

Vehicle 1: Make: BMW, Year: 2002, Style: Sedan, Color: [REDACTED], VIN: [REDACTED], License: [REDACTED], Insurance: USAA

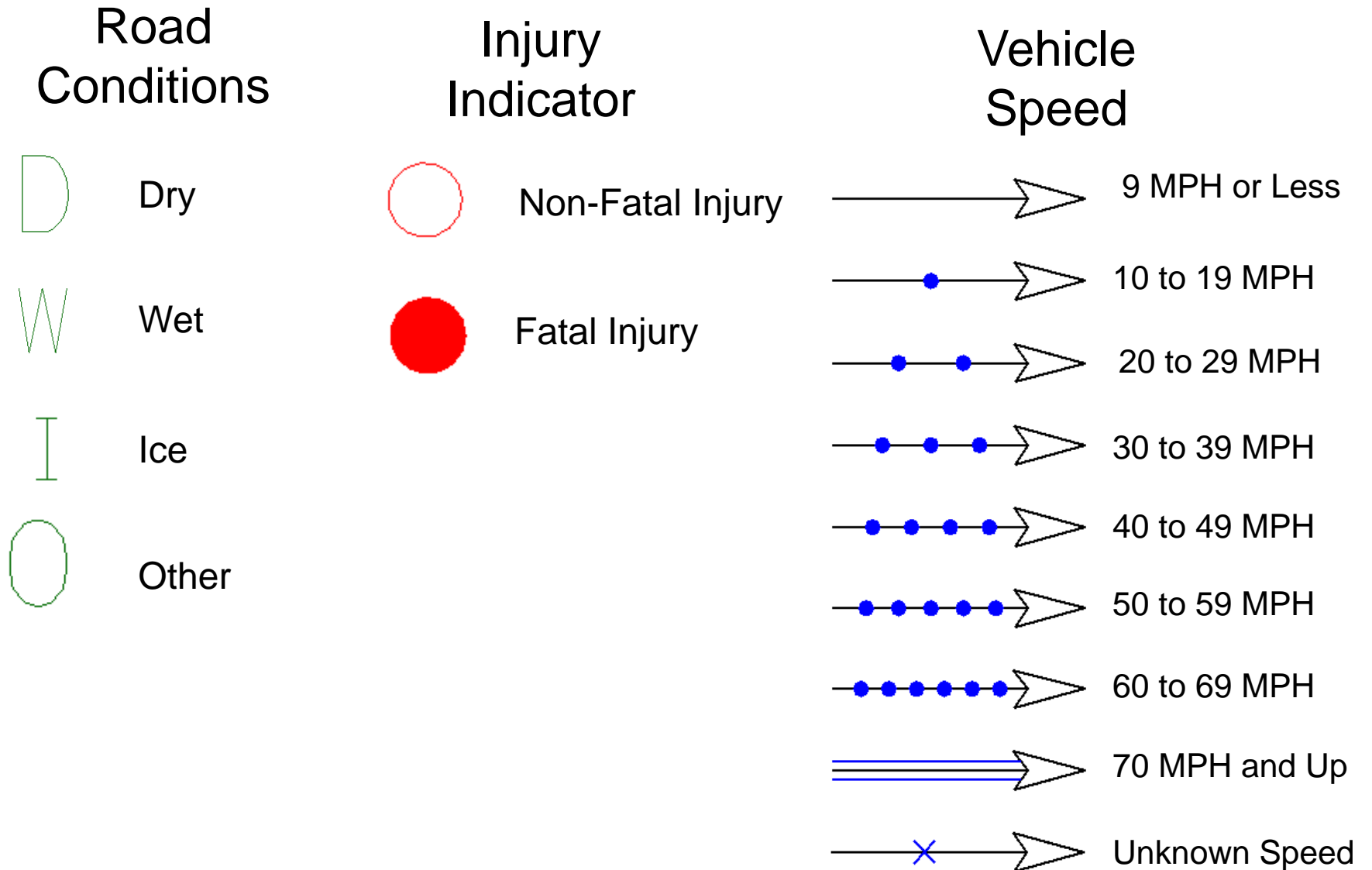
Vehicle 2: Make: [REDACTED], Year: [REDACTED], Style: [REDACTED], Color: [REDACTED], VIN: [REDACTED], License: [REDACTED], Insurance: [REDACTED]

Contributing Circumstances: 14-15 (Driver 1), 17-19 (Driver 2)

