# **I-95 CORRIDOR COALITION**

# VIRTUAL INCIDENT MANAGEMENT TRAINING

# **Trainer Guide**

An in-depth reference for the trainer's interface and capabilities of the I-95 Corridor Coalition's Virtual Incident Management Training application, powered by the Online Interactive Virtual Environment (OLIVE) platform.

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# 1. PREFACE

This Trainer Guide covers the trainer's interface and capabilities of the I-95 Corridor Coalition's Virtual Incident Management Training. It is assumed that you are already familiar with the use of OLIVE as a general user. To learn how to use the application in general, please refer to the User Guide.

# 2. About

Funded and envisioned by the I-95 Corridor Coalition, the Virtual Incident Management Training application was developed by the University of Maryland's CATT Lab to be used as a safe, accessible, and low cost alternative to first responders' incident management and safety training. The application is powered by OLIVE (Online Interactive Virtual Environment), a virtual world software platform initially designed for military training simulation purposes. OLIVE was developed by Forterra System Inc.

The I-95 Virtual Incident Management Training features:

- Interchangeable Roles
- Face-to-face and Radio communication
- Emergency vehicles and equipment models
- Traffic AI that reacts to cones placement and donned safety vest
- Various props and geographic locations that enable infinite custom incident scene possibilities

It is actively being used for cross-discipline, cross-agency, first responder training by members of the I-95 Corridor Coalition and beyond.





# 3. TRAINER IN OLIVE WORLD

Being a trainer in OLIVE means you have access to features and capabilities to manipulate the virtual world in order to control and direct the development of a training scenario. Each trainer feature will be explained in detail in their respective section.

To become a trainer, press the following key combination: **CTRL+SHIFT+T**. This key combination will activate/deactivate your trainer status. Some login accounts are associated with trainers. Upon login these accounts will have trainer status activated as default behavior.

All trainers will have their avatar name colored in red. Trainers also gain access to the **Trainer Controls** panel above the **Chat Window** (top right), and additional features added to the regular User Interface.



FIGURE 1 - TRAINERS HAVE RED NAME

Trainer Controls	A.
Chat Window	V
Users	V
Settings	V
Мар	V

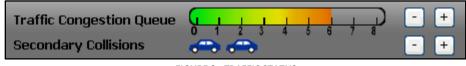
FIGURE 2 - TRAINER CONTROLS



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# 4. USER INTERFACE

# 4.1. TRAFFIC STATUS





Traffic status can be manipulated through the + and - button next to it.

Clicking the + button next to the traffic congestion queue bar will increase the color gauge, indicating that the traffic got worse. Clicking the - button will decrease the gauge, informing users that traffic flow is getting better.

The + and - button on the secondary collisions line will add/remove vehicle icons. It tells other users that additional collisions happened, typically associated with scene clearance not happening fast enough.

All other users will see the changes you made immediately. Traffic status gives an overall sense on how well the incident scene was managed.

## 4.2. COLLAPSE GESTURE

**Collapse** gesture button is no longer restricted to Civilian role. No matter what role you currently are, as a trainer you have access to the **Collapse** button.

### **4.3.** UNRESTRICTED INVENTORY

The **Inventory** content of regular users is limited to objects that are relevant to the selected role, but trainer is not bound to this restriction. All objects are available to them without any respect to their current role.

#### 4.3.1. Clothing

The **Clothing** section is now further divided by roles. Clicking on a role will bring up clothing that is available for that role. Note that wounded clothing that used to be owned by **Civilian** are now grouped under **Victim**.





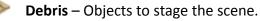
FIGURE 4 – INVENTORY: CLOTHING

#### 4.3.2. Incident Props

				Inventory - '	Trainer			Settings Map	<u>×</u>
The Clothing Clothing		Hazards 🗲	1	Deer - Dead		Deer - Bloody		Fire	-
🗼 🏄 Incident Props ⊭	Š	Skid Marks 🕨	-	Gasoline Spill		Green Spill	*	Grey Spill	
Equipment / F Tools	1	Traffic Control 🕨		Growing Fire		Ice Patch	<u> </u>	Leaking Gas	
🛷 Vehicles 🕨	齐	Victims 🕨		Oil Slick		Orange Spill	-4962	Radiator Leak	-

FIGURE 5 - INVENTORY: INCIDENT PROPS

Incident Props section is further divided into seven categories:



**Explosives** – All objects under this category can cause local explosion.

Furniture – Desk, table, and chair.

