



Cloud Scenario Descriptions

STISIM Drive-Cloud Scenario Descriptions



SYSTEMS
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Practice Drives


The following scenarios are meant to provide opportunities for a driver to practice basic skills like speed control and steering.

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Practice Drive: Curves</p>	<p>Length: 2.4 miles, 3.8 kilometers</p> <p>Time: 3 minutes</p> <p>55 MPH (90 KPH) 2 lane highway with several curves and light oncoming traffic. There are no intersections, pedestrians, cross traffic, slow traffic etc.; this drive is simply to allow the driver to get used to the driving controls.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Practice Drive: Pedal Control</p>	<p>Length: 5 miles, 8 kilometers</p> <p>Time: 9 minutes</p> <p>Starts with an uneventful suburban scene followed by a construction zone that has a truck backing out into the driver's path.</p> <p>This is followed by several intersections and reaction time tests.</p> <p>There is also a city scene with multiple events including car pullouts, pedestrians, amber lights which require decision making, steering wheel, maneuvering, and sudden braking.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any workers? Did the driver collide with any construction material? Did the driver collide with any pedestrians or animals? Did the driver commit a stopping infraction? Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Entry speed Total pedal reaction time Gas pedal reaction time Stopping distance Driver's speed when stimulus appeared Minimum time to collision with backing vehicle Minimum distance to backing vehicle Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals


SCENARIOS	DESCRIPTIONS	MEASURES
<div> </div> <p>Practice Drive: Steering Control</p>	<p>Length: 8.9 miles, 14.3 kilometers</p> <p>Time: 15 minutes</p> <p>Starts with the same suburban scene as described in the Pedal Control scenario.</p> <p>This is followed by a curvy road, several intersection events, a construction zone with very tight cone placements, another curvy road section which is again followed by several intersection events.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any workers? Did the driver collide with any construction material? Did the driver collide with other roadway objects (signs, etc.)? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for any pedestrians or animals to finish crossing? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Entry speed Minimum time to head on collision Minimum distance to head on collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Practice Drive: Vehicle Control</p>	<p>Length: 2.5 miles, 4 kilometers</p> <p>Time: 6 minutes</p> <p>This drive occurs on a two-lane roadway with a speed limit of 40 MPH (65 KPH).</p> <p>There are 4-way stops with minimal cross traffic and signalized intersections with lights that change from green to red. There are some pedestrians at the final intersection.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any pedestrians or animals? Did the driver commit a stopping infraction? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Practice Drive: General</p>	<p>Length: 2.5 miles, 4 kilometers</p> <p>Time: 5 minutes</p> <p>Begins on a two-lane rural road and has a series of intersections with stop signs. This is followed by a couple of left turns at intersections.</p> <p>Road changes to four-lanes and has several curves before the driver enters a small town where the driver is told to make a right turn at a signalized intersection.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with other roadway objects (signs, etc.)? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for any pedestrians or animals to finish crossing? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Minimum time to head on collision Minimum distance to head on collision


Training Drives


The following scenarios are meant to provide opportunities for a driver to practice basic skills in real world situations. During these drives, there will be an audio and visual feedback component that will activate and alert the driver when they make errors for driving too fast, exiting the driving lanes, and running stops signs and signal lights. In addition, the driver will receive additional auditory information if they crash.


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Turning Across Traffic</p>	<p>Length: 1.6 miles, 2.6 kilometers</p> <p>Time: 3 minutes</p> <p>The driver will be instructed to make a series of turns against oncoming traffic. The oncoming traffic has various sized gaps and the driver needs to decide when it is best to turn.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Minimum time to head on collision Minimum distance to head on collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Construction Zone</p>	<p>Length: 0.7 miles, 1.1 kilometers</p> <p>Time: 1 minute</p> <p>Four-lane curvy road with a long construction zone with barrels, pylons, cones, gravel piles, pipe, construction equipment, and construction workers.</p> <p>The barrel, cones, and pylons are spaced to give the driver a wide path (more than a single lane) through the construction. Cone hits are audibly registered with a thud sound.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any workers? Did the driver collide with any construction material? Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Average speed Entry speed Maximum speed


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Passing</p>	<p>Length: 4.7 miles, 7.6 kilometers</p> <p>Time: 5 minutes</p> <p>A series of vehicles in front of the driver's vehicle will slow down at various points requiring the driver to slow down and find a good point for passing.</p> <p>Hills, curves, and oncoming traffic require the driver to determine an appropriate time to pass.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver pass all of the vehicles? Maximum speed Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane Minimum time to head on collision Minimum distance to head on collision

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Rural</p>	<p>Length: 4.1 miles, 6.6 kilometers</p> <p>Time: 7 minutes</p> <p>This drive will be negotiating a two-lane rural environment where they will experience a potential head on collision (vehicle passing other vehicle and comes into driver's lane), a passing task (passing multiple slow-moving vehicles), behind vehicle passes (vehicle passes driver's vehicle from behind), left turn with oncoming traffic, and a curvy mountain road.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking or steering? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Did the driver pass all of the vehicles? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Minimum time and distance to collision (Various: head on, vehicles in driver's lane)

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Urban</p>	<p>Length: 1.6 miles, 2.6 kilometers</p> <p>Time: 4 minutes</p> <p>The driver will be navigating an urban environment with a six-lane roadway. Hazards include: pedestrians, parked vehicles pulling out into traffic, right and left turns. There are also utility trucks and construction zones that block lanes and increase the hazard potential.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Did the driver commit a stopping infraction? Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to head on collision Minimum distance to head on collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Neighborhood</p>	<p>Length: 2.4 miles, 3.9 kilometers</p> <p>Time: 7 minutes</p> <p>In this scenario, the roadway environment is a two-lane residential road with a school zone separated by curved roadway sections. Hazards include: pedestrians, cross traffic not stopping at unmarked intersections, and vehicles backing out of driveways.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver use excessive speed in the school zone (28+ MPH/45+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Maximum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Metro</p>	<p>Length: 2.6 miles, 4.2 kilometers</p> <p>Time: 5 minutes</p> <p>For this drive, the drive will be traversing a four-lane metro area. Although it is a metro area there are no intersections. During the drive, the driver will see a broken-down vehicle and a work zone that require the driver to change lanes. There is also a car that pulls out from a parked position into the right lane of travel. There is slower vehicle traffic that the driver must drive around as well.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver use excessive braking? Did the driver use excessive steering? Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to collision with roadway objects or vehicle Minimum distance to roadway objects or vehicle


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Training Drive: Highway</p>	<p>Length: 5.7 miles, 9.2 kilometers</p> <p>Time: 5.5 minutes</p> <p>Relatively long drive on a four-lane divided highway with a grassy median. Speed limit is 65 mph.</p> <p>The driver should stay in the right lane except when passing slower moving traffic.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total off-road crashes Total collisions with vehicles & roadway objects Total times the driver went off the road Percentage of time out of lanes* Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <p>Vehicle Passing Performance:</p> <ul style="list-style-type: none"> Was excessive speed used? Maximum speed Was excessive braking used? Was excessive steering used? Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane


Challenging Drives


The following scenarios are meant to provide the participant opportunities to drive in a wide variety of roadways and driving situations. This will allow them to practice what they have learned and experience some of the difficult situations that drivers could face in the real-world. During these drives, the auditory and visual feedback that was present during the training drives will not be active.