Breakdown of Plotted Crash Components



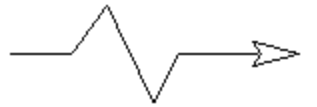
Breakdown of Plotted Crash Components



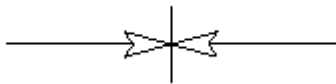
Crash Types



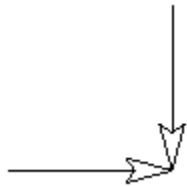
Rear End



Ran Off Road



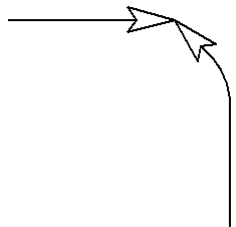
Head On



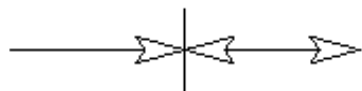
Angle



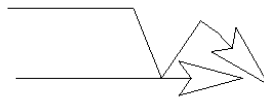
Left Turn – Same Roadway



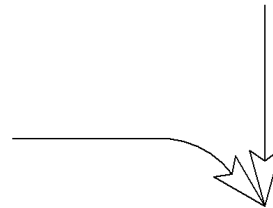
Left Turn – Different Roadway



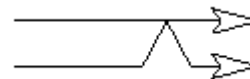
Backing Up



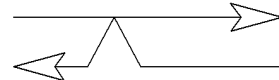
Right Turn – Same Roadway



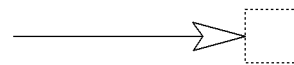
Right Turn – Different Roadway



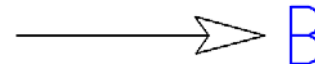
Sideswipe – Same Direction



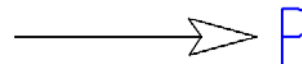
Sideswipe – Opposite Direction



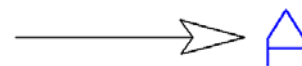
Movable Object



Bicycle



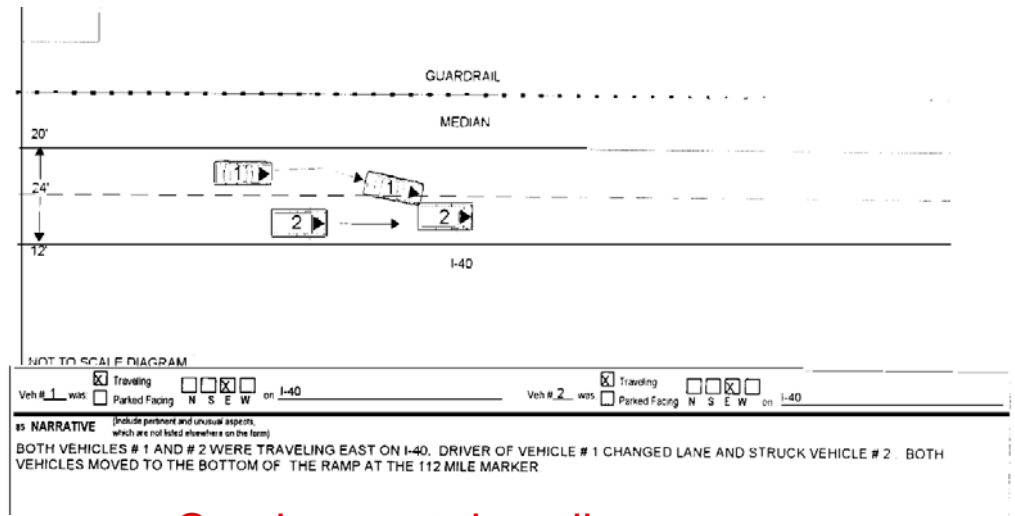
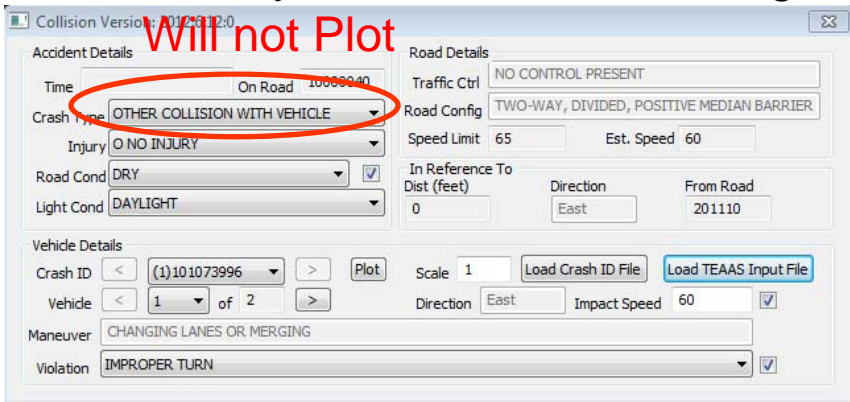
Pedestrian



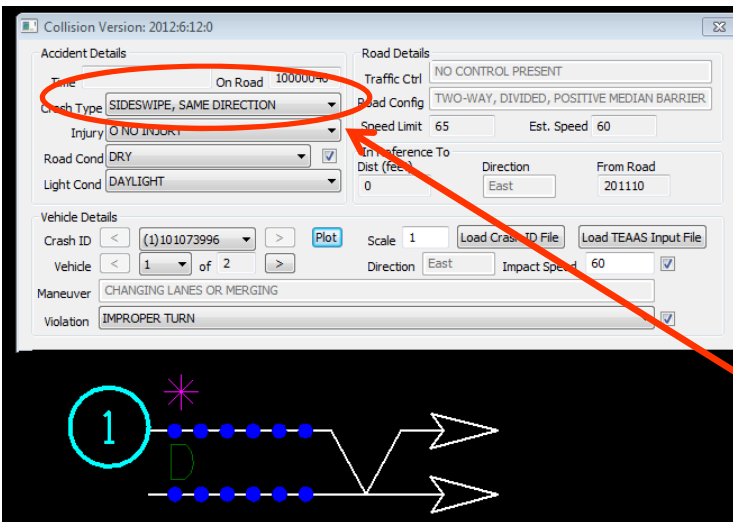
Animal

Notes on Collision Diagrams

- Some crash types (“Other Collision with Vehicle,” “Other Non-Collision,” “Unknown”) do not have a corresponding crash cell. In the collision diagram program you will need to change the crash type to one that the crash most closely resembles. A note might need to be added for further clarification.



Crash report describes it as a sideswipe-type crash



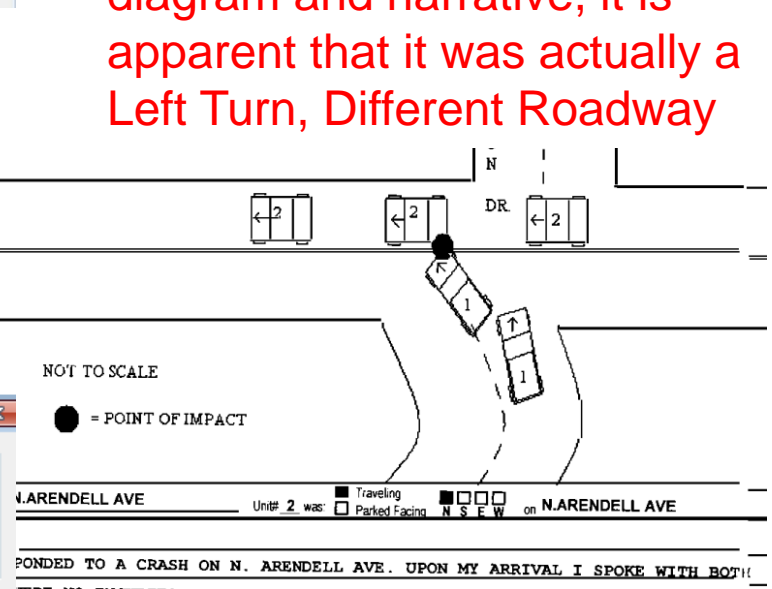
Notes on Collision Diagrams

- Occasionally you will need to correct miscoded crash types.

Coded as Left Turn, Same Roadway

Time	2006-07-07 06:55:00	On Road	50000957	Traffic Ctrl	NO CONTROL PRESENT
Crash Type	LEFT TURN, SAME ROADWAY				
Injury	NO INJURY				
Road Cond	DRY				
Light Cond	DAYLIGHT				
Road Config	TWO-WAY, NOT DIVIDED				
Speed Limit	35	Est. Speed			
In Reference To Dist (feet)	100	Direction	North		
Vehicle Details					
Crash ID	(12)101779898	Plot	Scale 1	Load Crash ID File	
Vehicle	1 of 2	Direction	North	Impact Speed	
Maneuver	MAKING LEFT TURN				
Violation	INATTENTION				

From the crash report diagram and narrative, it is apparent that it was actually a Left Turn, Different Roadway



