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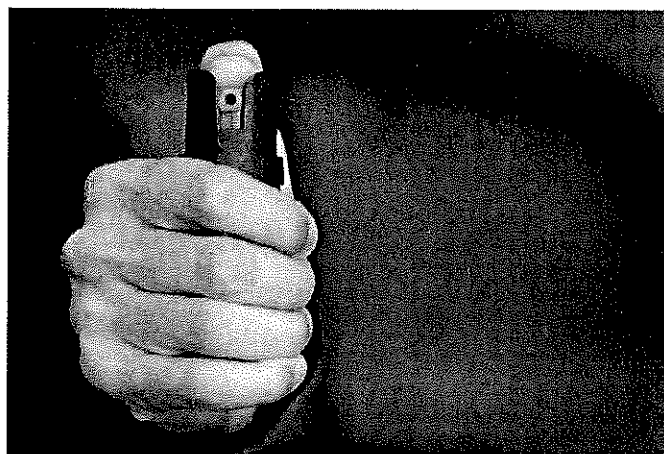
Search



[Home](#) > [Blog](#) > Why is Pepper Spray a Great Option For Self Defense?

WHY IS PEPPER SPRAY A GREAT OPTION FOR SELF DEFENSE?

Posted by TBO TECH 08/27/2018 0



Have you ever chopped up a hot chili pepper and accidentally rubbed your eye after?

If so, you're probably shuddering as you remember how bad it stung.

Now, imagine being sprayed in the face with the same oils from that chili pepper. Your eyes will immediately begin to burn and water. Every time you inhale the burning spreads in your nose, down your throat, and in your mouth. The skin on your face starts to sting too.

That is exactly how pepper spray feels.

Fortunately, the burning and stinging are only temporary. The immediate short-term pain of pepper spray makes it a great non lethal option for self-defense.

Macon - 9
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Pepper Spray and Mace: Two Different Products

What is the difference between pepper spray and mace? The answers vary depending on who you talk to. Some people use the two interchangeably, but they are actually quite different.

Both mace and pepper spray are used as non lethal deterrents for self-defense. From use by police officers in the line of duty to the average individual walking home late at night, it's understandable how the two can be confused.

Here is the difference:

The primary ingredient in mace is phenacyl chloride, or CN, which is an irritant that affects the mucous membranes found in an individuals eyes and nose. It is very similar to tear gas. Unlike pepper spray, mace doesn't have much effect on individuals who are high or inebriated.

Today, "Mace" is better known as a company name that manufactures and sells pepper spray and other security/self-defense products.

The main ingredient in pepper spray is Oleoresin capsicum, the compound found in chili peppers that makes them hot. Pepper spray is considered an inflammatory because it causes the nerve endings found in mucous membranes such as your eyes, nose, and mouth to burn immediately.

Additional symptoms of pepper spray include temporary vision impairment, coughing, difficulty breathing, nausea and the well-known intense burning reaction.

Read more from our July article to learn about how pepper spray works and how it has evolved over time.

Why Should You Use Pepper Spray

One of the primary non lethal forms of self-defense used by police officers is pepper spray. Mail carriers use pepper spray against attacking dogs. It is about 80% to 90% effective in deterring an attacker.

But it's not just legal for police officers and mail carriers to use. Pepper spray is legal to carry and purchase by almost anyone over the age of 18. However, some places in the United States do have regulations and restrictions regarding the use and purchasing of pepper spray. We'll explain more on that later.

If you've been out West to the Rocky Mountains or Sierra Nevada Mountains you probably have heard about the grizzly bears. Bear repellent is primarily made up of the same ingredients found in pepper spray and is more efficient at stopping a bear attack than a handgun.

Affordability

The affordability of pepper spray is another big selling point.

Compared to the costs of a small taser, handgun, or knife, pepper spray is a steal. In addition, pepper spray doesn't require a permit or certification to carry.

Cost varies based on size, style, and potency of the pepper spray you're planning to purchase. A small 5 burst keychain pepper spray costs about \$9 while a larger canister of gel or foam spray costs closer to \$60.

Each size has its benefits depending on your needs for self-defense.

Types of Pepper Spray

You just read there are small burst spray types of pepper spray and gel spray, but what does that mean?

A Cloud (or Cone) Spray

The cloud or "cone" spray is released from the canister just like it's described, as a cloud mist in a cone shape.

The cone spray covers a wide area making it better for hitting a moving or close range assailant.

The downside is the cone spray has a slower release. If there is a breeze, it could blow back into your face causing both you and your assailant to suffer the symptoms of the pepper spray.

The Stream Spray

As described, this spray comes out in a direct stream. It covers less space than the cone spray and can make hitting a moving target a little more difficult.

The good news is if it's a breezy day, the stream is less likely to blow back in your face and is released faster than the cloud or cone spray.

Foam and Gel Spray

The foam and gel pepper spray options are more potent than the cloud or stream sprays. The gel and foam sprays are more viscous and cling to the target causing the burning inflammation to last longer.

Due to the foam and gel sprays ability to stick to an attacker's face, they offer you more time to escape the attacker. Foam is a better option for deterring an assailant who is wearing glasses as it expands after being sprayed.

Lastly, foam and gel options are more environmentally friendly as they don't disperse like a mist. If you're attacked inside or near innocent bystanders, they are less likely experience the side effects of the pepper spray.

Some foam and gel sprays contain stain dyes to aid in identifying an assailant.

Spray Distances

A small canister of pepper spray can shoot anywhere from a few feet to 10 feet. An industrial-sized canister, such as bear pepper spray, can reach 20 or 30 feet. Each distance has its benefits depending on your needs and situation.

Let's say you're planning to bring a small bottle of pepper spray with you on your morning or evening walks. In this case, a small canister such as a keychain bottle that shoots around 3-6 feet would work well.

A larger canister with more pressure can emit a fast stream of spray that will deter potential attackers at a greater distance.

For individuals looking for a small bottle to store in a purse or carry in the car, a canister of pepper spray that has 10-20 shots and reaches 5 to 15 feet may be a better option. This way you'll be prepared for an attacker who you see coming near you or who is already in close range.

If you're a hiker exploring the trails in bear country, then a larger canister of bear pepper spray would be wise to carry along on your adventures.

In the event you see a bear approaching you (which we hope you don't!) the spray will shoot 20-30 feet to maintain distance and discourage the bear to advance. Non lethal bear spray will inflame the bear's eyes, nose, and mouth, and will not cause lasting injury or death.

Feel the Heat: How Hot is Your Pepper Spray

As mentioned above, pepper spray is an inflammatory made from the compounds found in chili peppers. When you look at a canister of pepper spray there is a level of potency rated on the label.

This rating is an OC (oleoresin capsicum) percentage which describes the amount of pepper in the spray. This only measures the amount of the pepper compound and doesn't necessarily determine how "hot" the pepper spray is.

Another method of measuring the potency of the pepper spray is Scoville Heat Units (SHUs). The SHUs are based on taste tests and strength of a raw pepper's strength rather than the formula used in the pepper spray.

The most accurate measure of "heat" is Major Capsaicinoids or MC. MC measures the levels of heat and pain of the pepper spray formula. The higher the percentage of MC, the more painful the pepper spray will be.

Easy to Carry

The variety of pepper spray canisters make it ridiculously easy to carry. Everything from size and shape to the accessories you wish to add to your pepper spray is customizable for you and your lifestyle.

A small keychain canister is easy to access, conceal, and carry. Other accessories include holsters, bands for your hand, and clips.

Types of Pepper Spray Canisters

Whether you're looking for a small self-defense accessory for your purse or pocket or an industrial-sized canister for work in law enforcement, there are styles of pepper spray to fit anyone's needs.

For Pockets, Purses, Runners, and Walkers

You're an active person. You love being outside, whether it's dark, light, urban, or rural. No matter the time of day or location, safety comes first.

You probably don't want to lug a 1 pound canister with you while your running or walking. Fortunately, you don't have to! There are numerous pepper sprays that are small enough to conceal in the pocket of your hiking pants or running shorts.

There are pepper spray bottles that look like a tube of lipstick. For active runners and walkers, many brands make hand-sized sprays with a band to comfortably fit in your palm and are at the ready for any emergency.

For those who are just looking for a small practical spray, there are simple hard case sprays available as well.

Small sized canisters typically contain a few ounces and therefore have anywhere from 5-10 spray shots.

For Your Car or Home

If you're not looking for something tiny and easily concealable, there are jumbo sized and gun-shaped pepper sprays that are more aggressive. The advantages of these sprays are their ability to travel greater distances, more variety to choose from (cloud, stream, gel, or foam), and can affect multiple attackers.

How Legal is Pepper Spray?

Compared to other non lethal self-defense weapons, such as a taser, pepper spray is legal almost everywhere.

For civilian use, pepper spray is legal as long as it's 10-18% OC potency or less and the individual carrying it is age 18 or older.

Higher potency, such as 18% to 20% OC, is typically carried by law enforcement officers and not the general public. Some states, such as Wisconsin, allow 5% to 10% OC potency.

In the United States, pepper spray is legal everywhere, but usually with a few restrictions. In states such as Kentucky, Ohio, North Dakota, Utah, and Vermont (to name a few) pepper spray is legal with little to no restrictions.

Places such as New York and Illinois, on the other hand, have specific laws and registration forms for people purchasing pepper spray. New York, for example, specifies that the pepper

spray must be "pocket-sized," "purchased from a licensed firearms dealer or pharmacist," and only "two sprays may be sold" to a single person.

Easy and Safe to Use

Pepper spray canisters are designed to be safe and easy to use. To start, you will want to select a size that fits your needs. Again, if you're looking for a little additional safety while you're out and about, a small keychain or lipstick-sized canister of spray will be more practical than an industrial-sized canister used by law enforcement.

Proper use of the spray is crucial. If you find yourself in a situation where you need to use your pepper spray, operating it safely will prevent you from harming yourself or innocent bystanders.

Pepper spray canisters have a safety mechanism covering the actual button or trigger. As with a gun, the safety mechanism prevents accidental discharge of the spray. They can vary based on the brand and type of pepper spray you're using but are very easy to use.

Second, keep in mind your location. An indoor or constricted space can cause the pepper spray to affect you and/or others in the same room.