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Turns Across Traffic</p>	<p>Length: 1.6 miles, 2.6 kilometers</p> <p>Time: 5 minutes</p> <p>The driver is instructed to make a series of turns against oncoming traffic and pedestrians are also crossing the same street.</p> <p>The oncoming traffic has various sized gaps and the driver needs to decide when it is best to turn. The number of pedestrians crossing the road increases for each successive turning situation.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Minimum time to head on collision Minimum distance to head on collision

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Merging</p>	<p>Length: 1.6 miles, 2.6 kilometers</p> <p>Time: 3 minutes</p> <p>This drive starts on a one lane road that serves as an on-ramp to a freeway. The freeway has four lanes and a lot of traffic.</p> <p>The driver will receive auditory instructions instructing them to merge to the rightmost lane and take the freeway "exit" where Jersey barriers partition the road to one lane and then back to four lanes. The driver is then told to merge to the leftmost lane and then to the right again.</p> <p>The traffic is moving fast and is congested. Other vehicles make sudden lane changes and apply brakes making this task more difficult.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Maximum speed Minimum speed Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Construction Zone</p>	<p>Length: 0.7 miles, 1.1 kilometers</p> <p>Time: 2 minutes</p> <p>Four-lane curvy road with a long construction zone with barrels, pylons, cones, gravel piles, pipe, construction equipment, and construction workers.</p> <p>The barrel, cones, and pylons are spaced to give the driver a very tight path (smaller than a single lane) through the construction zone. Cone hits are audibly registered with a thud sound.</p> <p>This construction zone is similar to that for Construction Zone (M) except that that pylons, cones, and barrels are placed such that the “vehicle lane” is much tighter.</p> <p>There is also a construction vehicle that backs into traffic that is not present in Construction Zone - Moderate.</p>	<p><u>Summary Metrics:</u></p> <p>Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage</p> <p><u>Event Specific Metrics:</u></p> <p>Did the driver collide with any vehicles? Did the driver collide with any workers? Did the driver collide with any construction material? Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Average speed Entry speed Maximum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision with backing vehicle Minimum distance to backing vehicle</p>


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Passing</p>	<p>Length: 6 miles, 9.7 kilometers</p> <p>Time: 7 minutes</p> <p>On a two-lane highway, a series of cars in front of driver's vehicle will slow down at various points requiring the driver to slow down and find a good point for passing.</p> <p>Hills, curves, and oncoming traffic require the driver to determine an appropriate time to pass.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver pass all of the vehicles? Maximum speed Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane Minimum time to head on collision Minimum distance to head on collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Mountains</p>	<p>Length: 4.1 miles, 6.6 kilometers</p> <p>Time: 7 minutes</p> <p>Two-lane mountain road with mostly sharp curves. Hazards that the driver will encounter include animals in the roadway, a vehicle encroaching the driver's lane around a curve, and boxes that are in the road as the driver crests a hill.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any pedestrians or animals? Did the driver use excessive braking? Did the driver use excessive steering? Total pedal reaction time Gas pedal reaction time Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals Minimum time to collision with roadway objects or vehicle Minimum distance to roadway objects or vehicle


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Rural</p>	<p>Length: 2.5 miles, 4 kilometers</p> <p>Time: 5 minutes</p> <p>This is a little bit more difficult two-lane rural environment. Hazards include: pedestrians and dogs, backing vehicles, and traffic lights.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver commit a stopping infraction? Average lane position Lane position deviation Average speed Speed deviation Maximum Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals

SCENARIOS	DESCRIPTIONS	MEASURES
<div> </div> <p>Challenging Drive: Urban</p>	<p>Length: 1.2 miles, 1.9 kilometers</p> <p>Time: 5 minutes</p> <p>For this drive, the scenario has a six-lane roadway that takes the driver through an urban environment. Hazards include: pedestrians, parked vehicles pulling out into traffic, right and left turns with pedestrians in crosswalks and oncoming traffic. There are also utility trucks and construction zones that block lanes and increase the hazard potential.</p> <p>Compared to Urban Drive (E), the difficulty of the hazards increases due to being obscured by other vehicles and/or surrounding objects.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Did the driver commit a stopping infraction? Did the driver collide with any pedestrians or animals? Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to head on collision Minimum distance to head on collision Minimum time to collision with roadway objects or vehicle Minimum distance to roadway objects or vehicle