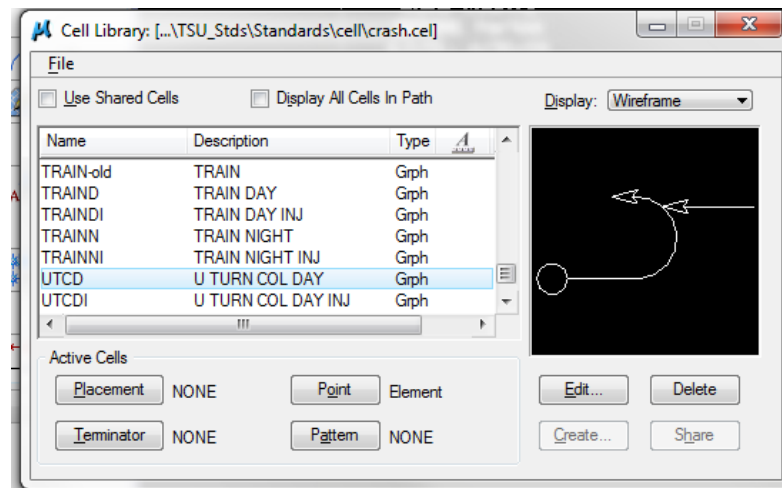
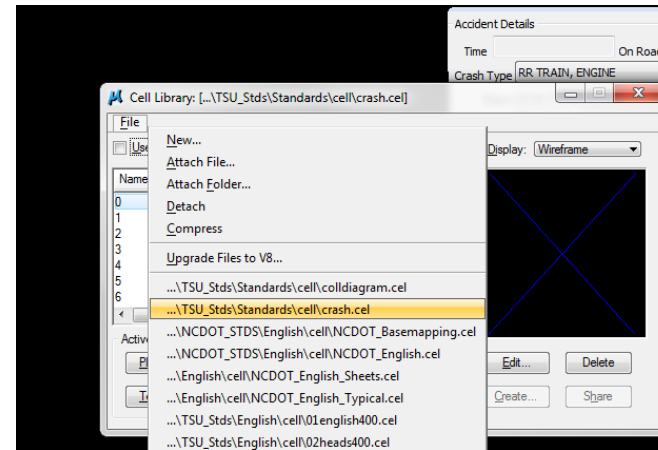
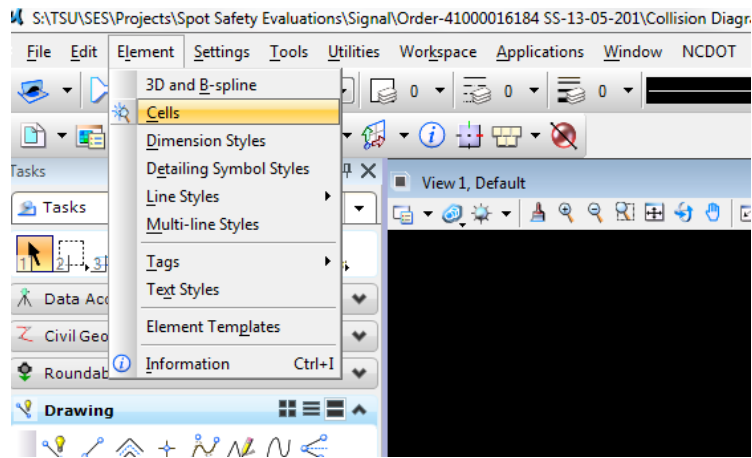
Collision Version: 2010:6:25:0

Accident Details			
Time	2006-07-07 06:55:00	On Road	50000957
Crash Type	LEFT TURN, SAME ROADWAY		
Injury	ANGLE		
Road Cond	BACKING UP		
Light Cond	HEAD ON		
Vehicle Details	LEFT TURN, DIFFERENT ROADWAYS		
Crash ID	MOVABLE OBJECT		
Vehicle	OTHER COLLISION WITH VEHICLE		
Maneuver	OVERTURN/ROLLOVER		
Violation	PEDALCYCLIST		
Road Details			
Traffic Ctrl	NO CONTROL PRESENT		
Road Config	TWO-WAY, NOT DIVIDED		
Speed Limit	35	Est. Speed	35
In Reference To Dist (feet)	100	Direction	North
		From Road	50035940
Scale	1	Load Crash ID File	
Direction	North	Impact Speed	15

Change the crash type before plotting

Notes on Collision Diagrams

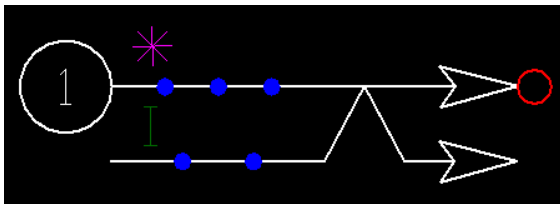
- Some crashes (U-Turns) are not an option on crash report. Open cell library and find what you need.



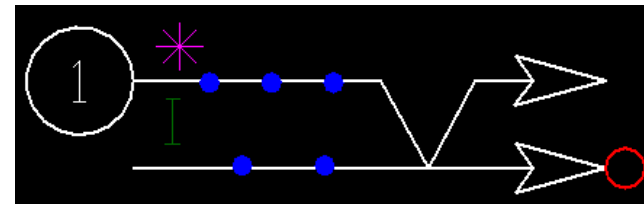
Notes on Collision Diagrams

- Collision Diagram program has some quirks to it
- Sometimes fault indicator or speeds need to be changed even though the information is entered correctly. This can be done either by changing information in collision diagram program box or by placing the cell, breaking it, and manually moving indicators to correct location.
 - Although we have a fault indicator, if possible change crash number circle to at-fault vehicle as a secondary indicator (not possible with backing-up crash).
- Sideswipe crashes always drawn same way (shows vehicle on right swerving). May need to be changed to accurately reflect which vehicle departed the lane