Hazards – Dangerous objects that might affect scene safety.

**Skid Marks** – Tire marks for staging the incident scene.

Traffic Control – Traffic management objects.

Victims – Incident victims, in all its gory.

Special objects that require more explanation were covered in <u>World Interaction</u>.



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#### 4.3.3. Equipment/Tools

Similar to **Clothing**, the **Equipment/Tools** section is further divided by roles. Some roles that do not own any equipment/tools, or their objects are already covered by the other roles, are excluded from the list.

The General subcategory contains objects that are shared by multiple roles.



FIGURE 6 - INVENTORY: EQUIPMENT/TOOLS

#### 4.3.4. Vehicles

Vehicles section is divided into four subcategories:



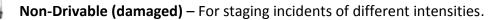
Drivable (non-damaged) – Drivable civilian and emergency vehicles.



Non-Drivable (non-damaged) – For easy scene staging.



Drivable (damaged) – Useful for minor incident scenarios.



When selecting **Non-Drivable (damaged)** subsection, a filter options will show up. You can easily filter vehicles based on the location of the damage and whether it is major or minor, allowing you to quickly setup the scenario you want.

		Inventory - Trainer		Settings 🛛 🔀
Tothing 🕨	Drivable (non-damaged)	(Windshield) Left	(Windshield) Right Crashed Cab Leak Left	Crashed Cab Leak
🗼 🗼 Incident Props 🕨	Non-Drivable (non-damaged)		Crashed Chrysler	Crashed Dumptruck
Equipment / F Tools	Orivable (damaged)	30	Crashed Flatbed Left	Crashed Flatbed Right
🧼 Vehicles 🕞	Non-drivable (damaged)	Crashed Flatbed	Crashed Flatbed	Crashed GMC Envoy
_		Collision Types : 🗹 : All		All Major Minor

FIGURE 7 - INVENTORY: VEHICLES



### 4.4. MASTER CAM

A trainer-only button MasterCam On is available below the Join MasterCam button in Camera Views.

When activated, your perspective will be shared with any users who joined the mastercam. A notification text "MasterCam On" is displayed below the **Inventory** button when it is active.

Only one mastercam can be turned on at a time. If another trainer wants to activate it, the currently active one needs to be turned off first.

## 4.5. OBSERVER ROLE

In addition to all the roles available to users, trainers have access to the **Observer** role. Being an Observer will make your avatar invisible while still having the ability to interact with the world. This is useful if you want to manipulate a scene without having other users aware of your presence. Note that your avatar will still collide with other avatars and world objects.

### 4.6. TRAINER CONTROLS

The majority of trainer features are in this panel. An in depth guide of this panel is covered in the <u>Trainer Controls</u> chapter.

## 4.7. CHAT WINDOW

The Chat Window panel now contains a **Console** tab and **Shout** button. The **Console** tab contains system log messages related to the world activity.

Chat Window 🔺					
Chat	Console		Shout	Clear	
Trainer <1	13:58:08>	Hello World!			

FIGURE 10 - CHAT CONSOLE AND SHOUT

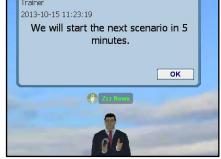


FIGURE 11 - SHOUT NOTIFICATION





FIGURE 8 - MASTERCAM ON



FIGURE 9 - OBSERVER ROLE

The **Shout** button will broadcast whatever message you have typed to everyone. All users will receive the message and would need to acknowledge it in order to remove it.

## 4.8. USERS

Trainers have the ability to set individual health in the Users panel. To do so, simply select a user from the **Users** panel, and click on the **Set Health** button. It will bring up a window pop up with health state options.