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Neighborhood</p>	<p>Length: 2.4 miles, 3.9 kilometers</p> <p>Time: 8 minutes</p> <p>Two-lane residential road and school zones separated by curved roadway sections. The hazards include: pedestrians, cross traffic not stopping at unmarked intersections, vehicles backing out of driveways, parked cars along the roadway merging into traffic.</p> <p>Compared to Suburban Drive (E), the number of hazards and the difficulty of the hazards have both increased. The difficulty of the hazards increases because they tend to be more obscured by other vehicles and/or surrounding objects.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver use excessive speed in the school zone (28+ MPH/45+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Maximum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Metro</p>	<p>Length: 1.8 miles, 2.9 kilometers</p> <p>Time: 5 minutes</p> <p>For this drive, the drive will be traversing a four-lane metro area. Obstacles that must be avoided include a small construction zone, parked vehicles pulling into traffic, vehicle in left lane pulling abruptly into right lane to avoid slow traffic, pedestrians at intersections (when turning right, still crossing after light has turned green).</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver commit a stopping infraction? Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Freeway</p>	<p>Length: 2 miles, 3.2 kilometers</p> <p>Time: 4 minutes</p> <p>The driver will be navigating a highspeed freeway with three lanes of traffic in their direction. Approximately halfway through the drive the right lane becomes blocked with traffic exiting the freeway. One of the vehicles will pull out of the right lane and cut the driver off.</p> <p>A little bit later, a fast vehicle from the left lane will cut the driver off as they try to get into the slow lane.</p> <p>Because the driver is on a freeway, when the scenario starts, the vehicle will be traveling at a speed of 55 MPH (90 KPH) and the driver will have immediate control of the vehicle.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive braking? Did the driver use excessive steering? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Challenging Drive: Parking Lot</p>	<p>Length: Varies</p> <p>Time: Varies</p> <p>This is similar to the moderate parking lot scenario where you have a large parking lot with cars parked in it; however, unlike the moderate level parking lot, some of these cars will back out. In addition, there are pedestrians that will be walking in the parking lot.</p> <p>This drive is setup so that it will not be the same each time, the software will randomly choose from a few different cars that will back out or try to cut the driver off.</p> <p>The driver can pull onto the sidewalk a little bit but if they pull in too far, they will crash.</p> <p>As you will notice to the right, there is not much automatic data that is collected; this is because this scenario should be used with guidance from the operator as to what the driver should do.</p> <p>Ideally, when a driver tries to pull into a parking space and believes they have succeeded; the operator should pause the simulator and use the overhead view to review the driver's performance.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Maximum speed


Road Tests, Impaired Driving & More


The following scenarios are meant to provide the participant with additional opportunities to experience on road driving situations that they could encounter during actual on the road driving. These include longer scenarios that could mimic actual on the road tests as well as some specialty drives that deal with impaired driving, texting while driving, night time drives and more.


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Long Easy Drive</p>	<p>Length: 8.5 miles, 13.7 kilometers</p> <p>Time: 25 minutes</p> <p>Long scenario covering a wide range of roadway types including rural, residential, urban, and divided highway.</p> <p>There are several events that are relatively difficult including: vehicles passing from behind on the left when on the divided highway, train tracks, cross traffic not having to stop at intersections, and turning left at an intersection where the cross traffic does not stop. The last two require judgment of gap distance. Speed limit variation is quite frequent.</p> <p>This drive does not have events that cut the driver off, but has many aspects of normal driving in it.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive speed in the school zone (28+ MPH/45+ KPH)? Did the driver go off the road? Did the driver cross the center line? Did the driver go off the road and crash? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Average lane position and lane position deviation Average speed and speed deviation Maximum and minimum speed Minimum time to head on collision Minimum distance to head on collision Minimum time to collision Minimum distance to collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Easy Comprehensive Drive</p>	<p>Length: 5.2 miles, 8.4 kilometers</p> <p>Time: 11 minutes</p> <p>Hazards are presented as the driver drives through residential, commercial, and rural areas.</p> <p>Hazards include: cross traffic at stop signs, pedestrians and dogs crossing the roadway at unexpected locations, and vehicles backing into traffic.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver commit a stopping infraction? Did the driver use excessive braking? Did the driver use excessive steering? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals Minimum time to collision Minimum distance to collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Rural Drive</p>	<p>Length: 4.8 miles, 7.7 kilometers</p> <p>Time: 7 minutes</p> <p>When the scenario starts, the driver will be going the speed limit on a six-lane, highway and vehicles will appear around the driver. The highway then narrows to four lanes and finally two lanes for most of the drive.</p> <p>After a few turns, the driver's vehicle ends up on a two-lane rural highway where they are subjected to a potential head-on collision with a vehicle passing another vehicle. The driver will have to move off the road to avoid the collision.</p> <p>Driver then passes through a mountain scene with several tight curves. The scenario concludes with the driver's vehicle having to pass a series of slow-moving buses while avoiding oncoming traffic.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver pass all of the vehicles? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Minimum time and distance to collision (Various: head on, objects, others)


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Mountain Drive</p>	<p>Length: 4.5 miles, 7.2 kilometers</p> <p>Time: 8 minutes</p> <p>Two-lane mountain road with curves, sharp curves, and S curves. Hazards that the driver will encounter include wind gusts that can push the driver's vehicle towards the guard rail or into oncoming traffic; a very slow truck around one curve and boxes that are in the road around another curve.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive braking? Did the driver use excessive steering? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Minimum time to collision with roadway objects or vehicle Minimum distance to roadway objects or vehicle


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Challenge Drive</p>	<p>Length: 7.8 miles, 12.6 kilometers</p> <p>Time: 13 minutes</p> <p>Long scenario that covers a wide range of roadway types including rural, residential, and urban environments.</p> <p>There are several events that are relatively difficult including: vehicles passing from behind on the left, pedestrian traffic, construction zones (one with a truck backing into driver's lane), having to pass a slow-moving vehicle (must wait until dashed yellow line and for oncoming traffic), a passing vehicle comes into the driver's lane requiring them to leave the roadway, cross traffic running a red light (requires looking left and right at intersections), and turning left at an intersection with oncoming traffic (gap distance).</p> <p>The last two require judgment of gap distance. Speed limit variation is quite frequent.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any workers or construction material? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive speed in the school zone (28+ MPH/45+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Did the driver wait for all vehicles to pass? Did the driver pass illegally? Did the driver tailgate? Number of cones on the vehicle's left and right that were knocked over Average lane position Lane position deviation Average speed Speed deviation Maximum and Minimum speed Entry speed Total pedal and gas pedal reaction times Minimum time and distance to collision (Various: head on, backing vehicle, others) Time to pass


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Road Test: Difficult Comprehensive Drive</p>	<p>Length: 4 miles, 6.4 kilometers</p> <p>Time: 10 minutes</p> <p>There are three basic versions of this scenario with the only difference being the order that the roadway sections are shown in; and one of the reaction tests in the rural area being different for each drive.</p> <p>The scenario takes the driver through metro, rural, farmland, school zone, and residential roadway environments. Events that occur during the drive that the driver must interact with include dynamic pedestrians, vehicles pulling into traffic, signal lights, stop signs and more.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any roadway objects (signs, etc.)? Did the driver use excessive speed in the school zone (28+ MPH/45+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver commit a stopping infraction? Did the driver go off the road? Did the driver cross the center line? Did the driver go off the road and crash? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time and distance to collision (Various: peds, animals, head on, objects, others)