Cell came in like this

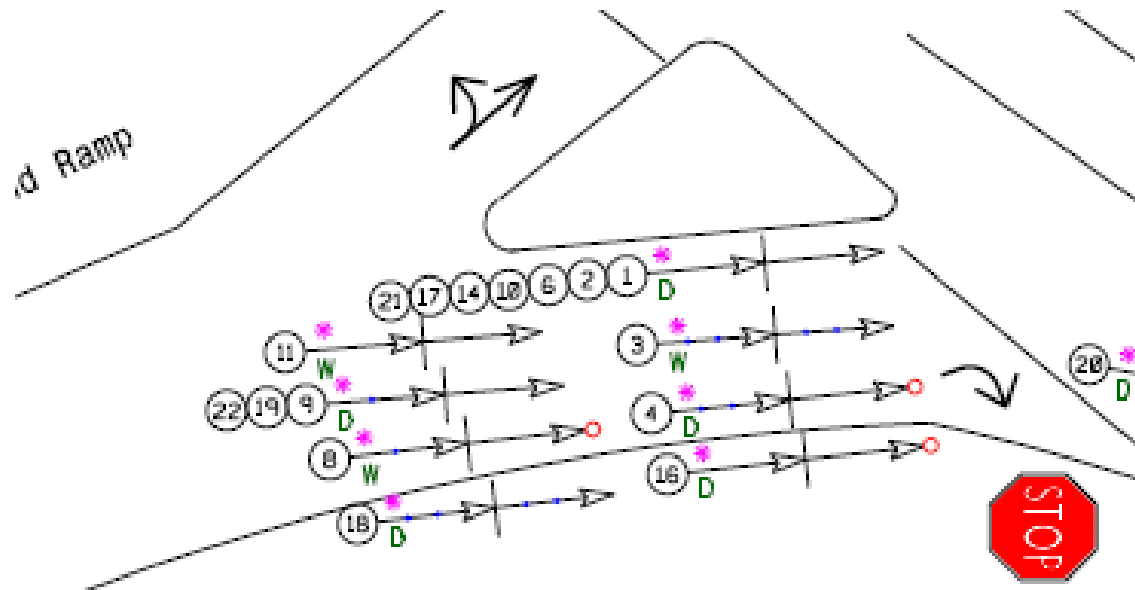


Needed to be changed to this



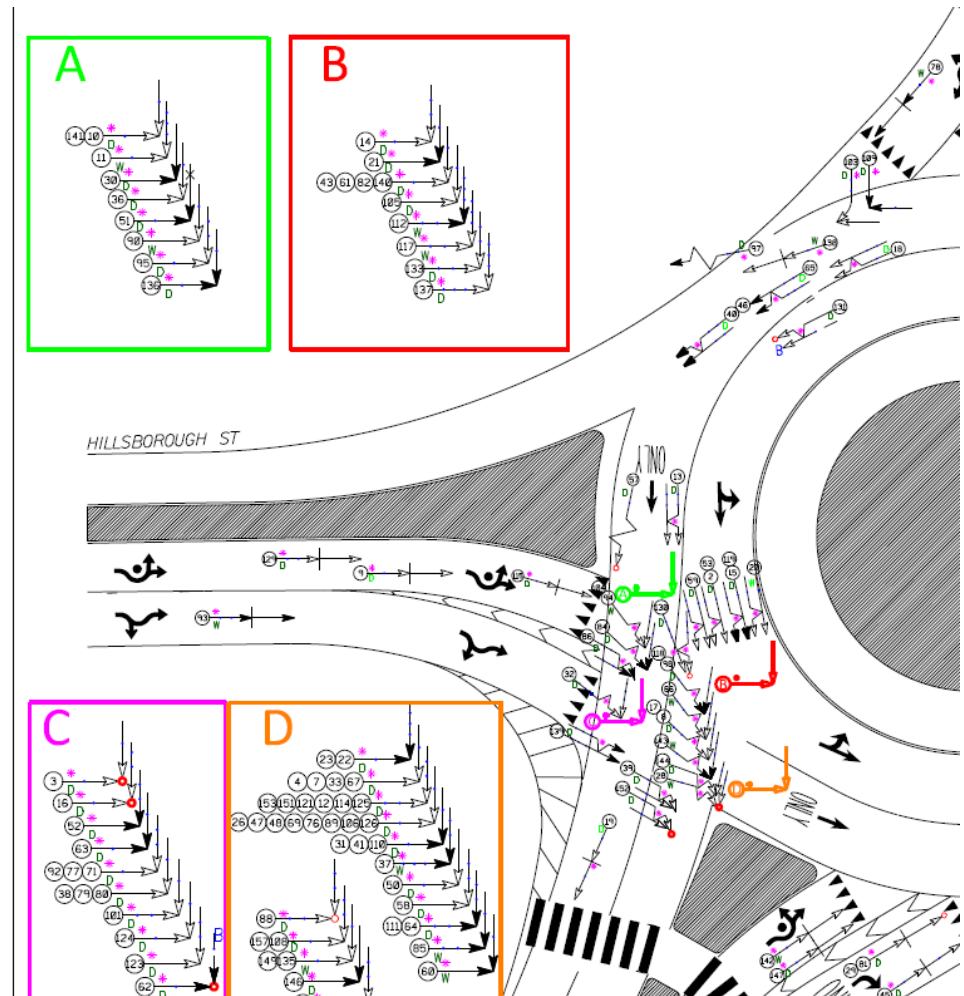
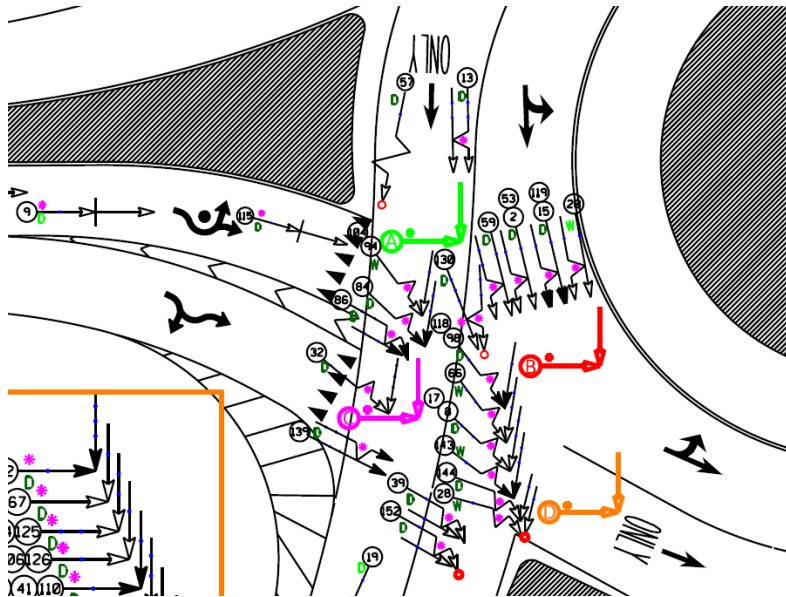
Notes on Collision Diagrams

- There are different ways to draw collision diagrams so that they are not as cluttered
 - Stacking Numbers – Use if details about two or more crashes are the same (type, fault, road and light condition, speed ranges)



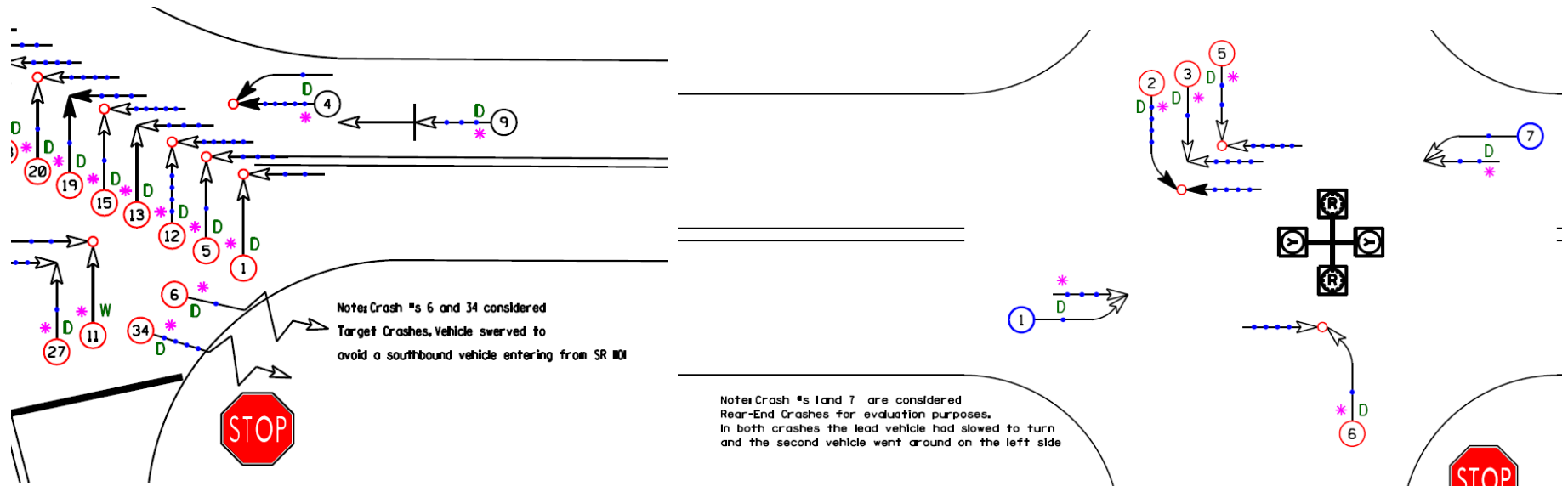
Notes on Collision Diagrams

- Use Insets and “Blow Up”- Use if there is a large pattern that can't be fit into the diagram at a readable size