Lastly, learning how to deploy the spray. Instructions on the label clearly explain how to use your pepper spray. If you're unsure how to use the pepper spray, ask the seller or your local self-defense store if they can give you a brief demonstration.

To use, smoothly raise your arm towards the assailant, make sure the nozzle is facing the attacker, slide your finger under the safety mechanism, place over the button or trigger, and press!

The ease and safety of pepper spray makes it a great option for self-defense.

How Long Does Pepper Spray Last?

Pepper spray doesn't last forever. If you have a bottle of pepper spray that has been hiding in your purse or car for the past 10 years, you should probably replace it.

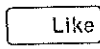
The shelf life of pepper spray depends on the brand, size, and potency. Most canisters last about 3 to 6 years.

Where to Buy

Pepper spray is widely available at local firearms stores, pharmacies, and online. Start your research [here](#) to learn the types of pepper spray available.

With so many spray options, it's easy to feel overwhelmed and unsure of what would suit your needs best. If you have questions, let us know. We're happy to answer your questions and find the right spray for you!

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Pepper Spray for Self Defense

Pepper Spray has been purchased as a popular chemical personal protection device since the early-mid 1990's. Before deciding on purchasing pepper spray or any other defense spray, there are pros and cons that should be considered. Learn the advantages and disadvantages of any personal protection item before relying on it for personal safety and self-protection. Any safety device or weapon is a tool and limited by the abilities of the user and the conditions confronted.

[Pepper Spray Products](#) and [Mace Products](#) are available for personal protection. It is important to understand the capabilities of pepper spray, Mace, or any other self defense product before attempting to use it for personal protection.

Awareness and physical fighting skills will enhance all methods used in personal protection and self defense. You should not rely solely on a weapon or personal protection device (pepper spray or [Mace](#)) against rape aggression or other violent criminal for self defense. Check with your local and state law enforcement agency to identify any restrictions before you make a pepper spray or other defensive spray purchase. There are pros and cons of any [Quick Fix Items](#).

- Pepper spray should be kept away from children.
- Manufacturers place a shelf life on each pepper spray canister due to pressure linkage found to dissipate within canisters.

- Pepper spray canisters should be shaken regularly to maintain the chemical mixture and effectiveness.
- Do not expose a pepper spray canister to extreme heat or cold such leaving and storing it in a vehicle.
- An assailant must be within range of the pepper spray canister.
- Average pepper spray canisters range vary from a four feet to 15 feet. Maximum effectiveness is within 10 feet, but effective range is dependent on type of pepper spray canister delivery method and canister pressure.
- The pepper spray canister must function and also be aimed properly requiring time and accuracy when under the stress of an attack.
- If you use pepper spray on someone you may also be affected. If you have respiratory reactions, pepper spray is probably not a good match for your personal protection consideration.
- Ask yourself, how you would be effected by pepper spray; would it incapacitate you?

Pepper Spray History

Pepper spray is scientifically known as Oleoresin Capsicum (OC), is overwhelmingly replacing mace but its origins date back to ancient military history. The Chinese burned oil and red pepper in a stinkpot irritant and used it against enemy soldiers in 311 BC. In 673 AD, it was given the name "Greek fire," when Greeks burned sulfur, quick lime, and pepper. It was first used on catapults in 1200 AD and was also used in the American Civil War. In 1973, OC was originally manufactured for personal protection against dogs. It was not until the 1990's that law enforcement began to replace their Mace canisters with OC referred to as pepper spary, which simultaneously became popular for personal safety since the early and mid 1990's.

In the 70's women were encouraged to view hair spray and a potential deterrent against assault. Then additional chemical self-protection products came out on the

market to include Mace, Witness Chemical Identifier, and then Pepper Spray gained immediate popularity as a defensive chemical agent.

In 1993 Richard Isaccs counted over 100 chemical defense sprays sold on the market, each with varying degrees of potency and effectiveness. Even though they are legal in most states, you should check with your local and state law enforcement agency to identify any restrictions before you make a purchase. Pepper spray has remained a popular personal protection or quick fix device.

Effects of Pepper Spray

The effects of OC in pepper spray involve severe irritation to the respiration, eyes, and skin. Often those contaminated will experience constriction of the trachea may create a feeling of panic and a involuntary coughing sensations, "I can't breathe." Some people experience temporary loss of strength and coordination. Often the sinus membranes begin to produce more mucus as the upper respiratory system becomes inflamed. Breathing is impaired by the constriction and swelling of the trachea, which reduces the intake of oxygen and causes excessive and uncontrollable coughing, gagging, and gasping for air.

Most people will experience severe involuntary twitching or involuntary closure of the eyes. OC is an inflammatory agent that causes dilation in the capillaries and swelling in the eyes from the burning effects; the eyes burn and blur with tears to clean the chemical agent from the eyes.

Some people experience an intense burning sensation on the skin that is more painful if skin pores are opened by previous or current sweating. Exposed skin may become discolored ranging from slight orange to bright red. OC does not persist in clothing like CS does. The effects can last from 30 to 45 minutes after being removed to an uncontaminated area of fresh air.

Not everyone is effected, and overall chemical agents affect everyone differently.

In the mid 1990's a police officer was killed because he was led to believe, by those same manufacturers, that pepper spray would work

on everyone. A violent criminal who had just walked out of his house after beating his wife confronted the officer who was walking up to the house in order to answer the call he was dispatched.

The officer sprayed the criminal with his canister of pepper spray numerous times. The officer was mentally distracted and surprised when the pepper spray was not working.

After all, he was told it would work. He relied on what he was told instead of using another option. The criminal grabbed hold of the officer and beat him to death. The officer died with the pepper spray canister still in his hand.

Pepper spray will not protect you just because you are carrying a canister. One commercial selling pepper spray showed two women walking by a street that led to a “bad” area of town. The one carrying the pepper spray started to walk in the bad/crime area’s direction when her walking partner objected. The one armed with pepper spray convinced the other woman to walk into danger because “they would be safe just because she was carrying pepper spray.” Remember that true self defense is avoiding danger in the first place.

Accurate Expectations of Chemical Devices

Michael Castleman described a tear gas test in his book Crime Free:

In April 1981, in cooperation with the ABC television program “20/20,” the Ventura County, California, Sheriff’s Department arranged a unique experiment to test it. The television producers invited twelve Los Angeles women, all licensed to carry tear gas, to participate in a realistic simulation of street assault, with deputies playing the assailants. A parking-lot scenario at the Sheriff’s Academy

was created. The women were given shopping bags and told them to imagine that they were leaving a supermarket.

Each carried her usual type of Mace product. The women and deputies were all average height and build; in some cases the women were bigger than the deputies. The women had the tear gas in their hands with the safety off. They knew something was going to happen, but not exactly what or when. The scenario had diversionary activities going on such as kids playing, people walking into the "market," a guy changing a tire in order to create an environment in which the women wouldn't just Mace or pepper spray the first person who crossed their path. Then a deputy posing as an assailant confronted each woman and attempted to grab her purse or push her to the ground. Each woman was attacked four times, for a total of forty-eight simulated assaults. Even though they knew they were going to be attacked, not one of them stopped the deputies who played the assailant.

The Lieutenant running the event said the women were absolutely convinced the Mace would work. The women had been told the Mace would instantly disable any assailant. They were described as cocky. One woman even said, "We're going to wipe you guys up!" The experiment was arranged to give them many more advantages than they would have in a real assault. The tear gas was pre-staged in their hands and not in their purses, and they knew they were going to be using it. After the test, they were all upset and felt the tear gas school they had attended had misled them. They said the school's promotional videotape showed assailants instantly incapacitated.

Even with the tear gas in hand, the women hit the deputies less than 20% of the time, and hit them in the face only a few times. In the few cases where the officers were hit in the face, the spray did not stop them. The manufacturers' claim of immediate incapacitation" simply did not hold true. One in five deputies who were hit in the face did feel some ill effects but only after a minute or so, which would not have stopped a real assault.

Even though this experiment was conducted with Mace, and pepper spray is considered more effective, but again, chemical irritants do not affect everyone. Most of the women in the above test missed entirely. An average assailant can cover 6 feet in less than a second, which does not provide the time to aim and shoot, much less effect the assailant with the contaminating solution. This is not what manufacturers would like you to believe. Since the pepper spray has been on the open market, its effectiveness has dropped.

Pepper Spray Used as a Diversionary Tool

If you choose to carry pepper spray or mace as a means of self-protection, think of it as a diversionary tool that may allow you to escape. Realistically the chemicals won't stop the assailant, but optimistically it can buy you a few seconds, at best, to possibly escape. But keep in mind that you are still subject to the mental and physical vulnerabilities of trying to escape a pursuing assailant who is not happy. A direct spray to the eyes and mouth will likely change his intent and motivation to end his pursuit of the crime. Other times it might enrage him to retaliatory violence.

Mind-Body-Spirit Relationship

Predators understand how to use the element of surprise and know how to distract victims when attacking them. Many understand the mind-body-spirit principle of attack. Criminals prefer that you are not ready when they attack you. They can also see what you are carrying in your hands. During a blitz attack, they will grab hold of the spray canister and then hit you with their other hand.

What Is the Situational Stress Level? Unless you train to use any tool or weapon under stress, you will experience the “freeze response.” Your mind will go blank and you will forget that you even have the weapon.

During the physical portion of the Model Mugging Basic self defense course women have wanted and have been allowed to use personal alarms (when they were popular) during the fighting exercises. Ironically, each student forgot she had the item until her coach reminded her to use it.

While you are concentrating on using the pepper spray or any other weapon, your mind and body are separated; and if you were to simultaneously try to use physical force, you will probably be ineffective. When in stress, people are far more effective if they concentrate all of their effort on one effective task; attempting to use pepper spray on a rapidly advancing and violent assailant while attempting to kick him is not an easy task.

Where Is My Pepper Spray?

Women have been attacked while they were taking a shower! How many women will shower with any protection device in their hands? The canister, like all weapons, is not a part of the human body and must be put down eventually. In the con or surprise approach, women will not even have the canister in their hands, or it will be simply taken away from them. Pepper spray, mace, and other items are usually carried at the bottom of a woman's purse out of convenience, which will be unavailable during an attack. Even if a woman constantly carries such items in public, protection devices are normally left inside a woman's purse while she is at home, where women are assaulted 50% of the time.