Set Health	Watch Teleport
FIGURE 12	- USERS OPTIONS
Select a health state for X	(hover over each button for more information)
Full	Teleport to John Doe
Light Wound	Summon John Doe
Unconscious	Summon ALL users
Okay Cancel	Okay Cancel

In lieu of **Teleport To** button, trainer has the **Teleport** button with options to teleport to someone, summon someone to self, or even summon everyone to self.



# 5. TRAINER CONTROLS

The **Trainer Controls** panel is located at the top right corner, right above the **Chat Window** panel. It contains trainer features that are not an extension of other interfaces.

## 5.1. HOTWASH

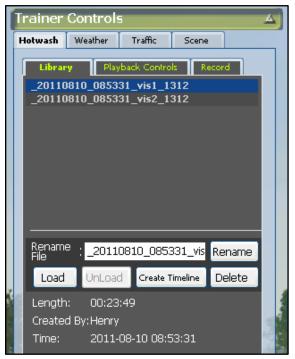
OLIVE has the capability to record avatar actions and play them back in the virtual world itself. The advantage this has over traditional screen capture is that your view is not restricted to what you see during the recording. Since all actions are actually reenacted, users are able to change their perspective and see how the scenario unfolds from different views. This feature is useful for after action reviews and group discussions. All controls related to this feature are accessible in the **Hotwash** tab and are further categorized into three sub tabs.

#### 5.1.1. Library

All available recordings (.aar files) are listed in the **Library** tab. Select a file to see more information on it, including the length of the recording, the trainer who did the recording, and the time it was taken (server time). Once you select a recording, you can proceed with the rest of the options.

OLIVE will automatically name your recording based on the server time. Only the trainer who created the recording will be able to **Rename** the file. **Delete** option is also restricted to the file creator.

To start playing the recording you need to **Load** the selected file first. All users logged in will temporarily lose control of their avatar and a text notification that "recording is being played back" will be displayed at the top of the screen.



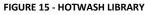




FIGURE 16 - RECORDING LOADED

Users who are part of the recorded session will reenact their previously recorded actions when the trainer hits the **Play** button in **Playback Controls** tab. Avatars of users who are no longer logged in will still be summoned.



A recording can have bookmarks associated with them. Bookmarks are quick tags to certain events. They can be generated automatically or be added manually. More about this are explained in the **Record** tab guide.

The **Create Timeline** feature will generate a timeline of the bookmarks made. The timeline is split into multiple rows, one for each user. Bookmarks are represented as buttons. Each bookmark button has a tooltip with information about what action was taken, by whom, and the time it happened. Upon clicking the button, the playback will jump to the bookmark's timestamp. The timeline gives a general overview of when actions were taken, and it also serves as quick recording playback navigation.



FIGURE 17 - TIMELINE BOOKMARK

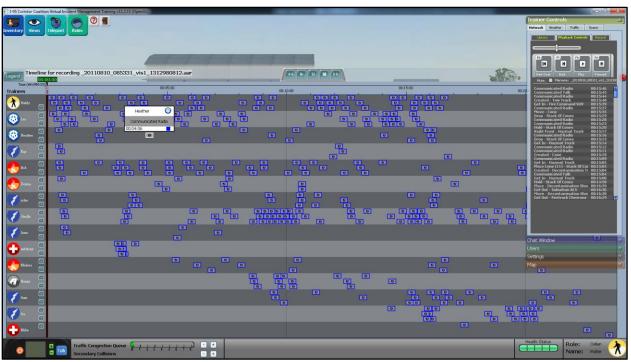


FIGURE 18 - COMPLEX TIMELINE

#### 5.1.2. Playback Controls

After a recording has been loaded, you can start it with the **Play** control. **Start Over** will reset the recording back to the very beginning, while **Back** and **Forward** will skip the playback by a couple seconds. During a playback, the **Play** button becomes **Pause**.

Here, the Bookmarks are shown in a list format. It displays less information than the timeline, but it's still useful for



FIGURE 19 - PLAYBACK CONTROLS



quick navigation if you know what you are looking for.