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Text Messaging: Suburban</p>	<p>Length: 2.4 miles, 3.9 kilometers</p> <p>Time: 5 minutes</p> <p>This scenario demonstrates the dangers of reading text messages while driving. During the drive, the driver will be navigating a suburban neighborhood and will receive four text messages that will result in their eyes leaving the roadway scene (the simulated driver's eyes will look down to read the message). While their eyes are diverted, they will still need to control the vehicle and avoid roadway obstacles such as pedestrians and backing vehicles.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive braking? Did the driver use excessive steering? Maximum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision Minimum distance to collision


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Text Messaging: Highway</p>	<p>Length: 5.7 miles, 9.2 kilometers</p> <p>Time: 7 minutes</p> <p>In this task, the driver will navigate a four-lane divided highway with curves and lead traffic. The lead traffic will be traveling slower than the posted speed limit and there will be vehicles in both lanes that the driver may have to navigate around.</p> <p>During the drive the driver will be presented with four different situations where their eyes will leave the road to view a text message. In this scenario, the eyes will go back up for a quick peek and then down again. When the eyes are down, certain things will happen that demonstrate the dangers of taking your eyes off the road.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive braking? Did the driver use excessive steering? Maximum speed


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Driving in Fog: Moderate</p>	<p>Length: 4.7 miles, 7.6 kilometers</p> <p>Time: 7 minutes</p> <p>Two-lane highway with slow vehicles (below posted speed limit) in front of the driver and approaching traffic in the opposite lane. The driver will need to determine if they want to pass or not; however, this is further complicated by the fact that the driver only has 250 feet of visibility due to fog.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive speed (75+ MPH/120+ KPH)? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver pass all of the vehicles? Maximum speed Minimum time to collision with vehicles in the driver's lane Minimum distance to vehicles in the driver's lane Minimum time to head on collision Minimum distance to head on collision




SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Driving in Fog: Challenging</p>	<p>Length: 1.7 miles, 2.7 kilometers</p> <p>Time: 4 minutes</p> <p>Four-lane rural area with heavy fog (approximately 150-foot / 45-meter visibility) at the start of the drive. After about a mile/1.6 kilometers, the fog goes away and the view is clear.</p> <p>Obstacles that must be avoided include a couple of roadway barrels that have been knocked over, a slow vehicle in the fog, and a vehicle that pulls into and then out of the driver's lane.</p> <p>While there are several things to avoid during the drive, the emphasis is on maintaining a safe speed in the fog.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Did the driver use excessive braking? Did the driver use excessive steering? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Minimum time to collision with roadway objects or vehicle Minimum distance to collision with roadway objects or vehicle




SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Nighttime Drive: Challenging Curves</p>	<p>Length: 4.5 miles, 7.2 kilometers</p> <p>Time: 8 minutes</p> <p>Night drive on a two-lane curvy road that runs through a desert scene. There are no hazards or obstacles.</p> <p>The key point of the drive is lane keeping and maintaining the 35 MPH (55 KPH) posted speed limit.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed


SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Nighttime Driving: Country</p>	<p>Length: 7.6 miles, 12.2 kilometers</p> <p>Time: 10 minutes</p> <p>Night driving on a country roadway. There is some oncoming traffic, some in-lane traffic and pedestrians and animals in the roadway. There will be four instances of animals crossing the road.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any pedestrians or animals? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Nighttime Drive: Rural</p>	<p>Length: 8.9 miles, 14.3 kilometers</p> <p>Time: 15 minutes</p> <p>Night drive that starts with a suburban scene that is followed by a curvy road, several intersection events, a construction zone with very tight cone placements, another curvy road section which is again followed by several intersection events.</p>	<p><u>Summary Metrics:</u></p> <p>Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage</p> <p><u>Event Specific Metrics:</u></p> <p>Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver collide with any workers? Did the driver collide with any construction material? Did the driver collide with any roadway objects (signs, etc.)? Did the driver go off the road and crash? Did the driver go off the road? Did the driver cross the center line? Did the driver turn in the correct direction? Did the driver use their turn signal? Did the driver wait for pedestrians or animals? Did the driver turn in front of any immediate vehicles in the opposing lanes of traffic? Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Entry speed Total pedal reaction time Gas pedal reaction time Minimum time and distance to collision (Various: pedestrians, animals, vehicles)</p>

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Impaired Drive: Drowsy</p>	<p>Length: 2.5 miles, 4 kilometers</p> <p>Time: 5 minutes</p> <p>Drive through rural and urban areas that simulates what can happen when the driver is drowsy. On numerous occasions during the drive, the driver's eyes will shut and inputs into the steering wheel and pedals will be ignored. During the drive, the driver will be interacting with traffic, pedestrians, animals and traffic control devices.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off-road crashes Total number of collisions with vehicles and other roadway objects Total number of collisions with pedestrians and animals Total number of traffic light tickets Total number of stop sign tickets Total number of times over the posted speed limit Percentage of time over the posted speed limit Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes Number of correctly negotiated intersections Number of incorrectly negotiated intersections Overall turn signal usage <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver collide with any vehicles? Did the driver collide with any pedestrians or animals? Did the driver use excessive braking? Did the driver use excessive steering? Did the driver commit a stopping infraction? Average lane position Lane position deviation Average speed Speed deviation Maximum speed Minimum speed Total pedal reaction time Gas pedal reaction time Minimum time to collision with pedestrians and animals Minimum distance to pedestrians and animals Minimum time to collision Minimum distance to collision

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Impaired Drive: DUI in Construction Zone</p>	<p>Length: 0.65 miles, 1 kilometer</p> <p>Time: 1.5 minutes</p> <p>Drive through a construction zone with a BAC (Blood Alcohol Content) of .08. A BAC of .08 is maximum legal limit in most of the US. The driver will need to change lanes based on the cone pattern presented and try not to knock over any cones and collide with any vehicles.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Total off-road crashes Total collisions with vehicles & roadway objects Total collisions with pedestrians Total times the driver went off the road Percentage of time out of lanes Total traffic light tickets Total stop sign tickets Total times over the posted speed limit Percentage of time over the posted speed limit Total times center line was crossed Total times the driver went off the road Percentage of time out of lanes
 <p>Impaired Drive: DUI in a City</p>	<p>Length: 1.1 miles, 1.8 kilometers</p> <p>Time: 7.5 minutes</p> <p>Drive through a metro area with a BAC (Blood Alcohol Content) of .08. A BAC of .08 is maximum legal limit in most of the US.at the legal limit of .08.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Total off-road crashes Total collisions with vehicles & roadway objects Total collisions with pedestrians Total times the driver went off the road Percentage of time out of lanes Total traffic light tickets Total stop sign tickets Total times over the posted speed limit Percentage of time over the posted speed limit Total times center line was crossed Total times the driver went off the road Percentage of time out of lanes
 <p>Driving Skills: Single Slalom</p>	<p>Length: 0.6 miles, 1 kilometer</p> <p>Time: 1-2 minutes</p> <p>Simple slalom course where the driver needs to steer left and right between the barrels. There are three separate trials of eight barrels each.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Entry speed Average speed Maximum speed Minimum speed