30 year-old woman was walking down the street at about 8:30 in the evening when she turned and realized two males were approaching her from behind. One of them

suddenly grabbed her from behind and the other struck her in the stomach knocking the wind out of her. They pulled her off the sidewalk into the bushes. She fumbling in her purse for the pepper spray but one of the assailants stopped her. She was being groped and told to take off her clothes. She could smell alcohol on the breath of both of the assailants. Unable to get to her pepper spray, she was still able to flail, breaking free of their grasps. She fled and they did not chase her.

Canister Problems?

The pepper spray canister must be aimed properly, which is not hard with dummy proof canister designs, but under the stress of an assault situation, turning the canister around into the proper direction could cause life-threatening delays. If you do not have a dummy proof canister, there is the possibility you could spray yourself in the face as one martially proficient police officer did while trying to apprehend a suspect. In the heat of the fight, the pepper spray canister became twisted. Pepper spray has the same deployment risks as other chemical devices.

Regardless of canister size, each canister requires mechanical operation and could malfunction, but more than likely it might run out of spray while the assailant is still coming. The smaller the canister is there will be a smaller quantity of usable spray available. Police officers have had canisters run out of spray while in the middle of fighting with a violently resisting suspect, and they have also had canisters malfunction (or not function at all) in the middle of the conflict.

Additionally, many of the key chain canisters, which women are encouraged to purchase, have an impractical carrying case that must be adjusted and hinders immediate use. However, the smaller canisters do allow them to be concealed from plain view. Some canisters come with a clip that allows you to attach it to your belt or purse for faster access.

[➤ Have a Question? Contact Us Today!](#)

Are You Prepared?

Any weapon, including pepper spray, requires that you be prepared and have it ready before the assault. The canister, like all weapons, can be taken away from you and then be used against you. In estimated 80% to 85% of all rapes, victims know their assailants and fifty percent of assaults occur inside the victim's own home. Rapists are not always the stranger in the alley or the weirdo in the parking lot.

How many women will hold their pepper spray in their hands while they are out on a date or socializing? How many will keep their pepper spray canister in their hands while someone they know is visiting them? If a woman feels she must hold onto her pepper spray while she is on a date, which would be a clear indication she should not be dating this guy in the first place. These predators manipulate their victims into isolation using the con approach and the pepper spray will unlikely even be within arms reach. Other predators surprise or blitz their victims. Consequently these victims are unlikely to even have the canister ready, or any other "quick fix" personal protection item in her hands for that matter.

A 26 year-old woman had just sat down inside her small truck after buying some take home food. Before she could close her car door an assailant immediately attacked her. The 31 year-old assailant had been arrested on two separate occasions for rape, but only convicted for robbery.

The victim was positioning her food on the passenger seat of her truck when the robber/rapist positioned himself in the open car door threatening her with injury. He had just recently robbed two other people a couple blocks away before identifying her as his next victim. He robbed her and began fondling her breasts. As he was fondling her, he told her to give him her car keys. She complied and handed him the keys with a small canister of pepper spray attached to the key chain.

The assailant then pepper sprayed the woman in the face with her own canister of pepper spray. He then told her to lie face down on the seat. She realized that he intended to rape her in the parking lot and started to physically resist. Her physical resistance is what prevented her from being raped and not the pepper spray canister she handed over to the robber/rapist.

However, this rapist seemed to be more interested in committing robberies and allowed her to get away because she did not hurt him during her resistance. His 5-8, 210 pound, large muscular, penitentiary stature would have easily kept her from escaping. He committed another robbery a few minutes later and soon arrested that evening.

Pepper Spray Dissemination Methods

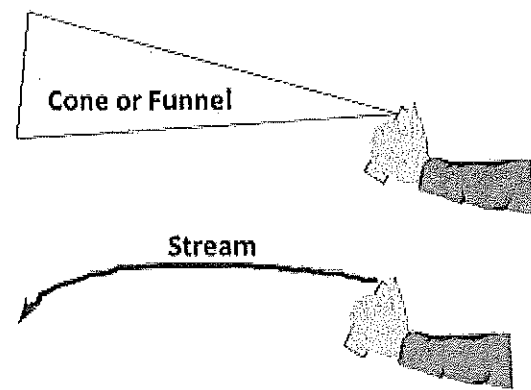
There are four methods of dissemination pepper spray or Mace:

1. Liquid — common in mace and pepper spray canisters.
2. Foam — common in mace and pepper spray canisters.
3. Fog — solid to gas or liquid to solid release.
4. Burning — the smoke disseminates the particles.
5. Pyrotechnic — blast or burst projectile shot or thrown with agent inside the projectiles.

Pepper Spray Delivery Methods

There are three common categories of pepper spray and Mace delivery dissemination methods. All three delivery methods do not require strength to deploy and minimal coordination.

i. **Cone** – The Cone or Cloud delivery method is in the shape of a funnel or



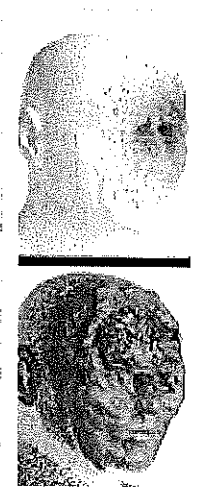
Pepper Spray Delivery Methods; depicted are Cone and Stream methods.

cone which makes it easier to hit a moving target/assailant because you do not need to accurately hit him in the face. The pepper spray also spreads out over a greater distance but is slightly slower to disperse than the stream. It is more effective against a charging or group assailants. But if it is sprayed into the wind, the chemicals will blow back and affect you instead.

ii. **Stream** – The Stream delivery method is like a thin 'stream' of water coming out of a hose that makes it almost impossible to hit a moving target/assailant in the face who is attacking you. However, splatter stream delivered

pepper spray has less chance to blow back on you in mild wind conditions. Some stream solutions also have a UV mixture for trace evidence identification if assailant was detained by police.

- i. **Foam or Gel** – The Foam or Gel delivery method is usually delivered in a semi-stream like spray that sticks to what it makes contact with. Some manufacturers might claim, “it will obscure an assailant’s vision and assist in the user’s ability to escape.”



Pepper spray foam or gel delivery.

Sometimes staining dyes are mixed into the foam for suspect identification. Foam may be more effective against a charging suspect or one wearing glasses, but often has less range than the stream method. Foam or gel delivery methods are better for inside use and will have less environmental contamination than the stream and cone delivery methods. Foam-gel

interior deployment may less severely contaminate an entire room if used inside a building.

Pepper Spray Canister Range and Delivery Concerns

The distance pepper spray will reach, like mace, is dependent on the size and pressurization of the canister and the delivery mechanism. Maximum effectiveness for most pepper spray canisters is between four and fifteen feet away from the assailant. This short distances can give the advantage to a rapidly approaching aggressor. The desired target is the face, which can be difficult to hit on a moving target even when the attacker is closing the distance from 15 feet away.

Expect that most of the smaller key chain canisters will disperse a pepper spray range of about 6 feet or 2 meters. Expect to get 1 to 3 sprays from key chain size canisters. The larger hand size canisters will average about 12 feet or 4 meters with 5 bursts of 2-3 second sprays. The older the canisters, the likelihood of pressure dissipation which reduces range and the amount of bursts one might use. A common shelf life is about 4 years, but each manufacturer is different.

The amount of pepper spray will also vary, and obviously larger cans contain a greater duration of spray. Key chain canisters will likely have a single use with a short burst, maybe three seconds at best. The approximate 3 to 4 ounces or 80 to 110 grams canisters are more dependable with multiple uses and maybe best for walking and jogging. However, the larger canisters may not be practical for purses and everyday routines.

Pepper spray manufacturers usually provide the specifications of deployment so you do not need to purchase numerous types of cans for testing. Pepper spray is disseminated by liquid or foam-gel. Do not expect to return a pepper spray canister after purchase because of the chemical materials. All expired or empty canisters should be properly disposed of as a hazardous waste product.

An assailant must be inside the effective range of the canister's spray limits. If you were lucky enough to spray him in the eyes and mouth, the effects are not immediate, and he will probably be able to grab hold of you. As he begins to feel the effects of the chemical, he will probably become very angry that you sprayed him. Because pepper spray does not incapacitate an attacker, he will hold onto you with one hand and punch you with the other.

Newer pepper spray canister designs and product lines have become very creative. Some involve flashlights, lipstick, and some companies have developed a fake cellular telephone as a pepper spray canister to disguise the weapon. Most criminals do not let their use their mobile/cell phone during a crime. Now if an assailant allowed you to use your disguised cellular telephone for something other than a communication device, he is likely to quickly realize what you have before you can use it. He may run away or he may simply move, duck under, or rush through your efforts to pepper spray him. Then he will punch you while he takes the pepper spray canister away from you. One pepper spray product called the flair pen was marketed as "always ready to fire on an unsuspecting assailant for commuters and other travelers." The marketer claims the pen has a range of 8 feet and "will disable any attacker instantly for up to 1/2 hour with no permanent after effects."

Pepper Spray Effectiveness or Strength Rating

Consider the OC potency in the pepper spray canister you are considering to purchase. Before pepper spray became popular, law enforcement officers carried Mace canisters with a potency level three times greater than what was sold to the general public. Some chemical spray personal protection products have mixed Mace (CS) with pepper spray.

OC is measured in percentage of OC Oleoresin Capsicum solution that ranges from just a few percentage points to claims of 18% defined in the Scoville Scale (SHU – Scoville Heat Units) that measures potency/dilution level of the pepper concentrate. SHU is dependent on the quality of peppers extracted and processed capsinoids, which is the "heating element" used in the OC solution. Other times manufacturers will list potency as Major Capsaicinoid (MC) ratings. In general, the higher percentage in

both the SHU and MC ratings would be a consideration for greater pepper spray effectiveness. Consideration must be given to the laws or restrictions of one's state, province, or nation before purchasing pepper spray or Mace. Pepper spray is generally more effective than CS or Mace but still may not have the desired affect on everyone.

Pepper Spray Contamination Is Unbiased

If you do use pepper spray or mace on someone you may also be affected. The particles in the canister do not discriminate between the good guy and the bad guy. The OC particles bounce around and fly all over. Chemical particles cannot recognize who is the bad guy and then just stick on him. These particles will also affect you too. This is especially true after pepper spray or Mace is deployed inside an enclosed area. In such cases, fans are recommended for airing out indoor rooms that have been contaminated and usually require at least an hour to air out. This was the case when one "brilliant" officer deployed his pepper spray as a joke in the locker room as the next shift was preparing for duty.