#### 5.1.3. Record

The **Record** tab allows you to start a new recording while having quick access to create meaningful bookmarks.

Near the top is a text free input for **Custom Bookmark**. It allows you to add bookmarks that are not predefined.

For each user, a set of predefined bookmarks are readily available. These bookmarks encapsulates the essence of I-95 Core Competency protocol for first responders.

To select a user, first select their associate role. Once a role has been selected, all users acting that role will be listed. After selecting a user from that list, the quick access bookmarks are displayed.

The first thing that needs to be bookmarked is *Arrive on Scene*. This will be triggered automatically when the user enters the perimeter of a predefined incident location. This only occurs if you have <u>set the incident location</u> beforehand. All the other predefined bookmarks will be available once the user is marked as arrived on scene. In the timeline, each of these predefined bookmarks are represented by a unique bookmark button icon.

You can add custom bookmarks for the selected

Playback Controls Library REC Stop Record 00:00:56 Custom . Bookmark Add Selected Role: Fire Selected Trainee Johnny Storm Johnny Storm John Allerdyce Bookmarks: Arrive on Scene Scene Size Up Notion scene yet Vehicle Positioning Not on scene yet Not on scene yet Communications Make Self Safe Not on scene yet Not on scene yet Make Scene Safe Make Victims Safe Not on scene yet Basic First Aid Notion scene yet Assume Command Not on scene yet Resource Coordination Not on scene yet Not on scene yet Mitigation Notion scene yet Accident Investigation Notion scene yet Set Clearance Goals Custom bookmark for Johnny Storm

FIGURE 20 - RECORD

users at the bottom of the panel.



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# 5.2. WEATHER

The Weather tab controls the weather condition of each location. By changing the weather you alter the location's ambient lighting and scene visibility.

Simply select the location you want to adjust and click on the desired weather. Changes will immediately take into effect. The selected button is denoted by a yellow border.

When changing your location selection, information on the current weather for that location will be displayed.



**FIGURE 21 - WEATHER CONTROL** 

## 5.3. TRAFFIC

Traffic simulation is available in several predefined locations: Utopia Highway, Utopia City Summer, and Utopia City Winter. The traffic A.I. (Artificial Intelligence) will respond to traffic control objects such as cones and flares. An avatar that gets in the way will be struck down if they did not don a reflective vest.

To turn on the simulation, first select the scene you would like it to be on. Once the scene has been selected, choose the location of the traffic. The selected location is represented in the scene mini map by an orange arrow pointing to the specific



FIGURE 22 - TRAFFIC CONTROL

stretch of road. Finally, flip the toggle switch to turn on the traffic simulation. When turned on, further options will appear to allow you to change the traffic volume and speed.

When toggled off, all traffic vehicles will immediately be removed from the scene.

Note that while traffic A.I. is shared among trainers, the toggle button state is not shared. You might see traffic simulation running even though your toggle button is flipped off. In such case, toggling it on will not change anything. Toggling it off afterwards will turn off the simulation.



## 5.4. Scene

The **Scene** tab contains all scene management features that were not contained in other interfaces.

#### 5.4.1. Clear Scene

The **Clear** button will remove all world objects within the selected range. A red circle will show up to indicate the affected area. Any objects inside that circle will be removed from the scene upon pressing the **Clear** button. Your avatar will always be at the center of the circle, and it will only be visible to you.

Note that the **Entire Scene** option will clear everything in the world, even objects that are on a different scene, e.g. if you are in Utopia Highway, all objects in Utopia City will also be cleared.

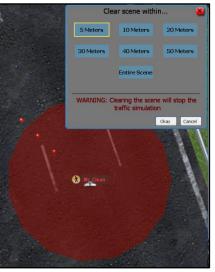


FIGURE 23 - CLEAR SCENE

Traffic simulation will be turned off when clearing the scene.

#### 5.4.2. Heal/Revive All

Clicking the **Heal** button will change all users' health status to full health, no matter where they are located.