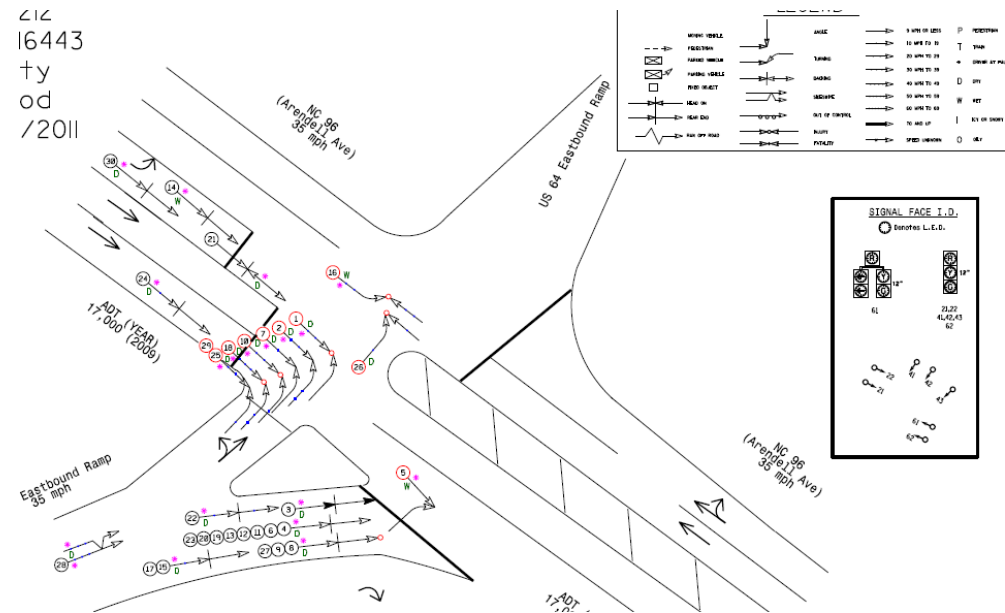
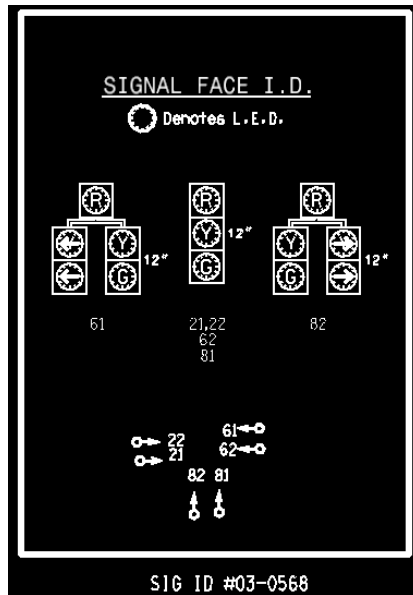
Notes on Collision Diagrams

- Collision Diagrams are not to scale. We try to be as accurate as possible, but for visual clarity sometimes things need to be changed. (Driveway locations, length of turn lanes, etc)
- If there is information that you think is relevant, put a note next to the crash.



Signal Diagram

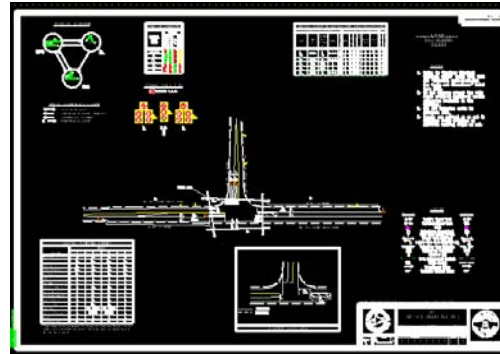
- Signals – Use signal file to help draw simple signal diagram on the collision diagram



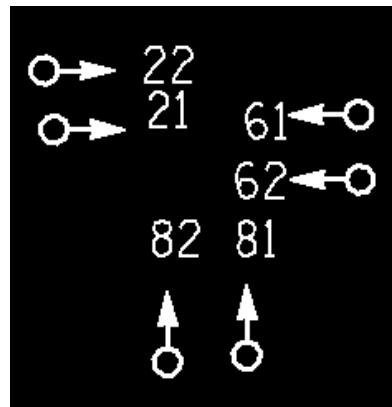
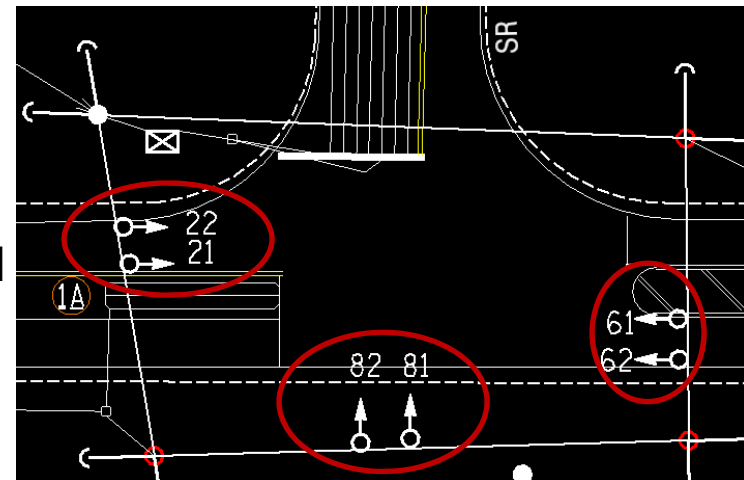
Signal Diagram

- How to make signal diagram

- ‘Reference’ signal file into collision diagram file

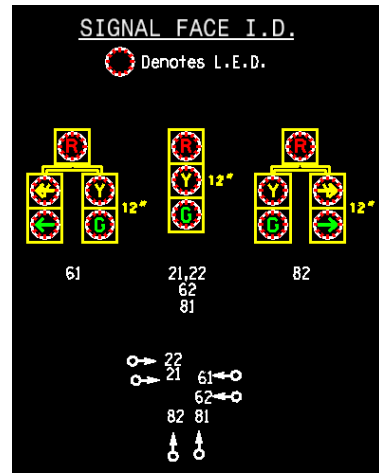


- Zoom into intersection and copy all the signal head symbols as well as the corresponding numbers. Paste them off to the side. They will probably be spaced far apart and will be needed to be moved closer together. Try to keep their placement relative to each other.