Before you carry pepper spray test your reaction to it by spraying some in the air and walking into it (Do not try this if you have a respiratory condition or allergies) you should look at selecting another options for personal protection devices. After you are finished heaving and hacking, you will probably have second thoughts about using it. The foam delivery method reduces the amount of OC or CS chemical contamination, but not completely.

Intentional Self-Contamination If Threatened

Possibly one of the best ways to deploy pepper spray when confronted by an assailant may be to spray yourself with the chemical instead of the assailant. If the assailant attacks you, more than likely, he will not stick around to rape you. However, if he is an anger retaliatory rapist, he may continue to violate you under such conditions.

Regardless, the coughing and gagging sensations of pepper spray or Mace will likely affect you negatively effecting your ability to physically respond. Your hair and clothes

will all be contaminated and any movement you make will probably put you into a coughing fit. You will need to shower as soon as possible. Don't wear your clothes inside the house or you will contaminate your home as well. Let the clothing air out before washing.

Do not attempt this technique, if you have any medical side effects or allergic reactions to the chemical. This technique is not a guarantee to stop the assault and you would simultaneously be at a physical disadvantage to do anything else but cough and gag.

First Aid

First aid for contamination from pepper spray or Mace is the combination of fresh air and clean water; sometimes soap and water, or ice is used. Johnson & Johnson baby shampoo is sometimes recommended for decontamination. Water may increase the burning sensations from pepper spray. You should check with the instructions provided by the pepper spray manufacturer regarding treatment after contamination. The effects of pepper spray should dissipate between 20 and 45 minutes depending on level of the exposure and the OC potency. Do not rub your eyes. Do not use ice to cool the skin or eyes and do not use creams, oil based soaps, or saline eyewashes. Make up also produces persistent irritation. If the effects still persist beyond 45 minutes, contact a physician immediately. Although semi-miserable experience will linger for many hours after significant pepper spray contamination.

Assailant's Condition and Mindset

Do not think just because it worked on you that it is going to work on a predator. The effects on you may be uncomfortably effective, never count on it working similarly to an angry, drunk or drugged predator with a high pain tolerance level or commitment to inflict injury. Your mindset is geared on being affected by the chemicals while you are conducting your experiment, which is nothing compared to the mentality of a violent criminal committed to attacking you. Alcohol and drugs will also reduce the effectiveness of chemical agents and can make some individuals even more violent if

sprayed. There are reports that some individuals who commonly eat cayenne peppers become less affected by OC.

Pepper spray or Mace effectiveness seems to be more as a result of an individual's commitment level. When a person has commitment, the effects are minimal or non-existent. Military police and law enforcement recruits are sprayed directly into the eyes with stream pepper spray during training. Then they are required to fight off an aggressor using a baton, take down and subdue suspects as part of the pepper spray (OC) exposure certification process. The point is to have each recruit prove to themselves that they can function if they were directly pepper sprayed with the chemical.

Pepper spray was used on police attack dogs testing its effectiveness. When the dog was calmly sitting still, with no attack stimulus, the dog was sprayed in the face and ran away yelping. Later, the same dog was presented a target and then sprayed. The spray had zero effect and the dog charged at full speed attacking the target as if he had not been sprayed at all. The effects on humans are very similar. The effectiveness will depend on the commitment level of each individual.

Another effectiveness experiment conducted in 1997 by the American Society of Law Enforcement Trainers demonstrated the ineffectiveness of pepper spray. Twenty officers were told to stab an individual 20 feet away after being sprayed in the face. Upon success, they could dive into a swimming pool. Each of the twenty officers was individually sprayed with a full blast of pepper spray directly in the face. They all succeeded in stabbing the targeted person with a simulated knife, but most significant was the fact that no one fell to the ground.

Some criminals are mentally resistant to chemical agents. The potency of the spray that police use is far greater than what is sold on the open market, and police officers are issued canisters with easier operational mechanisms. If the effectiveness of pepper

sprays used by law enforcement agencies is declining and they carry a stronger ingredient mixture, what do you think are the effectiveness of the less potent sprays that are sold to the general public?

Some may argue that conditions are different when the police use pepper spray compared to when civilians need to use it. That is partially true, first the police go into situations expecting the possibility of trouble, versus women who are attacked by the surprise, blitz or con approaches. Secondly, the police are not normally attacked by people they know. Third is the fact that the criminals who are arrested by police officers are the same criminals who come into contact with the police because they victimize the general public, some of whom carry pepper spray.

In general, quick fix items are just an attempt to give women a “quick fix” to a complicated problem. These items can become a “crutch” that can cause dependency, reduce environmental awareness, and weaken any response to a threat both physically and mentally. Rape continued to rise in the 1990's despite the popularity of chemical and other protection devices. These items, and even firearms, did not answer the “quick fix” problem of personal safety.

Will the Pepper Spray Be Ready?

Most rapes are committed by someone whom the victim knows and these items won't be in a woman's hands when she is attacked. An assailant, who commonly knows his victim, may know she has a self-protection device and can easily counter the item physically or simply lure her away from the item.

More effective impact for personal safety is derived through effective self defense that comes from realistic training and an understanding of the context from which various crimes occur. In addition to pepper spray there are many choices in self defense.

Do not rely completely on any personal protection weapon or gadget as one's sole method of personal safety.

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Further information should be considered:

[Choices in Self Defense](#)

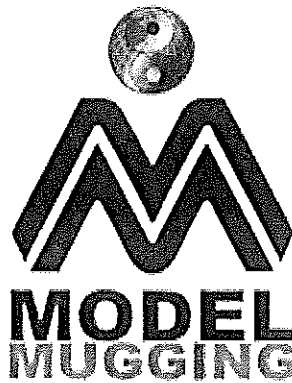
[Evolution of Martial Science](#)

[Self Defense vs. Martial Arts](#)

[Beware of Outdated Methods](#)

[Various "Quick Fix" Items](#)

[Four Steps to Self Defense](#)



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Mace

Mace for Self-Defense

Mace was the first chemical agent manufactured for personal safety use in the form of a defense canister. Mace is not considered as effective as pepper spray.

Mace is a product of CN gas originally developed as a chemical agent during World War One. In 1928, Courson and Stroughton developed Orthochlorobenzamalonitrile (CS), which is a crystalline powder and not a gas. In the 1950's, the U.S. military began working with CS, which was found to be about ten times more effective/irritating than CN gas. In 1965, CS, Mace, was adopted as a tool and used by law enforcement agencies used in crowd control during civil unrest.

There are several considerations when evaluating whether to carry Mace for self-defense:

- Mace manufacturers put a shelf life on each spray canister because pressure has been



Mace canister shown above is an older chemical self-defense item that may be combined in some contemporary pepper spray products.

found to dissipate within canisters over time. Mace canisters should be shaken on a regularly to maintain the chemical mixture.

- Do not expose Mace canister to extreme heat or cold such leaving in vehicle.
- The assailant must be within range and not out of range of the Mace spray canister.
- The spray canister must be aimed properly.
- If you use Mace on someone you will likely be affected.
- Consider if you would be incapacitated or ineffective when exposed to Mace.
- If you have respiratory reactions, Mace is probably not a good match for personal protection consideration.
- See pros and cons of Quick Fix Items.

CS within Mace does not affect everyone equally, and in cases where someone is angry or on drugs/alcohol. After spraying from a Mace canister, the CS may take 20 to 60 seconds to take effect, if at all.

If Mace is used, some of the symptoms of CS chemical exposure are tightness in the chest, nose, or throat, a coughing or choking sensation, profuse watering and involuntary closure of the eyes, and profuse runny nose, as well as a burning sensation in the eyes, lungs, and skin. The skin may have a burning sensation that is more painful if the skin pores are opened by previous or current sweating.

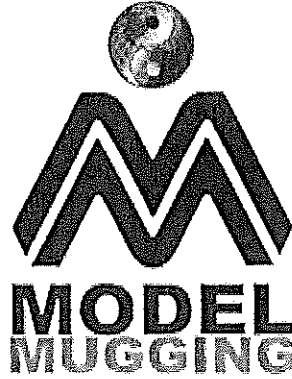
Sometimes nausea, vomiting, disorientation, and panic are experienced, but usually occur when higher dosages derived from riot control/military sized canisters, or during training exercises in teargas chambers are used for protective 'gas' mask familiarization training, or during civil unrest, or during SWAT operations.

Before pepper spray, law enforcement officers carried Mace canisters with a potency level three times greater than what was sold to the general public.

Contemporary products of Mace for personal protection often mix CS with pepper spray.

Pepper Spray Products are also available for personal security.

Return to [Choices in Self defense](#) for more suggestions.