5.4.3. Extinguish All Fires Extinguish all fire type hazards.

5.4.4. Contain All Gases Contain all gas type hazards.

5.4.5. Contain All Smoke Contain all smoke type hazards.



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5.4.6. Set Incident Location Size

There are three predefined incident location sizes: Small (S), Medium (M), and Large (L). By setting the incident location size, you implicitly set the location of it as well. Incident location will always



FIGURE 28 - SET INCIDENT LOCATION SIZE

be centered at your avatar location at the time it was set. When being set, a yellow circle visual indicator will be displayed temporarily. After a couple seconds it will blink before disappearing. The location of the incident is now shown on the mini map as an upside down red triangle with a yellow exclamation mark.

If you are <u>recording</u> the session, it will generate an automatic *Arrive on Scene* bookmark whenever a user enters the now-invisible incident circle for the first time.

Incident location is shared globally; there can be only one at a single time. Setting a new one will override the previous setup. Pressing the **Clear** button will remove the incident location.



FIGURE 29 - INCIDENT CIRCLE

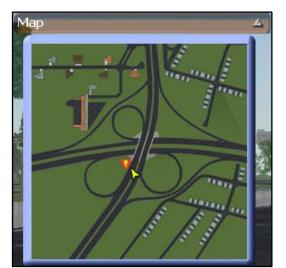


FIGURE 30 - INCIDENT ON MAP

#### 5.4.7. Global Voice



Any face-to-face communication while this option is checked will broadcast your voice to everyone, regardless of their distance to you. Your voice becomes omnipresent. When selected, "Global Voice Enabled" notification will be displayed at the top.



#### FIGURE 31 - GLOBAL VOICE ENABLED

#### 5.4.8. Load Actives Window

Actives are saved collections of staged world objects. By selecting an active, and then clicking the **Load** button, all saved world objects in that file will be staged in the world. **Unload** will remove all saved objects of the selected active from the world. This is useful for quick access to a replay-able training scenario or commonly used setup.

Once staged in the world, any user will be able to manipulate the objects as usual. The **Restart** button will restore the setup as if it was just loaded. To retrieve the most recent status of the actives list, click on the **Refresh** button.

There are several actives included in the system, ranging from a simple fender bender or a road kill case to a complex chemical spill scenario. For a full list of available actives please see <u>Appendix A</u>.

scene/ca	att_actives	/chairs.ac	live		Loaded		
	att_actives				Unloaded		
				mmer.active	Unloaded		
				nter.active	Unloaded		
	att_actives		A CONTRACTOR OF THE OWNER.		Unloaded	1 <b>(</b> )	
	att_actives				Unloaded		
scene/ca	att_actives	/head_on	winter.ac	tive	Unloaded		-
scene/ca	att_actives	/toc_scre	en.active		Loaded		18
scene/ca	att_actives	/training_	grounds_a	a_scenario.active	Unloaded		
scene/ca	att_actives	/training_	groundx_	1.active	Unloaded		-
scene/ca	att_actives	/training_	groundx_	10.active	Unloaded		
scene/ca	att_actives	/training_	groundx_:	2.active	Unloaded		
scene/ca	att_actives	/training_	groundx_	3.active	Unloaded		
Refresh	Load	Unload	Restart				
							E
						-103-	
						Sec. 2	
						Contract of the	100

FIGURE 32 - ACTIVES WINDOW



# 6. WORLD INTERACTION

Interaction with the virtual world is an integral part of the training simulation. It illustrates the actions that will be taken in a real world scenario, and have a profound impact on how the incident scene could evolve as dictated by the trainer.

## 6.1. IED (IMPROVISED EXPLOSIVE DEVICE)

IED objects are available because of OLIVE's roots as a military training simulation. They are useful to simulate extreme cases that require controlled explosions (e.g., vehicle engine blowing up, chemical tanker explosion).

All IED objects have **Detonate** as one of the context menu options. Detonating an IED will cause an explosion that will harm all nearby avatars.