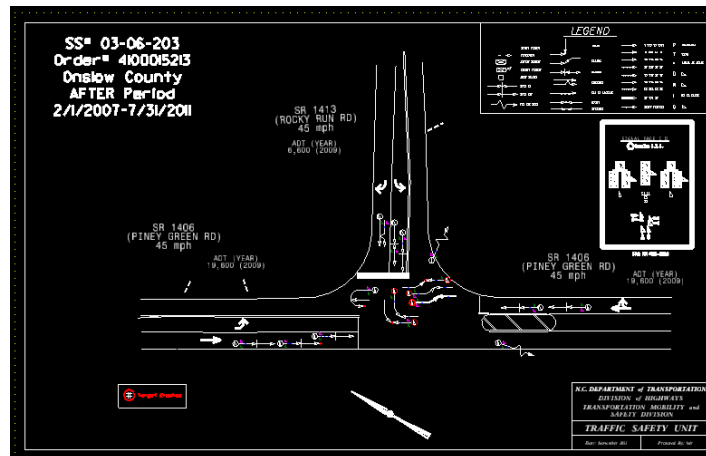
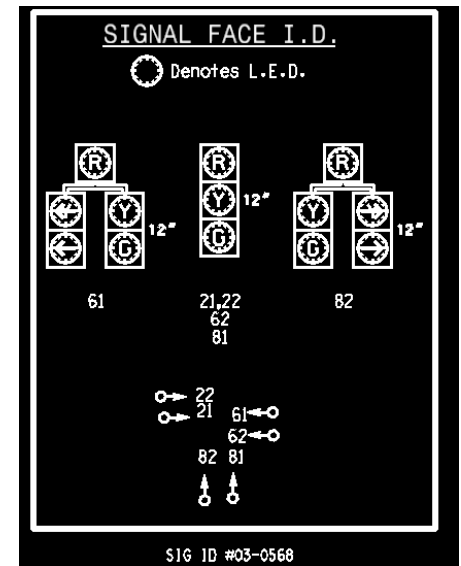


Signal Diagram

- Now copy the “Signal Face I.D.” chart from signal file and place over signal head symbols that you copied.



- Put a box around everything and label it with the Signal ID
- Place on collision diagram. Might need to be resized.



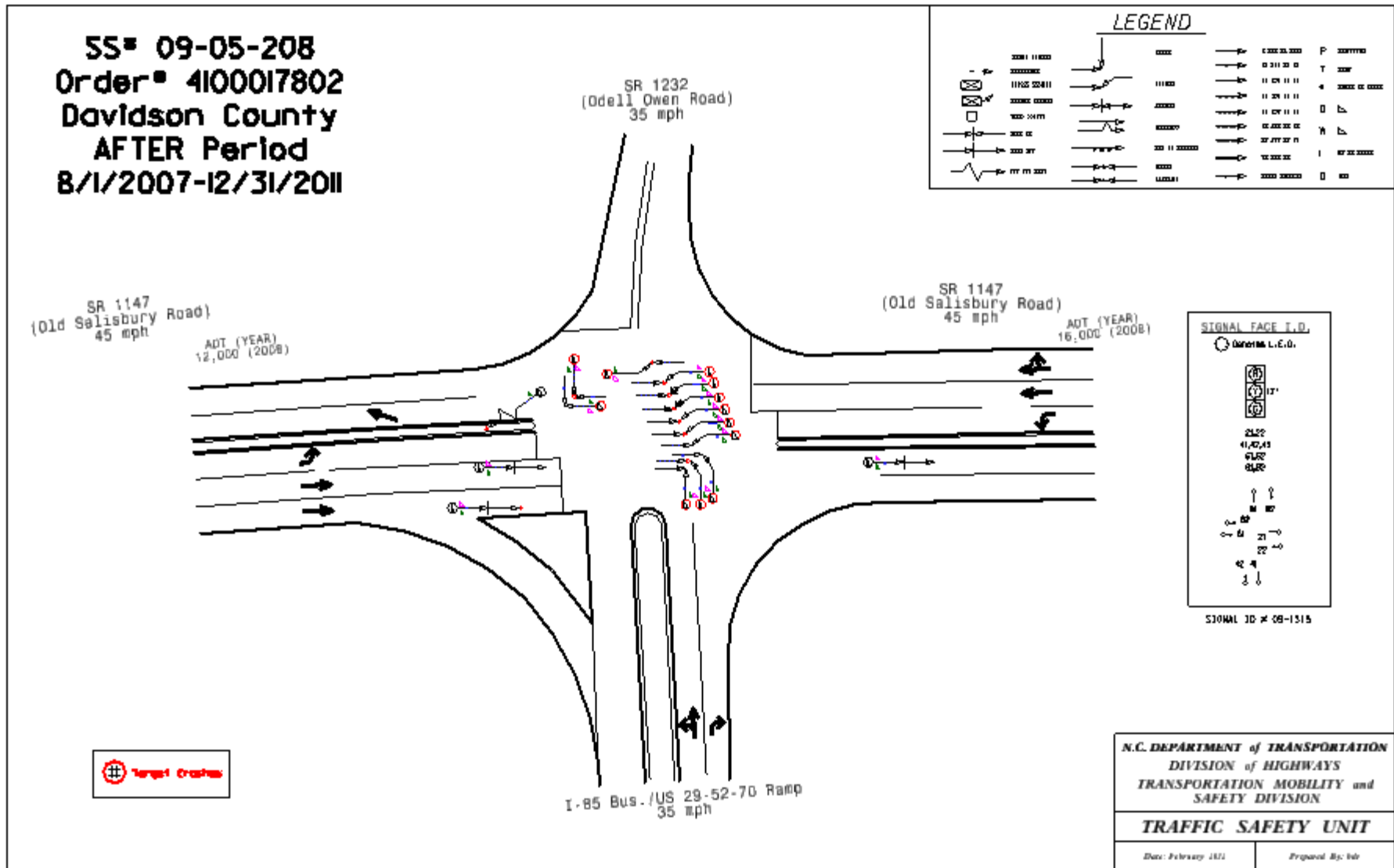
Notes on Printing

- Notes on Printing
 - Change all crash cells to line weight of “0” so that speeds are readable after converting to pdf.
 - Leave crash cells in color. Stick to black/white for most background drawing features unless color is necessary. The yellow color used for lane lines and signal heads does not show up well when printed. If a “yellow’ color is preferred, use one with more orange in it
 - We don’t use any special IPLOT settings. Just print as is.