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Driving Skills: Double Slalom</p>	<p>Length: 0.6 miles, 1 kilometer Time: 1-2 minutes</p> <p>Double slalom course where the driver needs to steer between consecutive sets of barrels that are offset left and right from the center. There are three separate trials of eight sets of barrels each.</p>	<p><u>Summary Metrics:</u> Time to complete drive</p> <p><u>Event Specific Metrics:</u> Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Entry speed Average speed Maximum speed Minimum speed</p>
 <p>Driving Skills: Zig Zag Steering</p>	<p>Length: 0.3 miles, 0.5 kilometers Time: 1 minute</p> <p>Steering course where the driver must steer between the next set of cones that are placed either left or right of center. After steering through the cones, the driver then needs to immediately steer back in the opposite direction to realign themselves with the center.</p>	<p><u>Summary Metrics:</u> Time to complete drive</p> <p><u>Event Specific Metrics:</u> Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Entry speed Average speed Maximum speed Minimum speed</p>
 <p>Driving Skills: Double S Curve</p>	<p>Length: 0.1 miles, 0.2 kilometers Time: 1 minute</p> <p>As the icon shows, this drive is a double S curve made with cones. The cones are 18 feet (5.5 meters) apart and the driver should try to drive as fast as they can but without knocking over any cones.</p>	<p><u>Summary Metrics:</u> Time to complete drive</p> <p><u>Event Specific Metrics:</u> Number of cones on the vehicle's left that were knocked over Number of cones on the vehicle's right that were knocked over Entry speed Average speed Maximum speed Minimum speed</p>

SCENARIOS	DESCRIPTIONS	MEASURES
 <p>Raceway Time Trial</p>	<p>Length: 2.6 miles, 4.2 kilometers</p> <p>Time: 4 minutes</p> <p>Race course consists of two laps on the same course. There are no other vehicles on the course. There are pylons and concrete barriers on portions of the course.</p> <p>Vehicle speed and time performance are provided for each lap and for both laps combined.</p>	<p><u>Summary Metrics:</u></p> <ul style="list-style-type: none"> Time to complete drive Total number of off road crashes Total number of collisions with vehicles and other roadway objects Total number of times the center line was crossed Total number of times the driver went off the road Percentage of time out of lanes <p><u>Event Specific Metrics:</u></p> <ul style="list-style-type: none"> Did the driver crash? Average speed Maximum speed Time

Glossary of Measures

The following is a table containing definitions for each of the metrics that are reported at the end of a drive.

Note 1: *Some of the basic measures (stop sign tickets, signal light tickets, etc.) may not be relevant to every drive because not all drives include these elements. However, to try and make the reports a little more uniform, many of the drives have these listed. Since the system will report these as 0 there is no harm done, just don't be alarmed if a report lists things that might not have occurred during the drive.*

Note 2: *Some of the definitions include representative values for the specific metric. These values are based on observations made during years of using driving simulation and conducting research using driving simulators; and are not based on any specific scientific study. Due to the complexity of driving environments and the variety of situations a driver can experience; the same metric can yield completely different values (for example reaction times). Therefore, any values reported are to be used as guidelines for what would be considered acceptable driving performance.*

METRIC	DEFINITION	UNITS
Average divided attention response time	Mean response time for divided attention symbol events. Time starts from symbols presentation to button response by driver. Includes both correct and incorrect responses. Less than 2 seconds, for wide field of view this can be a bit higher.	Seconds
Average lane position	Mean lane position of driver's vehicle in relation to the roadway centerline (defined as zero). Center of vehicle is the reference point. Positive values indicate lane positions on the right side of road; negative values indicate being left of the centerline. Default roadway lane widths are 12 feet (3.66 meters) across; therefore, values close to 6 feet (1.83 meters) indicate positioning near the center of a lane. Values may vary depending on roadway design, lane changes, and centerline crossings. Greater than 2.5 feet (0.76 meters) and less than 9.5 feet (2.9 meters).	Feet or Meters
Average speed	Mean speed of the driver's vehicle during a specific section of a drive. Values will vary depending on scenario and driver stops. Good performance is within +/- 5 MPH (8 KPH) of the posted speed limit.	MPH or KPH
Date of the drive	Reports the date when the drive was conducted.	

METRIC	DEFINITION	UNITS
<p>Did the driver collide with any: Construction materials? Pedestrians or animals? Roadway objects (signs, etc.)? Vehicles? Workers?</p>	<p>Did driver's vehicle collide with any of the roadway objects they encountered?</p> <p>For good performance, this is No.</p> <p>However, the driver may have had a collision for a "<i>good reason</i>", like avoiding something where their initial behavior was correct but while avoiding one obstacle they struck something else. The crash is still bad because you must always be able to control the vehicle; however, the initial behavior was correct. Therefore, observation is so important to the overall process.</p>	<p>Yes or No</p>
<p>Did the driver turn left/right?</p>	<p>Reports whether the driver turned left or right at a specific intersection.</p> <p>For good performance, this is Yes which indicates the driver performed the correct action (turned left or turned right) at the intersection.</p>	<p>Yes or No</p>
<p>Did the driver commit a stopping infraction?</p>	<p>When negotiating stop signs and signal lights, this metric reports whether the driver made a legal stop (did not cross the limit line, was within a car length and a half of the limit line at a stop sign, etc.).</p> <p>For good performance, this is No which indicates the driver performed a legal stop at the signal light or stop sign.</p>	<p>Yes or No</p>