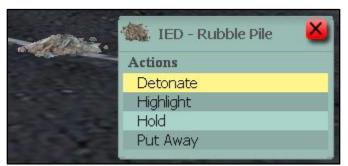


FIGURE 33 - DETONATE IED

All IED objects are available in the inventory as part of the Incident Props > Explosives category.

## 6.2. EXPLODING FIRE

Also found under the same inventory category as IED is the Exploding Fire. Once ignited, if the fire is not extinguished within two minutes it will create a local explosion. All nearby avatars will be hurt.



FIGURE 34 - EXPLODING FIRE



## 6.3. GROWING FIRE

**Growing Fire** is located in the **Incident Props > Hazards** category. The fire will expand and grow in randomized direction as time goes by. Note that due to the platform limitation, a spark will temporarily appear on your avatar when the fire grows.



FIGURE 35 – IT'S HOT OUT HERE

# 6.4. Toxic Gas

**Toxic Gas** will quickly harm any nearby users who are not equipped with a full hazmat suit. Only trainers will be able to see the radius of the dangerous area and can turn it off. Typically this is used in a flipped chemical tanker scenario.

Toxic Gas is available in Incident Props > Hazards category.

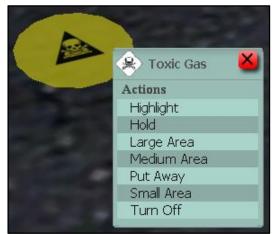


FIGURE 36 - SETUP TOXIC GAS



FIGURE 37 - SMALL DANGER AREA

## 6.5. SKID MARKS



**Skid Marks** are important tools to tell the story of an incident. When setting up an incident, it is important to place the **Skid Marks** first. This will ensure additional incident objects will be placed on top of the **Skid Marks**.

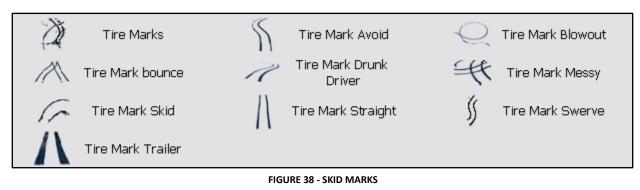




FIGURE 39 - SKID MARK'S STORY



## 6.6. SHARED SCREEN

To support online meetings, OLIVE features an in-world screen sharing capability. The **Shared Screen** object is located at **Equipment/Tools > General**. You can present PowerPoint content or view a specific application that is running on your desktop.

When presenting PowerPoint content, a file dialog will appear asking you to select your .ppt file. Once selected, OLIVE will attempt to process your .ppt file. Your file will not be altered in anyway. Note that newer versions of PowerPoint files with the .pptx extension are unfortunately not supported. If you have a .pptx file, you would need to convert it first to .ppt format.

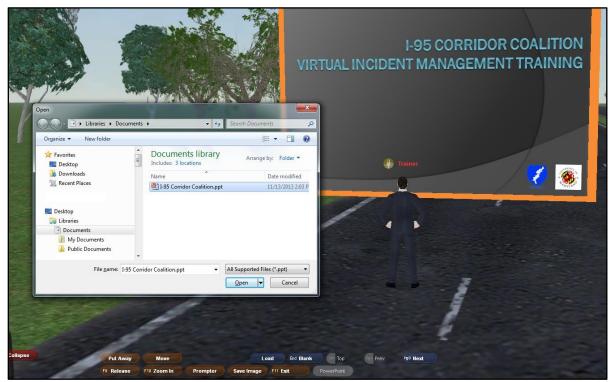


FIGURE 40 - POWERPOINT PRESENTATION



# APPENDIX A: AVAILABLE ACTIVES

Most of the available actives will load predetermined incident scenarios. You can always alter these scenarios by adding more victims, hazards, or changing the weather. With just a couple adjustments, a simple scenario can quickly turn into a major incident.

Name: **Chairs** Location: TOC Description: Add chairs that you can sit on.



FIGURE 41 - CHAIRS TO SIT ON

Name: **dead\_deer** Location: Utopia Highway A Description: A roadkill case where someone struck a deer.