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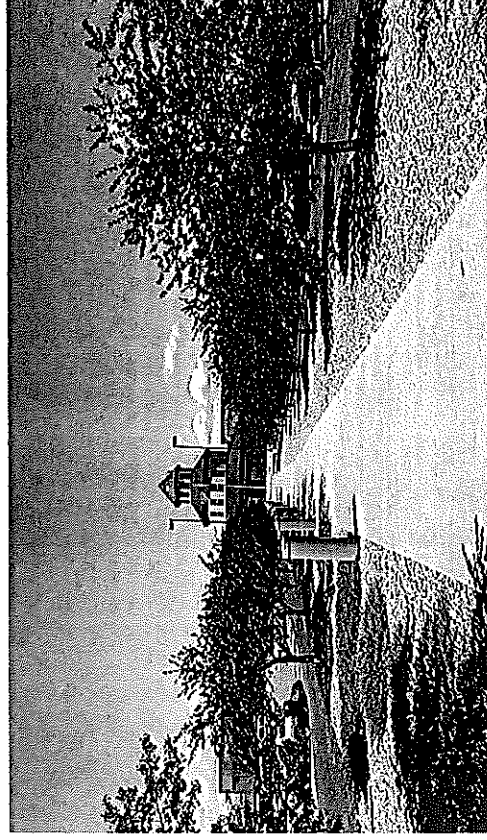
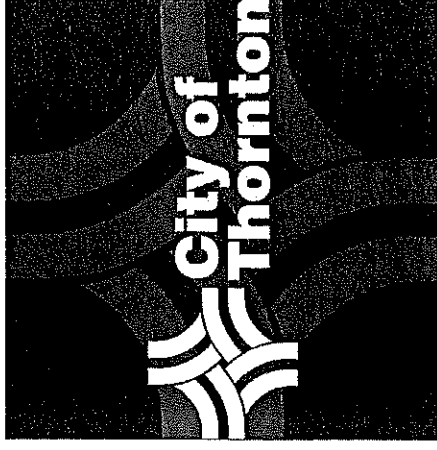
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RTD Transit Police Security Model



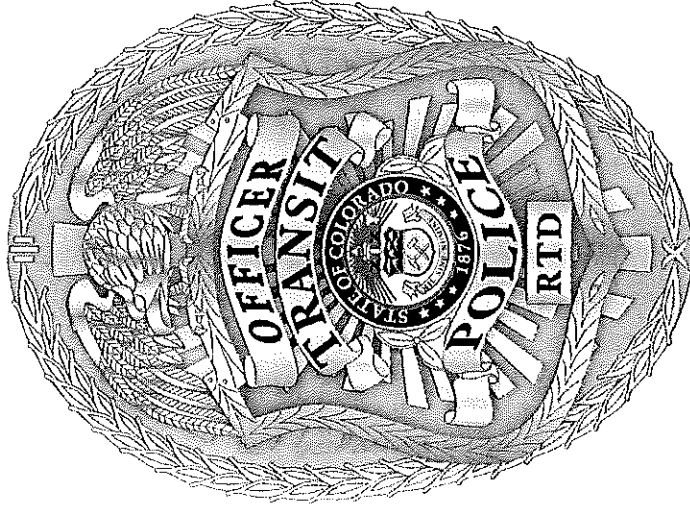
Thornton Police Department Presentation 2019

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Macon-9



Robert Grado: Chief of Police

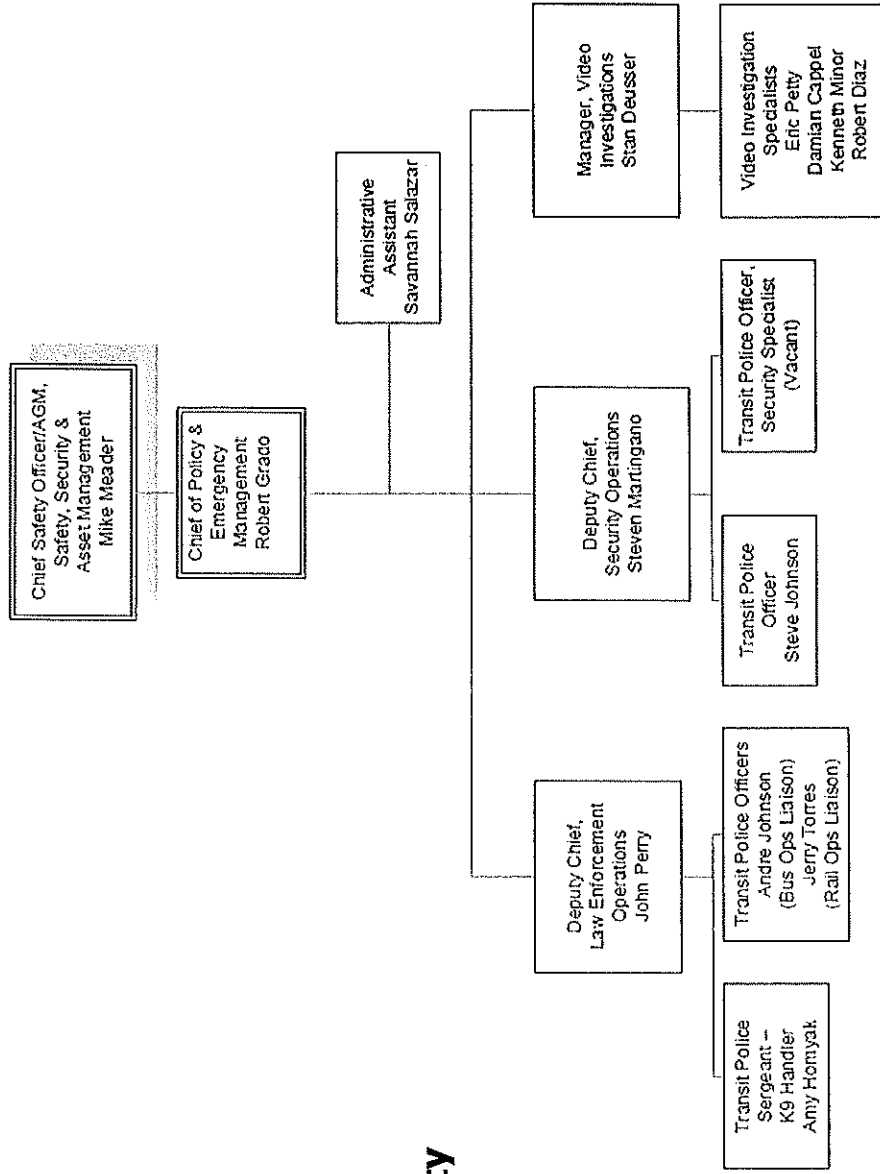
John Perry: Deputy Chief, Law Enforcement Operations Bureau

Steve Martingano: Deputy Chief, Security Operations Bureau

Michael Meader: Chief Safety Officer / AGM



Law Enforcement & Security Operations Org Chart

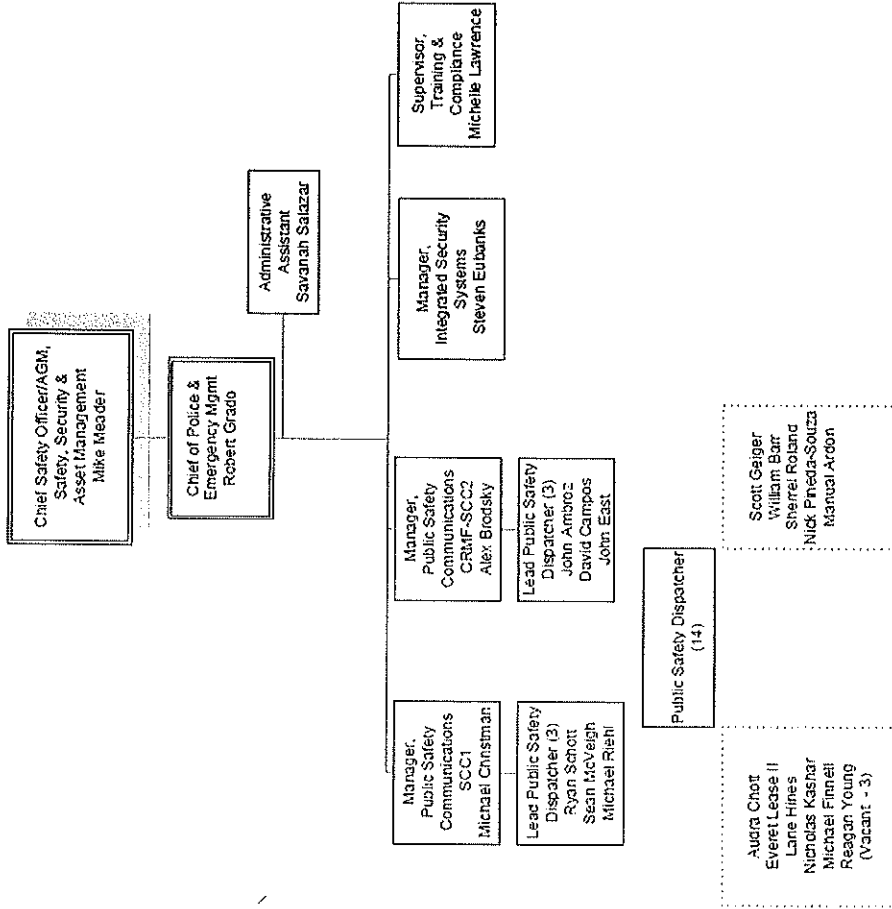


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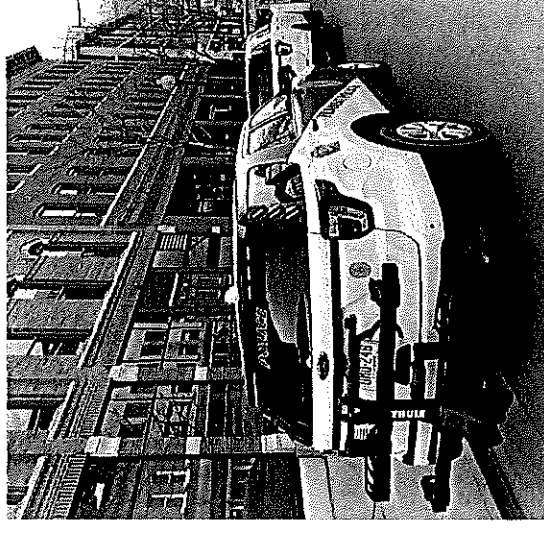


Emergency Management & 911 Emergency Communications



RTD Transit Police Division: Colorado's "Biggest, Tiny Agency"

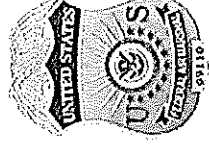
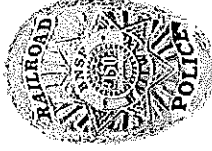
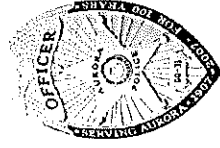
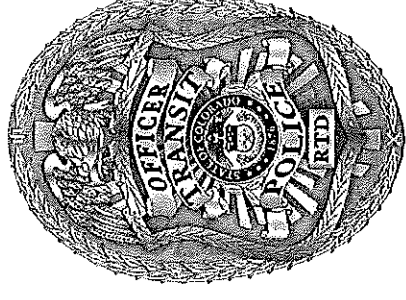
- ✓ 2019 operations budget - \$29 million
- ✓ 41 RTD internal employees
- ✓ 10 Internal Sworn Transit Police Officers
- ✓ 14 Transit Police Officer Expansion?
- ✓ 300 Armed Transit Security Officers
- ✓ 250 Secondary Employment Police Officers
- ✓ Equivalent of 80 Full-Time Police Officers