METRIC	DEFINITION	UNITS
<p>Did the driver:</p> <ul style="list-style-type: none"> Crash? Cross the center line? Go off the road and crash? Go off the road? Pass illegally? Tailgate? Use excessive braking? Use excessive speed....? Use excessive steering? 	<p>Did the driver do any of these generally poor behaviors?</p> <p style="text-align: center;">For good performance, this is No.</p> <p>During some drives, the driver will be put into situations where these actions could occur. In general, if the report shows No then the driver did well; however, if the report shows Yes, the driver may have had a “good reason”. For example, they may have been avoiding something where their initial behavior was correct but while avoiding one obstacle they went off the road or crossed the center line. Another example would be that they used excessive braking or steering to avoid an obstacle.</p> <p><u>Please note:</u></p> <p>For off-road crashes, the default limit is 5 feet (1.5 meters) from the roadway edge relative to the vehicle’s tires.</p> <p>In the software “<i>Tailgating</i>” is defined as anytime the driver’s vehicle is within 20 feet (6.1 meters) of a lead vehicle traveling in the same lane as the driver. The distance is measured from the front of the driver’s vehicle to the backend of the lead vehicle.</p> <p>Excessive braking is defined as vehicle decelerations greater than .5 g’s.</p> <p>Excessive speeds are defined as above 75 MPH (120 KPH) during normal driving and above 28 MPH (45 KPH) in a school zone.</p> <p>Excessive steering is defined as lateral vehicle accelerations greater than .5 g’s.</p>	<p>Yes or No</p>
<p>Did the driver:</p> <ul style="list-style-type: none"> Go straight? Pass all of the vehicles? Pass vehicle X? Signal for a left/right turn? Steer in the correct direction? Turn in the correct direction? Use their turn signal? 	<p>Did the driver do any of the listed behaviors?</p> <p style="text-align: center;">For good performance, this is Yes.</p> <p>During certain drives, the driver will find themselves in situations where these actions are required. If the report shows Yes then the driver performed the action that was expected of them. Conversely, if the report shows No, then the driver either did not understand what they were supposed to do or missed the cues necessary to perform the action correctly.</p>	<p>Yes or No</p>

METRIC	DEFINITION	UNITS
<p>Did the driver turn in front of any: Cross traffic vehicles? Immediate vehicles in the opposing lanes of traffic?</p>	<p>Did driver let all traffic pass before making a turn?</p> <p>For good performance, this should be No and the driver turned into one a gap that was long enough to not impede the progress of any vehicle.</p> <p>While waiting for all the traffic to clear is an acceptable response, there are generally gaps that the driver could take without impeding traffic and the driver should be encouraged to turn into one of these gaps because in the real-world, waiting for all traffic to clear could lead to other issues (irritated other drivers, not being able to turn because there is no dedicated turn signal, etc.).</p>	<p>Yes or No</p>
<p>Did the driver wait for all vehicles to pass?</p>	<p>Did driver wait for any faster moving vehicles in an adjacent lane to clear out of the way before changing lanes?</p> <p>For good performance, this is Yes, indicating the driver saw the vehicle in their mirrors and waited for it to pass instead of cutting it off and potentially causing a collision.</p>	<p>Yes or No</p>
<p>Did the driver wait for pedestrians or animals?</p>	<p>While making a turn at an intersection with pedestrians crossing the street, did the driver wait for all pedestrians to pass before completing turn?</p> <p>For good performance, this is Yes, indicating that the driver noted there were pedestrians and waited for them to clear before continuing.</p> <p>In some states, it is okay to pass in front of a pedestrian as long as you do not impede their progress, however, waiting for the pedestrians to get out of the way is the safest performance.</p> <p>For drives where the driver is turning and there are no pedestrians or animals, this will automatically report yes.</p>	<p>Yes or No</p>
<p>Distance from intersection when vehicle stopped</p>	<p>At an intersection where a driver stopped, this metric is the distance the vehicle is away from the limit line. For signal lights this is not an issue, however for stop signs, the vehicle must stop within a couple of vehicle lengths or they could get ticketed.</p> <p>In general, this should be less than 25 feet or 7.5 meters.</p>	<p>Feet or Meters</p>

METRIC	DEFINITION	UNITS
Driver time delay	<p>This measure is an estimate of the time delay between when the lead vehicle changes speed and when the driver responds. A value of 0 means that the driver adjusted their speed at the exact same time as the lead vehicle (which is impossible).</p> <p>Good performance would be values below approximately 3 with moderate performance below 5. However, for this value to mean anything, the “How well did the driver do the vehicle following task” metric must be above .5 and ideally above .75.</p> <p>On occasion, there may be a negative value for the time delay. This indicates that the driver may have been anticipating the speed changes. However, as for the case with positive time delay values, for this value to mean anything, the “How well did the driver do the vehicle following task” metric must be above .5 and ideally above .75.</p>	Seconds
Driver’s speed when stimulus appeared	<p>Driver’s speed when the stop sign appears during pedal reaction time events. This value is reported because it will help you when the stopping distance metric appears high. If the driver is going faster than 50 MPH (80 KPH), it will take the vehicle longer to stop. Therefore, if you think the stopping distance is too high, check this variable and it should be high as well.</p> <p>Good performance is within +/- 10% of the posted speed limit.</p> <p>50 MPH or 80 KPH per hour plus or minus 5 MPH or 8 KPH.</p>	MPH or KPH
Entry speed	<p>Speed of the driver’s vehicle upon entry to a construction zone. Speed recorded at the first cone marker indicates awareness of construction zone. Since the driver does not know what to expect, they should enter the constructions zones at:</p> <p>Less than 20-25 percent of the posted speed limit.</p>	MPH or KPH
Gas pedal reaction time	<p>Response time between the onset of stimulus event and gas pedal release by driver. This will vary based on the situation the driver is negotiating and is generally higher than their base reaction time (obtained using the Brake Reaction Time drive). Ideally, you want the value to be close to their base reaction time, but it will vary widely based on the situation.</p> <p>For good performance, this should be less than 0.4 seconds; poor performance is above 0.55 seconds.</p>	Seconds

METRIC	DEFINITION	UNITS
How well did the driver do the vehicle following task	<p>This provides a measure of the accuracy of the driver's speed adaptations during a vehicle following task and serves as a reliability check for "<i>How well did the driver match the speed</i>" and "<i>Driver time delay</i>" metrics. A value of 1 means that the driver adjusted their speed at the exact same time as the lead vehicle (which is impossible).</p> <p>Values above .75 indicate good performance and above .5 indicate moderate performance. When scores drop below .5 it means that the driver did poorly and that you should not have confidence in the results shown for "<i>How well did the driver match the speed</i>" and "<i>Driver Time Delay</i>".</p> <p>When values are below .5 the driver either did not understand the task or simply did not perform it well.</p>	0 - 1
How well did the driver match the speed	<p>Indicates how well the driver continuously matched the lead vehicle's speed. This measure is only reliable if the value for "<i>How well did the driver do the vehicle following task</i>" is at least 0.500 or higher, otherwise ignore this metric.</p> <p>Value of 1 = perfect speed match.</p> <p>Values greater than 1 = driver tended to over-respond/correct (speed up or brake too much) to lead vehicle speed changes.</p> <p>Values lower than 1 = driver tended to under-respond/correct (slow to respond) to lead vehicle speed changes.</p> <p>Good performance would be values between approximately .8 and 1.2.</p>	Varies
Lane change response time	<p>Time it takes the driver to steer the vehicle out of the current lane into a new lane in response to some stimuli. A lane change is measured when the center of the vehicle crosses the line dividing two lanes of traffic.</p> <p>Good performance is less than 1.75 seconds, moderate performance is less than 2.25 seconds.</p>	Seconds