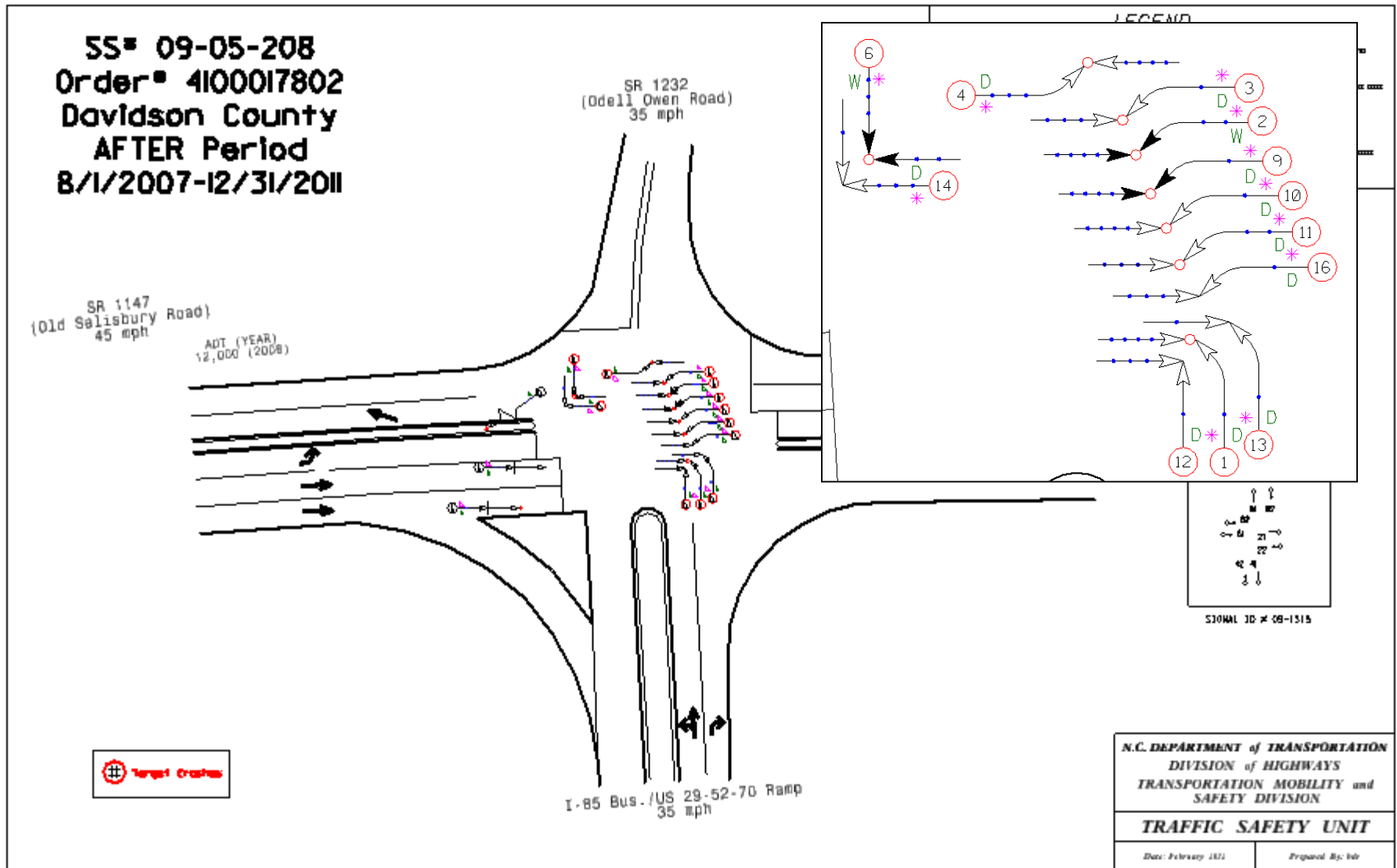
We are open to any suggestions you have to make Collision Diagrams better.

Appendix

Example of Completed Collision Diagram



Example of Completed Collision Diagram



Installation Instructions ws_update program

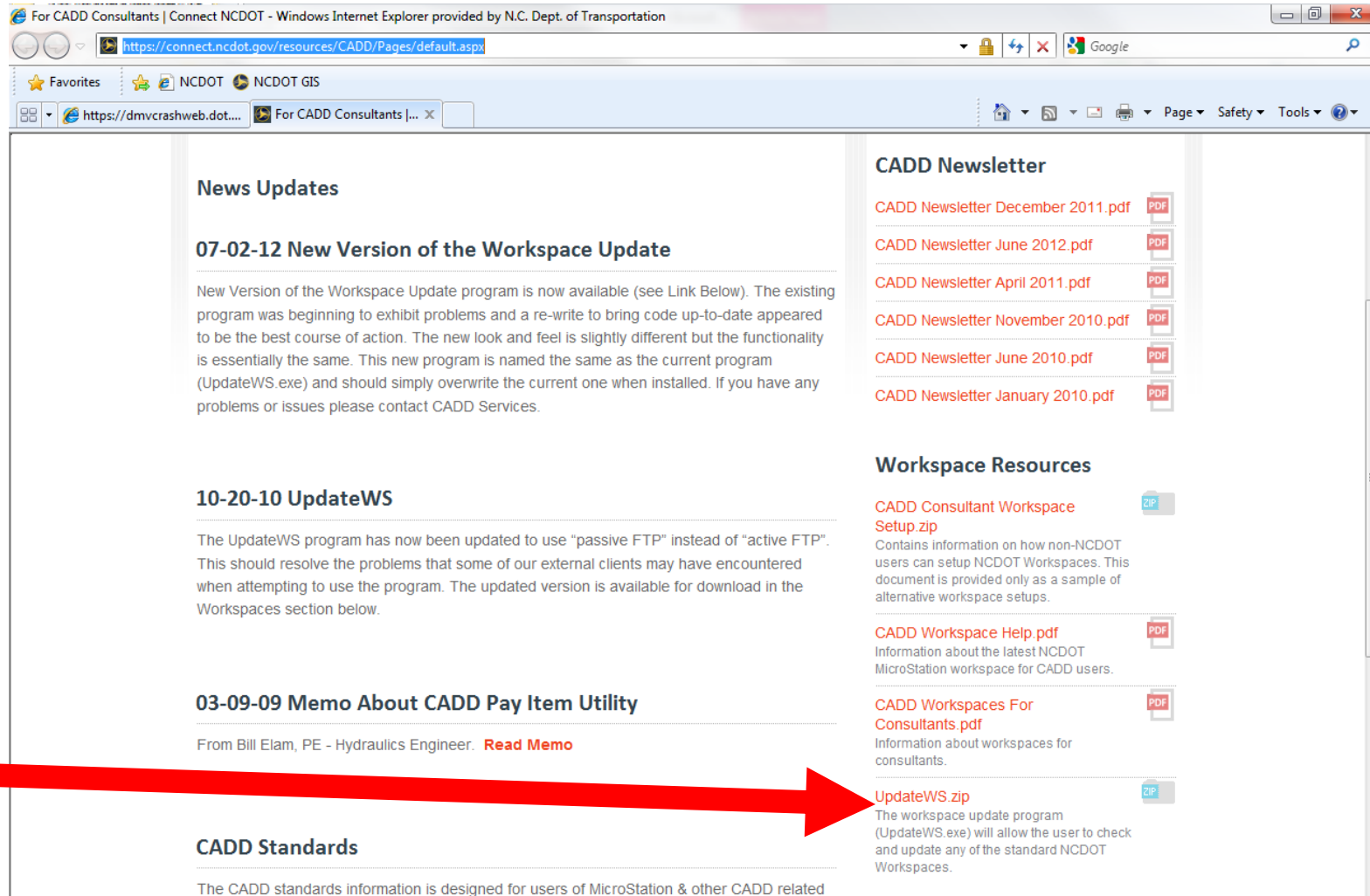
**ONLY FOR OFFICES OUTSIDE OF
GREENFIELD PKWY**

Installation Instructions – ws_update program (outside Greenfield only)

-Download UpdateWS program from the weblink below:

-<https://connect.ncdot.gov/resources/CADD/Pages/default.aspx>

-This program will allow you to update your MicroStation workspaces with the most current version available



The screenshot shows a Windows Internet Explorer browser window displaying the NCDOT CADD website. The address bar shows the URL <https://connect.ncdot.gov/resources/CADD/Pages/default.aspx>. The page content is organized into several sections:

- News Updates**
 - 07-02-12 New Version of the Workspace Update**

New Version of the Workspace Update program is now available (see Link Below). The existing program was beginning to exhibit problems and a re-write to bring code up-to-date appeared to be the best course of action. The new look and feel is slightly different but the functionality is essentially the same. This new program is named the same as the current program (UpdateWS.exe) and should simply overwrite the current one when installed. If you have any problems or issues please contact CADD Services.
 - 10-20-10 UpdateWS**