FIGURE 42 - OH DEER...



Name: fender\_bender\_summer Location: North-West from Utopia City Summer B Description: SUV got rear-ended by a flatbread truck at an intersection. Some of the cargo got spilled.



FIGURE 43 - FENDER BENDER CARGO SPILL

	fender_bender_winter	
Location:	Utopia City Winter A	
Description:	A simple fender bender scenario at	
	an intersection.	

FIGURE 44 - SIMPLE FENDER BENDER

Name: flipped\_tanker Location: Utopia Highway B Description: Flipped tanker on a highway bridge causing secondary accident and huge traffic congestion. Tanker may contain dangerous chemicals.



FIGURE 45 - FLIPPED TANKER ON BRIDGE



Name: **head\_on\_summer** Location: Utopia City Summer A Description: A major collision at an intersection.



FIGURE 46 - MAJOR COLLISION

Name: head\_on\_winter Location: Utopia City Winter D Description: Accident near a gas station. This scenario can escalate very quickly.



FIGURE 47 - ACCIDENT NEAR GAS STATION

Name:toc\_screenLocation:TOCDescription:Load the shared screen object at<br/>the center of the TOC.

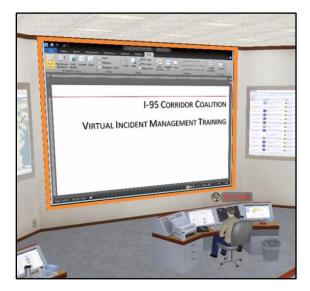


FIGURE 48 - SHARED SCREEN



Name: training\_grounds\_a\_scenario Location: Training Grounds III Free Training Description: Random objects will be scattered around the Free Training location. Useful for giving users practice time on virtual world object interaction.



FIGURE 49 - TRAINING OBJECTS

Name: training\_groundx\_(1-10) Location: Training Ground X (1-10) Description: Training ground X actives load a fender bender incident, each on their respective numbered location, with non-drivable emergency vehicles staged at the scene already.



FIGURE 50 - FENDER BENDER WITH RESPONDERS ON SCENE

Name:	utopia_city_winter_c_scenario
Location:	Utopia City Winter C
Description:	Rear-end collision with staged non-
	drivable police vehicle.



FIGURE 51 - REAR END COLLISION



Name: utopia\_highway\_a\_scenario

Location: Utopia Highway A

Description: Vehicle engine break down at the on ramp exit towards highway. Non-drivable fire truck and police vehicle are already staged.



FIGURE 52 - SMOKING

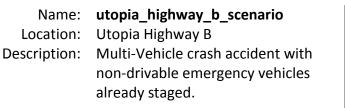




FIGURE 53 - MULTI CRASH STAGED EMERGENCY VEHICLES

Name: utopia\_highway\_c\_nondrivable \_scenario Location: Utopia Highway B and C Description: Exact same scenario as utopia\_highway\_b\_scenario, with the non-drivable emergency vehicles loaded but not staged properly. Trainees to be dispatched one by one from Utopia Highway C, and once arrived on scene need to park their vehicle appropriately.



FIGURE 54 - MULTI CRASH WITH NON-DRIVABLE EMERGERNCY VEHICLES



Name: utopia\_highway\_c\_scenario Location: Utopia Highway B and C Description: Exact same scenario as utopia\_highway\_b\_scenario, with drivable emergency vehicles loaded at Utopia Highway C. Trainees to be dispatched one by one from Utopia Highway C, and once arrived on scene would need to park their vehicle appropriately.



FIGURE 55 - MULTI CRASH WITH DRIVABLE EMERGENCY VEHICLES

Name: utopia\_suburbs\_a\_scenario

Location: Utopia Suburbs A, B, and C Description: Muti-Vehicle crash involving flipped tanker with chemical spill. Located on a highway with multiple on ramps and close to residential area. Accident happened at point B, but the suggested training scenario will

> have responders coming from point A and C.



FIGURE 56 - MAJOR INCIDENT