METRIC	DEFINITION	UNITS
Lane position deviation	<p>Standard deviation (variability) of lateral lane position of the driver's vehicle. This is an Indicator of how well a driver maintained a consistent vehicle position. However, this is also dependent on the drive because these values may be higher on drives where the driver also must respond to divided attention symbols. In these cases, an additional .25 feet (0.08 meters) can be added.</p> <p>For good performance this value should be below 1 foot (0.3 meters).</p> <p>Deviations up to 1.5 feet (0.46 meters) denote moderate performance.</p> <p>Values above 1.75 denote poor performance.</p>	Feet or Meters
Maximum speed	<p>Highest recorded speed from the driver's vehicle; usually during only defined portions of drive. This value will vary based on the posted speed limit.</p> <p>For good performance, less than 5 to 7 MPH (8 to 11 KPH) above the posted speed limit.</p>	MPH or KPH
Minimum distance to: Backing vehicle Collision Head on collision Pedestrians and animals Roadway objects or vehicle Vehicles in driver's lane	<p>This parameter has many different forms as it pertains to vehicles, pedestrians and animals, and various roadway objects. The value records the minimum distance (the closest the driver got to the object) between the driver's vehicle and the object that is in front of the driver. This provides a measure of how close a driver came to colliding with the object. The larger this value is the better. If this value is zero, then the driver collided with the object.</p> <p>For good performance, this should be greater than the length of the driven vehicle (around 15-20 feet or 4.5-6 meters).</p>	Feet or Meters
Minimum speed	<p>Lowest recorded speed from driver's vehicle during a defined portion of the drive.</p> <p>For good performance, greater than 5 MPH (8 KPH) below the posted speed.</p> <p>For example, If the posted speed limit is 45 MPH (70 KPH) then the minimum speed should be greater than 40 MPH (64 KPH).</p>	MPH or KPH

METRIC	DEFINITION	UNITS
<p>Minimum time to collision</p> <p>Minimum time to head on collision</p> <p>Minimum time to collision with:</p> <ul style="list-style-type: none"> Backing vehicle Pedestrians and animals Roadway objects or vehicle Vehicles in the driver's lane 	<p>This parameter has many different forms as it pertains to vehicles, pedestrians and animals, and various roadway objects. The value records the minimum time to collision (TTC) between the driver's vehicle and the object that is in front of the driver. This provides a measure of how close a driver came to colliding with the object in terms of time.</p> <p>A general rule of thumb for the TTC measure is that for good performance the TTC value should be greater than the driver's base total pedal reaction time (obtained from the Brake Reaction Time scenario). For excellent performance, the TTC value should be greater than one second.</p>	<p>Seconds</p>
<p>Number of cones on the vehicle's left that were knocked over</p> <p>Number of cones on the vehicle's right that were knocked over</p>	<p>Number of cones on either the left or right side of the driven vehicle that were knocked over during the drive. Since different drives have different cone patterns the number of potential cones that could be knocked over will vary.</p> <p>For good performance, no cones are knocked over.</p> <p>If the driver demonstrates overall good driving performance, then several cones can be knocked over without it changing their performance from good to moderate. Anything more than 5 or 6 indicates poor performance.</p>	<p>Count</p>
<p>Number of correctly/incorrectly negotiated intersections</p>	<p>Metrics reporting the number of intersections where the driver either did or did not do the correct action. Correct negotiation means the driver followed the auditory directions correctly and performed the correct action (turn left, turn right, or went straight) at the intersection. If the driver did something other than what they were instructed to do, it will be marked as an incorrectly negotiated intersection.</p> <p>For good performance, all intersections should be negotiated correctly and there should be 0 incorrectly negotiated intersections.</p>	<p>Count</p>

METRIC	DEFINITION	UNITS
Number of left symbols missed Number of lower left symbols missed Number of upper left symbols missed Number of right symbols missed Number of lower right symbols missed Number of upper right symbols missed	<p>These metrics involve the driver performing a secondary or divided attention task during the drive. The symbols are shown on either the driver's left or right side and in some cases in the upper and lower quadrants of the screen. These metrics report how many instances there were where a symbol was displayed but the driver did not respond.</p> <p>Good performance would be missing none, moderate would be missing 1 or 2, missing any more than two would be poor performance.</p> <p>Missing symbols could be an indication that the driver does not understand the task; therefore, make sure that the driver understands how do to the divided attention task before testing them.</p> <p>A missed symbol is defined as a symbol that is displayed for 5 seconds with no response from the driver. At that point the symbol disappears.</p>	Count
Overall turn signal usage	<p>Proper turn signal use defined is defined in the software as:</p> <ol style="list-style-type: none"> 1. Correct signal engaged for at least 60 percent of the time within roughly 150 feet prior to making a turn and until turn is engaged. 2. Correct signal engaged within 5 seconds of the vehicle crossing into an adjacent lane and the signal remaining on for a minimum of 60 percent of the time during the lane change maneuver. <p>Good: Driver used their turn signals properly more than 75% of the time.</p> <p>Moderate: Driver used their turn signals properly between 25-75% of the time.</p> <p>Poor: Driver used their turn signals properly less than 25% of the time.</p>	Poor, Moderate or Good
Participant ID	Database identification that was assigned to this driver.	
Percentage of time out of lanes	<p>Percentage of total drive time the driver's vehicle was out of the driving lane(s). Includes whenever a portion of the vehicle's body is over the roadway centerline or off the roadway.</p> <p>Good performance would be less than 1%, moderate would be less than 2.5% and anything greater than 2.5% would be poor.</p>	%