The UpdateWS program has now been updated to use "passive FTP" instead of "active FTP". This should resolve the problems that some of our external clients may have encountered when attempting to use the program. The updated version is available for download in the Workspaces section below.
 - 03-09-09 Memo About CADD Pay Item Utility**

From Bill Elam, PE - Hydraulics Engineer. [Read Memo](#)
- CADD Standards**

The CADD standards information is designed for users of MicroStation & other CADD related
- CADD Newsletter**
 - [CADD Newsletter December 2011.pdf](#) (PDF)
 - [CADD Newsletter June 2012.pdf](#) (PDF)
 - [CADD Newsletter April 2011.pdf](#) (PDF)
 - [CADD Newsletter November 2010.pdf](#) (PDF)
 - [CADD Newsletter June 2010.pdf](#) (PDF)
 - [CADD Newsletter January 2010.pdf](#) (PDF)
- Workspace Resources**
 - [CADD Consultant Workspace Setup.zip](#) (ZIP)

Contains information on how non-NCDOT users can setup NCDOT Workspaces. This document is provided only as a sample of alternative workspace setups.
 - [CADD Workspace Help.pdf](#) (PDF)

Information about the latest NCDOT MicroStation workspace for CADD users.
 - [CADD Workspaces For Consultants.pdf](#) (PDF)

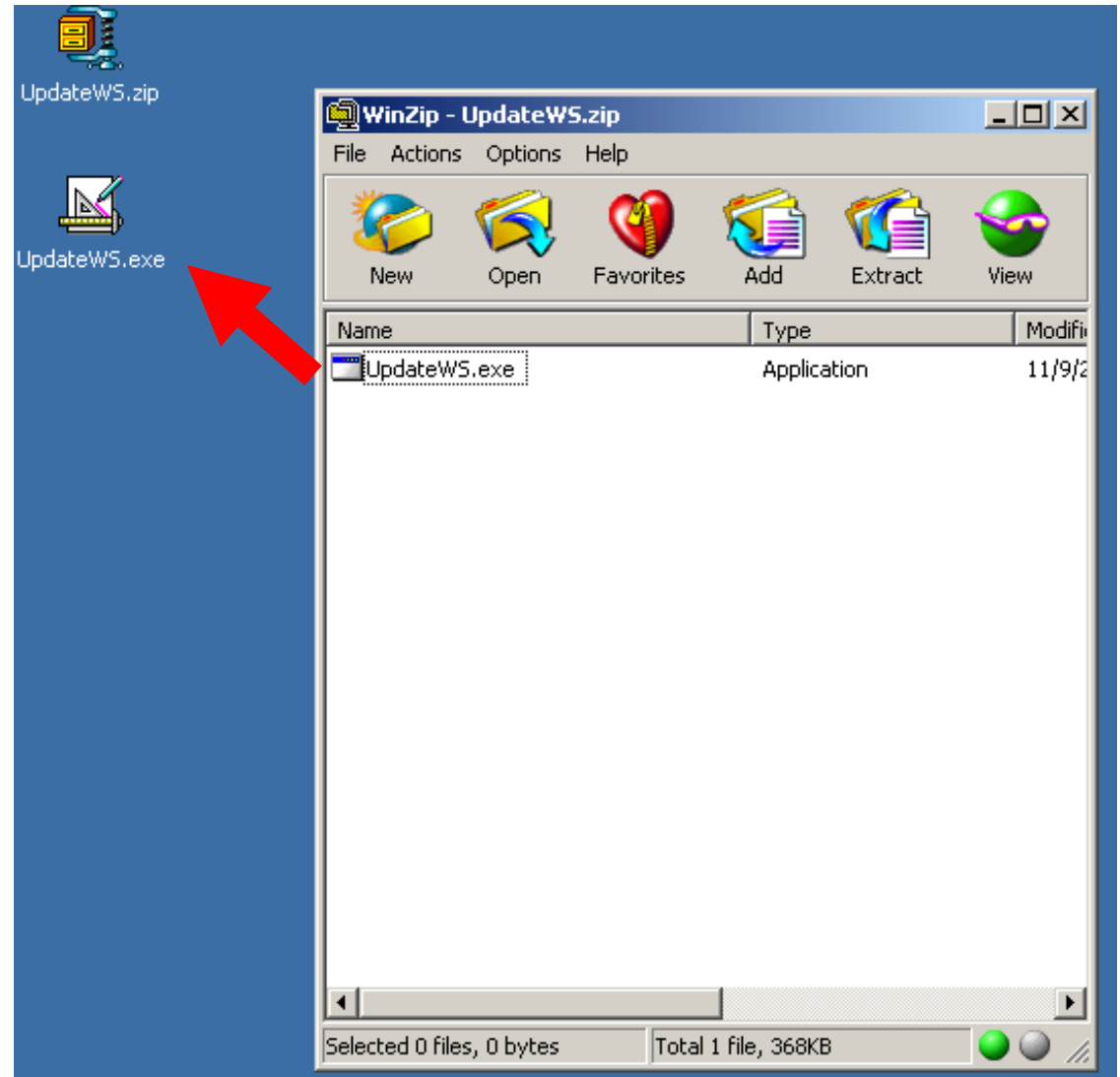
Information about workspaces for consultants.
 - [UpdateWS.zip](#) (ZIP)

The workspace update program (UpdateWS.exe) will allow the user to check and update any of the standard NCDOT Workspaces.

A large red arrow points from the bottom left towards the 'UpdateWS.zip' link in the 'Workspace Resources' section.

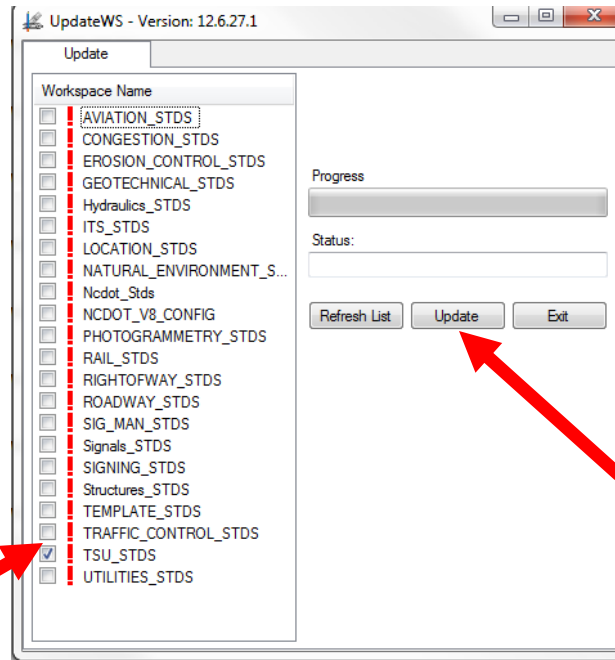
Installation Instructions – ws_update program (outside Greenfield only)

- Unzip the file you just downloaded (UpdateWS.zip):
 - Move UpdateWS.exe to your desktop or other convenient location



Installation Instructions – ws_update program (outside Greenfield only)

- Open the UpdateWS program



- Check the box beside TSU_STDS and click the Update button
- You have now updated your Traffic Safety workspace files with the most current available