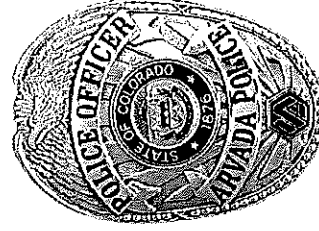
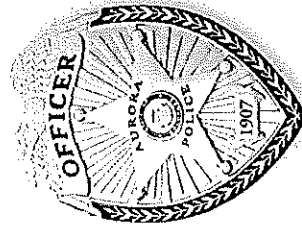
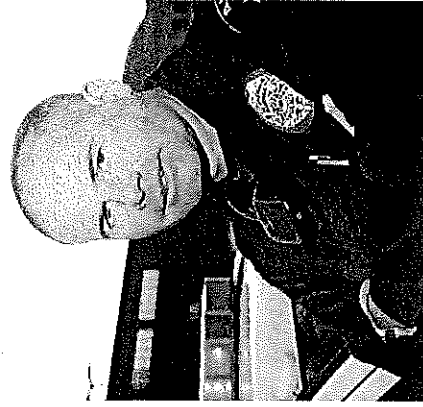
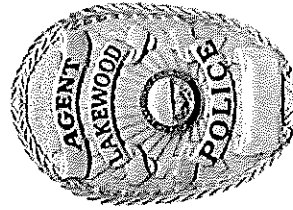
Nearly 600 Police & Security Officers

Hybrid Policing & Security Model

- 2018 Received more than 51,893 calls for service.
- Internal Dispatching of Resources:
- Internal Transit Police Officers
- Contracted Police Officers
- Armed Transit Security Officers
- VIPR Teams, TSA



Partnered Law Enforcement Agencies Secondary Employment Program



Law Enforcement Services



- ✓ Uniform Patrol
- ✓ Plain Clothes
- ✓ Special Details
- ✓ K-9 Assistance
- ✓ Investigations



VIPR Teams

Visible Intermodal Prevention & Response Team

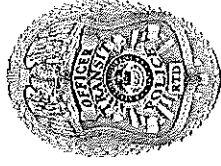
- Highly Visible
- Work Under Transit Police Authority
- Colorado will now Certify Federal Police
- Tactical Uniform





Mental Health Center of Denver

- 80% Grant Funded
- Recovery
- Resilience
- Treatment
- Referrals



Embedded with Police Officers

Security and Law Enforcement Integration



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Regional Transportation District



TSO: Transit Security Officer Duties



- ✓ Fare Enforcement
- ✓ Critical Infrastructure Security
- ✓ Bike Patrol
- ✓ Mobile Patrol
- ✓ Foot Patrol
- ✓ Commuter Train
- ✓ All Uniformed & Armed





Emergency Services Bureau

Public Safety Dispatchers

911 Certified for Law Enforcement & EMS Operations

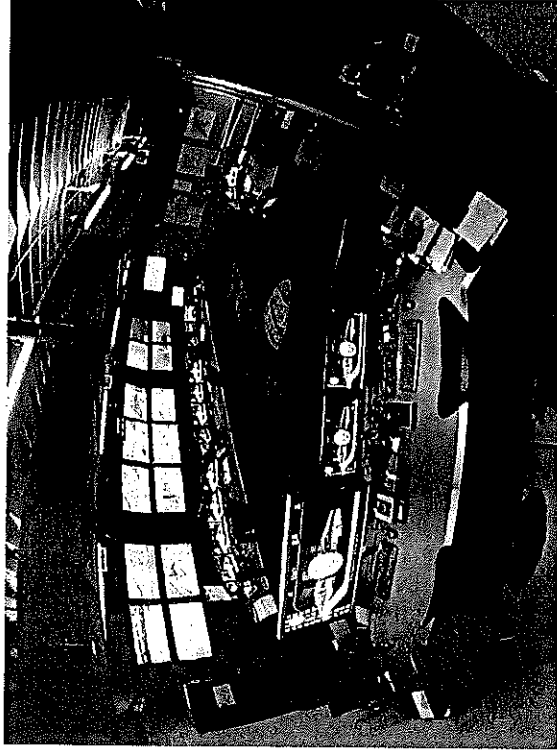
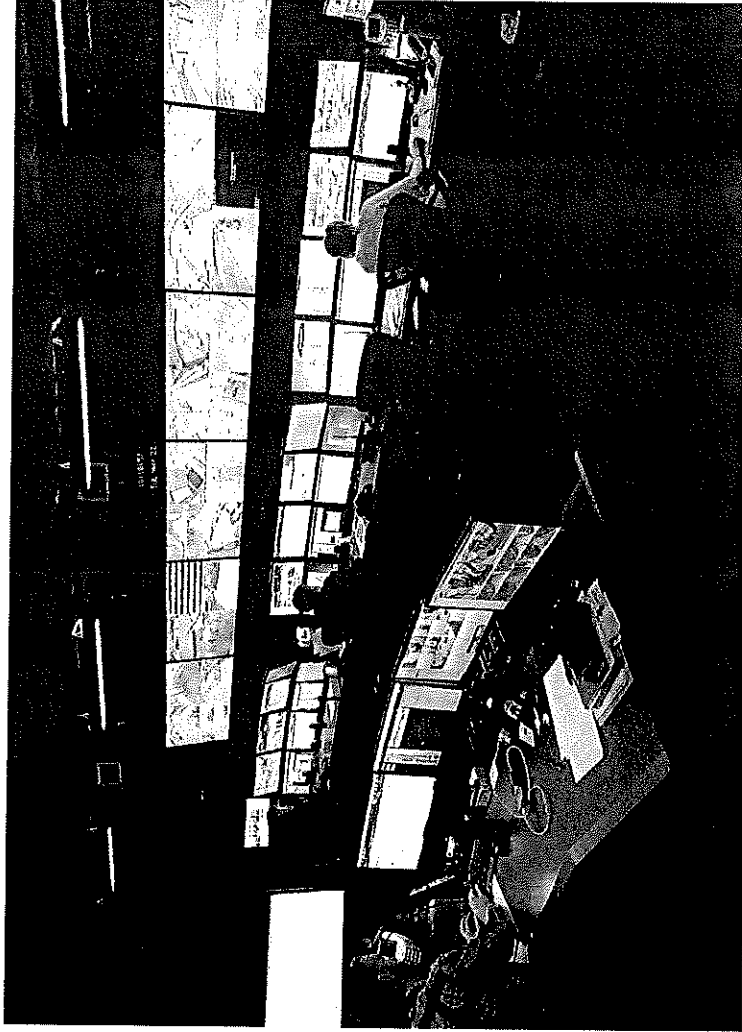
Approximately 52,000 Annual Reportable Incidents

- ✓ Transit Watch Hot Line
- ✓ Text Messaging
- ✓ Email Support
- ✓ Transit Watch App for iPhone and DROID
- ✓ Training & Compliance Oversight: APCO Standards
- ✓ Live CCTV Monitoring