METRIC	DEFINITION	UNITS
Percentage of time over the posted speed limit	<p>Percentage of total drive time the driver's vehicle exceeded the posted speed limits.</p> <p>Good performance would be less than 5%, moderate would be less than 10% and anything greater than 10% would be poor.</p> <p>All posted limits are given a 3 MPH (4.8 KPH) leeway to allow for a reasonable speedometer adjustment. For example, a posted speed of 45 MPH (70 KPH) is exceeded at 48 MPH (74.8 KPH).</p>	%
Roadway conditions	<p>Specifies the roadway condition that was used during the simulation drive. This is generally either Clear or Single Screen (maximum visibility), Fog (700 foot, 215 meter visibility), or Heavy Fog (200 foot, 60 meters visibility). Some sites have special conditions; therefore, some other condition may be displayed.</p>	
Scenario that was driven	<p>Reports the skill set that drive was selected from and the drive that was driven. The format is:</p> <p>Skill Set@Drive</p>	
Speed deviation	<p>Standard deviation (variability) of driver's vehicle speed; usually over a specific portion of the drive.</p> <p>In general, good performance is a deviation that is less than approximately 5% of the average speed during the same section of drive; with moderate performance being below 10% of the average speed.</p> <p>For example, if the average speed was 55 MPH (88 KPH) then the speed deviation should be below 5.5 MPH (8.8 KPH) and ideally below 2.75 MPH (4.4 KPH)</p>	MPH or KPH
Stopping distance	<p>Driver's vehicle stopping distance – calculated from the onset of brake reaction stimulus until the vehicle comes to a complete stop. This will vary a bit depending on the speed at stimulus. If the driver is at approximately 50 MPH (80 KPH) the results should be:</p> <p>Good performance is less than 175 feet (53 meters), whereas moderate is between 175 and 220 feet (53 to 67 meters). Anything greater than 220 feet (67 meters) is poor performance.</p>	Feet or Meters

METRIC	DEFINITION	UNITS												
Time	<p>Time for completing a single lap around the raceway. Since there are two different raceways the values for this will be different; and they are also affected by crashes that will slow the driver down and increase their time:</p> <table border="1"> <thead> <tr> <th>Performance</th> <th>Easy Raceway</th> <th>Moderate Raceway</th> </tr> </thead> <tbody> <tr> <td>Aggressive</td> <td>Less than 80 seconds</td> <td>Less than 100 seconds</td> </tr> <tr> <td>Moderate</td> <td>80 - 120 seconds</td> <td>100 - 160 seconds</td> </tr> <tr> <td>Poor</td> <td>More than 120 seconds</td> <td>More than 160 seconds</td> </tr> </tbody> </table>	Performance	Easy Raceway	Moderate Raceway	Aggressive	Less than 80 seconds	Less than 100 seconds	Moderate	80 - 120 seconds	100 - 160 seconds	Poor	More than 120 seconds	More than 160 seconds	Seconds
Performance	Easy Raceway	Moderate Raceway												
Aggressive	Less than 80 seconds	Less than 100 seconds												
Moderate	80 - 120 seconds	100 - 160 seconds												
Poor	More than 120 seconds	More than 160 seconds												
Time of the drive	Reports the time of day when the drive was conducted.													
Time to complete drive	Total time required for the driver to finish the scenario. Majority of scenarios automatically finish based on a set vehicle travel distance. This varies based on scenario and ideally, it should take approximately the time listed above for the specific scenario driven.	Seconds												
Time to pass	<p>Total time for driver's vehicle to pass a slower moving vehicle. This metric is measured from the time when the center of the driver's vehicle leaves the current lane until it returns to the original lane.</p> <p>Good performance are times less than 125 seconds, poor performance are times greater than 150 seconds.</p> <p>In general, it is best to wait for the cars to clear and then go; however, there is a gap that drivers can sneak through if they are aggressive. Times less than 30 seconds indicate an aggressive performance.</p>	Seconds												

METRIC	DEFINITION	UNITS
<p>Total number of:</p> <ul style="list-style-type: none"> Collisions with pedestrians and animals Collisions with vehicles/roadway objects Off-road crashes Speed warnings the driver received Stop sign tickets Times over the posted speed limit Times the center line was crossed Times the driver went off the road Traffic light tickets 	<p>These are aggregate values for the entire drive. While many sections of drives will report driver mistakes, these values report how many times a specific metric occurred during the drive.</p> <p style="text-align: center;">For good performance, each of these should 0.</p> <p><u>Please note:</u></p> <p>For off-road crashes, the default threshold is 5 feet from the roadway edge. Off-road crashes occur when the vehicle's tires exceed this threshold.</p> <p>Speed warnings occur during car following events and are used to remind the driver to keep up with the lead vehicle. The distance a driver can fall behind can vary from 200-300 feet depending on the scenario.</p> <p>Stop sign tickets are issued if the driver does not come to a complete stop at least one and a half car lengths (\approx 20-25 feet, 6-7.5 meters) from the stop sign's limit line.</p> <p>All posted speed limits are given a 3 MPH (4.8 KPH) leeway to allow for a reasonable speedometer adjustment. For example, in 45 MPH (70 KPH) signed zones, the speed limit threshold is 48 MPH (74.8 KPH).</p> <p>Traffic light tickets are issued for not coming to a complete stop at a red light when making a right turn or failing to cross at least half way through the intersection before the signal light changes from yellow to red.</p> <p>Driver going off the road is defined as any time any portion of driver's vehicle went off the traveling lane(s) onto the shoulder or parking lanes.</p>	<p>Count</p>
<p>Total number of correct/incorrect responses to divided attention symbols</p>	<p>Total number of correct/incorrect divided attention responses by driver. This will vary depending on the number of symbols displayed during the drive.</p> <p style="text-align: center;">Good performance is all symbols responded to correctly, moderate performance would be incorrectly responding to 1 or 2 symbols.</p>	<p>Count</p>

METRIC	DEFINITION	UNITS
Total number of divided attention responses missed	<p>This metric is for the entire drive and reports the total number of times the driver did not respond to a divided attention symbol. Misses are defined as any response greater than 5 seconds after the symbol is initially presented. After 5 seconds, the symbol goes away.</p> <p>Good performance is 0 symbols missed, moderate performance would be missing 1 or 2.</p>	Count
Total pedal reaction time	<p>Response time starting from the stimulus onset until the driver presses the brake pedal at least 25% of the way in. This will vary based on the situation the driver is negotiating and is generally higher than their base reaction time (obtained using the Brake Reaction Time scenario). <i>Ideally, you want the value to be close to their base total pedal reaction time, but it will vary widely based on the situation.</i></p> <p>The classic value that is generally cited is below 0.7 seconds.</p>	Seconds