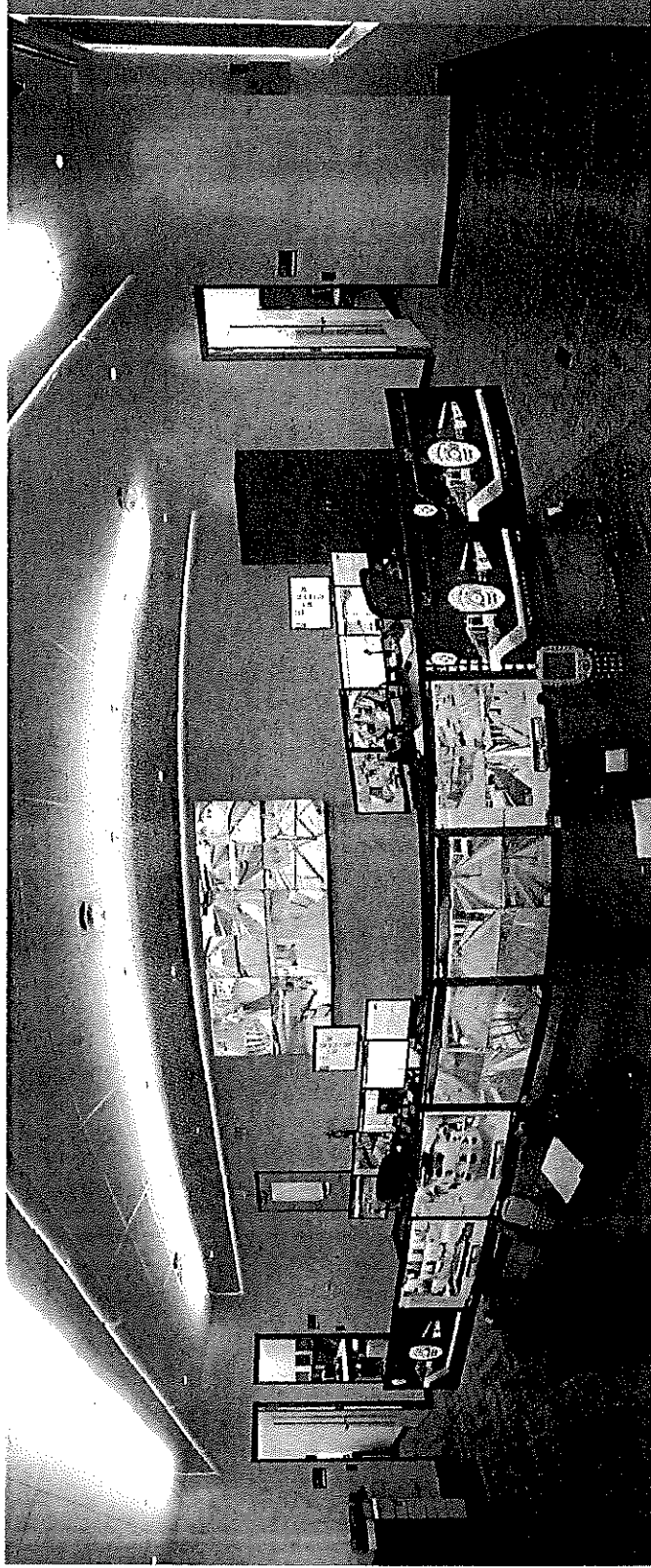


Security Command Center SCC-1

Mariposa Maintenance Facility



Commuter Rail Maintenance Facility Security Command Center 2



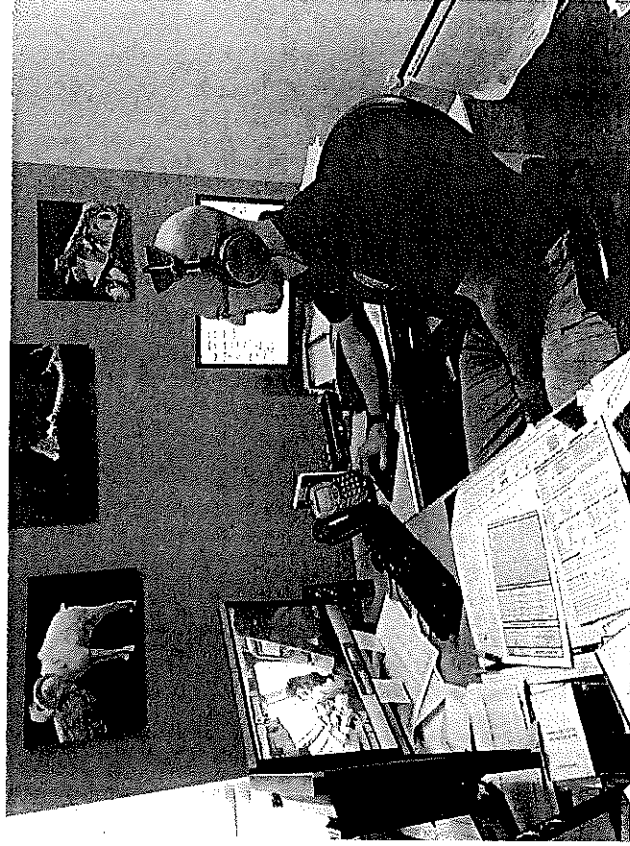
Designed for Commuter Rail & BRT Operations. Redundancy for District.

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Video Investigations Unit

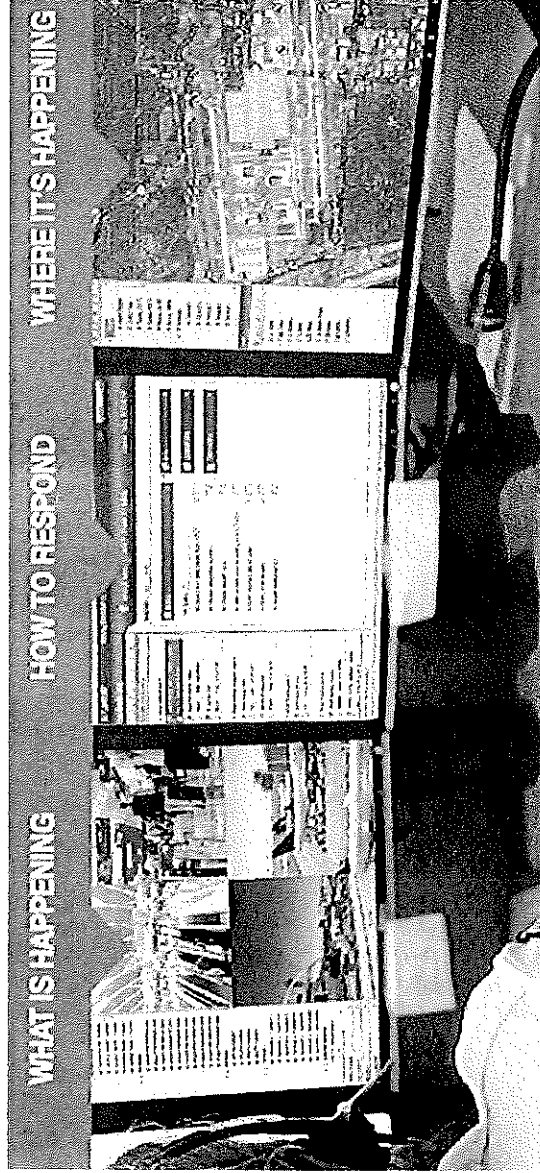


- 10,000 Video Investigations Annually
- Attached to Law Enforcement Bureau
- 35% are Criminal Cases
- May be Sworn
- Internal and External Regional Crimes
- Liability or Potential Liability Cases
- ADA Investigations - Settlement
- Employee Complaints
- Title 6 Violations
- Internal & Regional Video Sharing
- Policy Against Spying on Operators, must have a qualifying event for investigation



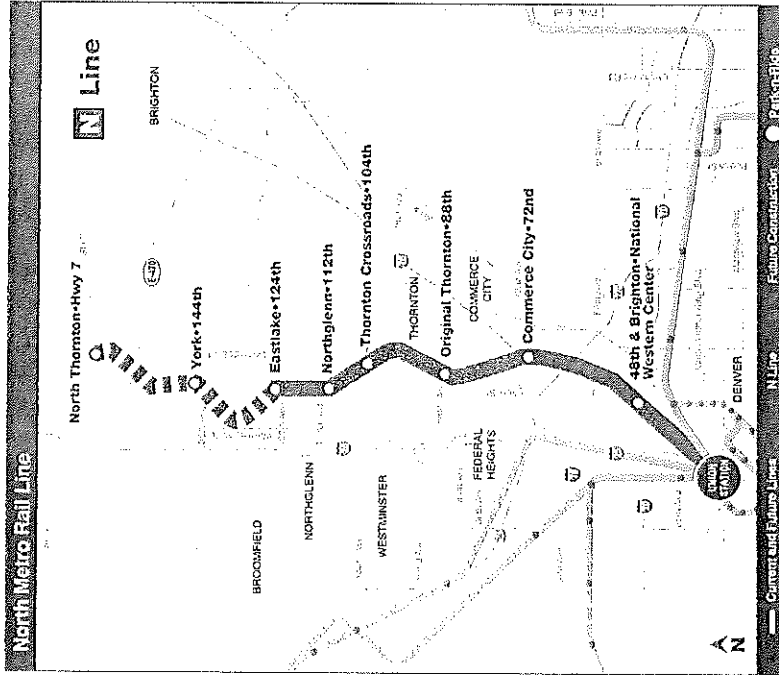
Situation Management "Situater" "One Big System"

- ✓ CCTV
- ✓ CAD Dispatch
- ✓ Emergency Phones
- ✓ Access Control
- ✓ Text Messaging
- ✓ Transit Watch App
- ✓ Security Systems
- ✓ Fire Alarms
- ✓ Regional CCTV Sharing
- ✓ Standardized SOP's
- ✓ Security System Maintenance
- ✓ COOP
- ✓ ReadyOp Communications
- ✓ Employee Managed
- ✓ SCC-2 Redundancy



Standardized Training & Response to Incidents

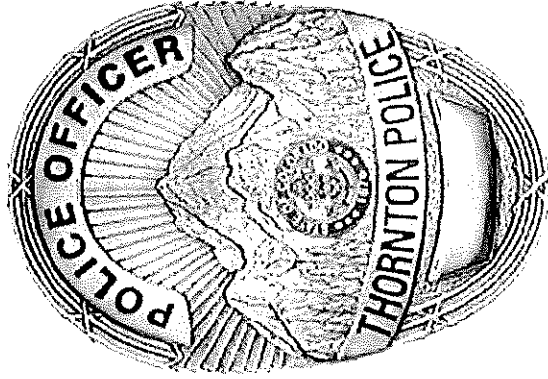
Coming Soon



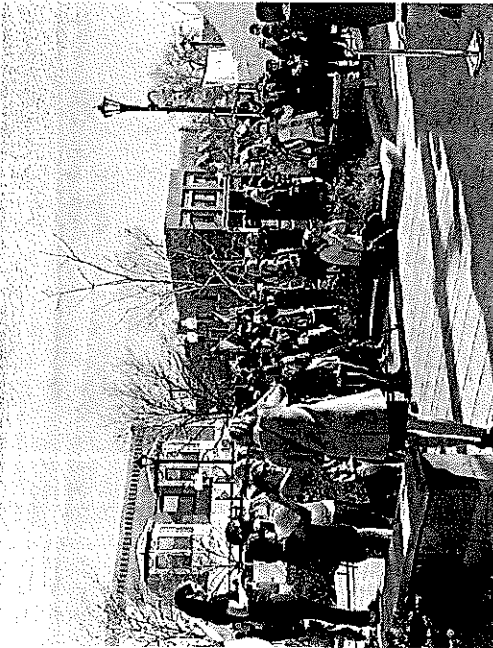
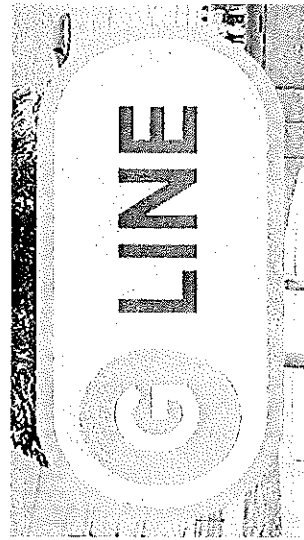
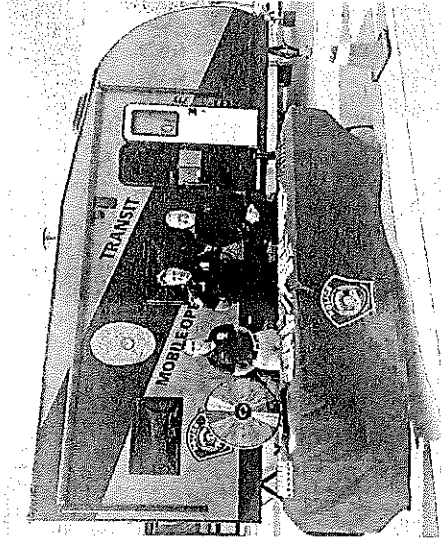
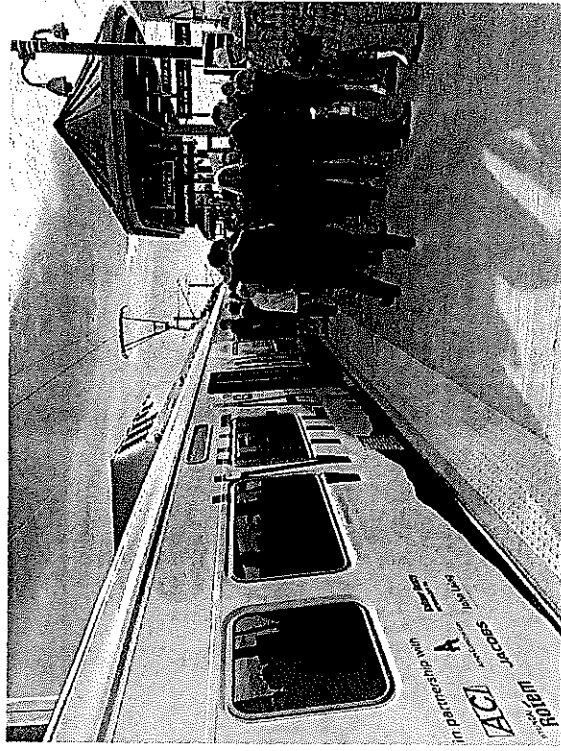
RTD

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Thornton Police IGA for Secondary Employment



- ✓ Funded by RTD
- ✓ Dedicated Patrols of Transit Property
- ✓ Special Transit Enforcement Training
- ✓ Assist Transit Security Officers
- ✓ Communications to RTD Security Command Centers
- ✓ Coordinate Directly with Transit Police
- ✓ Secondary Employment Opportunity
- ✓ Thornton PD - Additional Coverage



Get Ready for Opening Weekend

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Regional Transportation District



Thank You Questions?

Chief Robert Grado
303-299-3491
bob.grado@rtd-denver.com



Tasers and other brands of **stun guns** are commonly used by law enforcement for subduing fleeing or combative suspects. Increasingly, however, interest in Tasers is extending beyond law enforcement, with regular citizens looking to possess or even carry a Taser on their person for their own protection.

Is aim to end transit violence with Tasers misguided?

One news story reported this week that raised a few eyebrows around our office and got a few retweets was about a New York state Senator who wants to train bus drivers, subway contractors, and commuter rail and Amtrak crew members, to use Tasers in order to fend off attacks from passengers. Sen. Eric Adams is a retired NYPD captain who has no doubt seen his share of violent situations.

Has it really come to this, though? We have reported on the increasing violence experienced by bus drivers, and so it seems that giving them another tool to defend themselves and help protect passengers is a good idea. However, some argue that using a Taser is excessive force because it temporarily immobilizes a person through electroshock and can cause cardiac arrhythmia leading to heart attacks or even death in some cases. Despite efforts to train employees, in a heated situation they may act on impulse and use the weapon when not absolutely necessary.

We have seen this before. In 2009, a man died in the Los Angeles subway station after being stunned multiple times with a Taser, after charging and attempting to hit an officer. In 2008, we reported that the Greater Vancouver Transit Authority (TransLink) Police Service was investigated for allegedly using Tasers on riders evading fares. However, each use of the Taser was reviewed and found to be appropriate.

Sen. Adams claims that training transit workers to use the weapons "will end the

Malon-9

assaults” and be “a strong deterrent against crime against our riders on the buses and trains,” according to *New York Daily News*. Additionally, the Transport Workers Union Local 100 supports the proposal, saying that more than 1,000 transit workers are attacked each year, and Livery Base Owners, a business association, asked the Taxi and Limousine Commission to let drivers bring guns to work for protection against violent passengers.

Police Commissioner Raymond Kelly shot down both ideas, saying the weapons take a lot of training and are only given to sergeants and Emergency Services Unit officers. Both the New York Metropolitan Transportation Authority and the Taxi and Limousine Commission have indicated they are not on board either.

Michigan’s state House doesn’t agree, though. It just passed a three-bill package allowing citizens with a concealed pistol license to carry a Taser, *The Detroit News* reported. Michigan lawmakers are also reviewing a bill that would expedite the process for obtaining a concealed weapon permit and let some licensed gun owners with additional training to carry concealed pistols in typically pistol-free zones, such as schools, hospitals and bars. Meanwhile, according to *The Detroit News*, Amnesty International reported that at least 13 people have died in Michigan since 2001 after being shocked by a Taser during an arrest or while in jail.

I am all for preventing violence against transit workers and passengers, but I wonder whether the use of a weapon like a Taser is really the answer. Do you think Tasers will help drivers mitigate attacks?

Tasers and other brands of stun guns are commonly used by law enforcement for subduing fleeing or combative suspects.

Increasingly, however, interest in Tasers is extending beyond law enforcement, with regular citizens looking to possess or even carry a Taser on their person for their own protection.

Is it legal to possess and potentially use a Taser? Here's a general overview:

Consumer Possession Laws Vary by State

Tasers are legal for law enforcement use in every state, according to Taser International. But when it comes to consumer use and possession, there are several states in which consumers are not allowed to possess a Taser, including Hawaii, New York, New Jersey, Massachusetts, and Rhode Island.

In other states, possession and use may be limited. In Connecticut, for example, consumers can possess Tasers, but are prohibited from carrying them either on their person or in their car. Several other states limit possession to a person's home or place of business without a permit or CCW license.

Is a Permit Required?

In a number of states, consumers may be required to obtain a permit to possess a Taser under any circumstances. In Illinois, for example, a person must obtain a Firearm Owner's Identification Card before possessing any firearm or stun gun or Taser. Other states in which a permit is required for possession of a Taser include Michigan, Iowa, Mississippi, Wisconsin, and South Carolina.

Use of a Taser

Even in states where possessing or carrying a Taser is legal, using one for purposes other than self-defense may land you in legal trouble.

Self-defense is generally only justified in response to an immediate threat of violence.

Use of a Taser in situations that are not legally self-defense or use of a Taser as a weapon against another person may be considered assault and can lead to both criminal prosecution and civil liability.

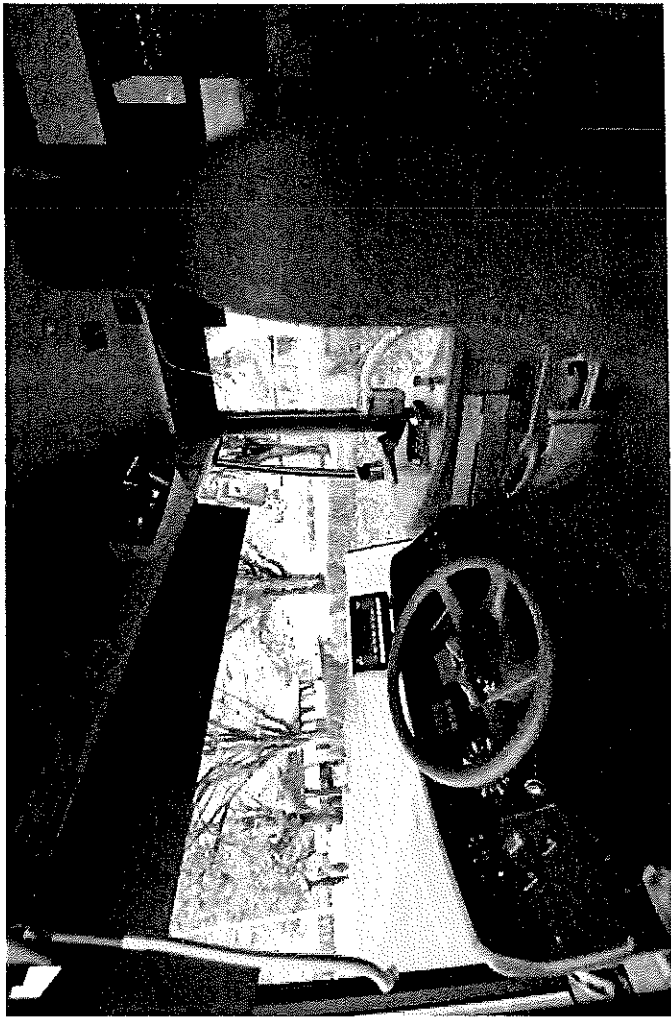
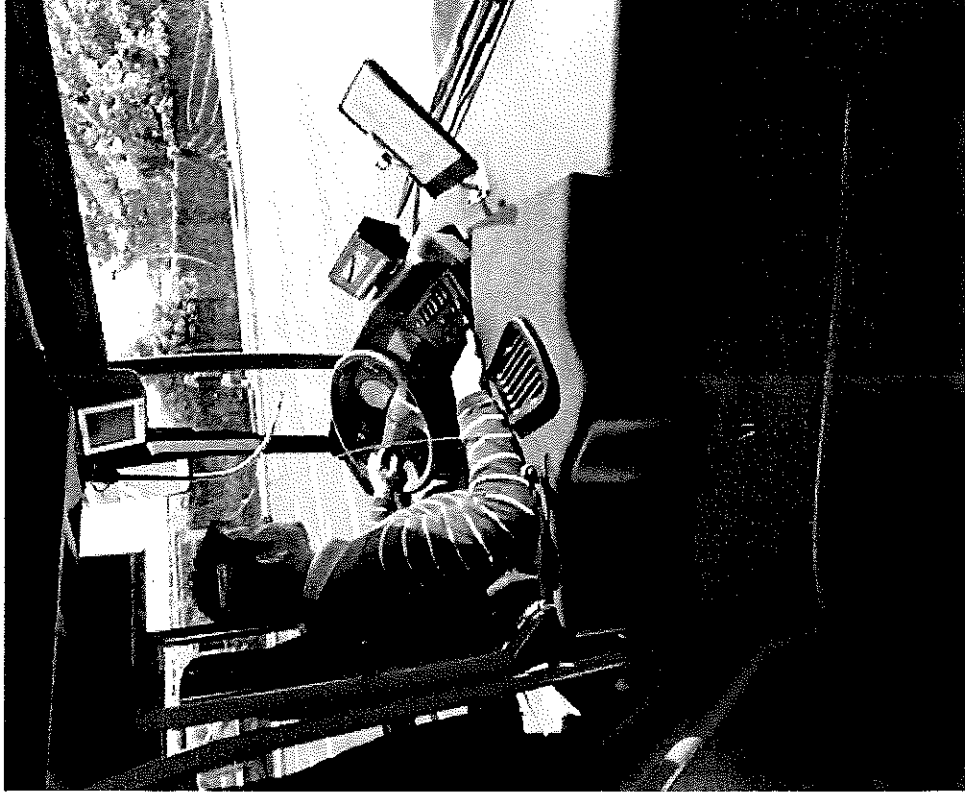
Transit Operator Security Barrier Designs



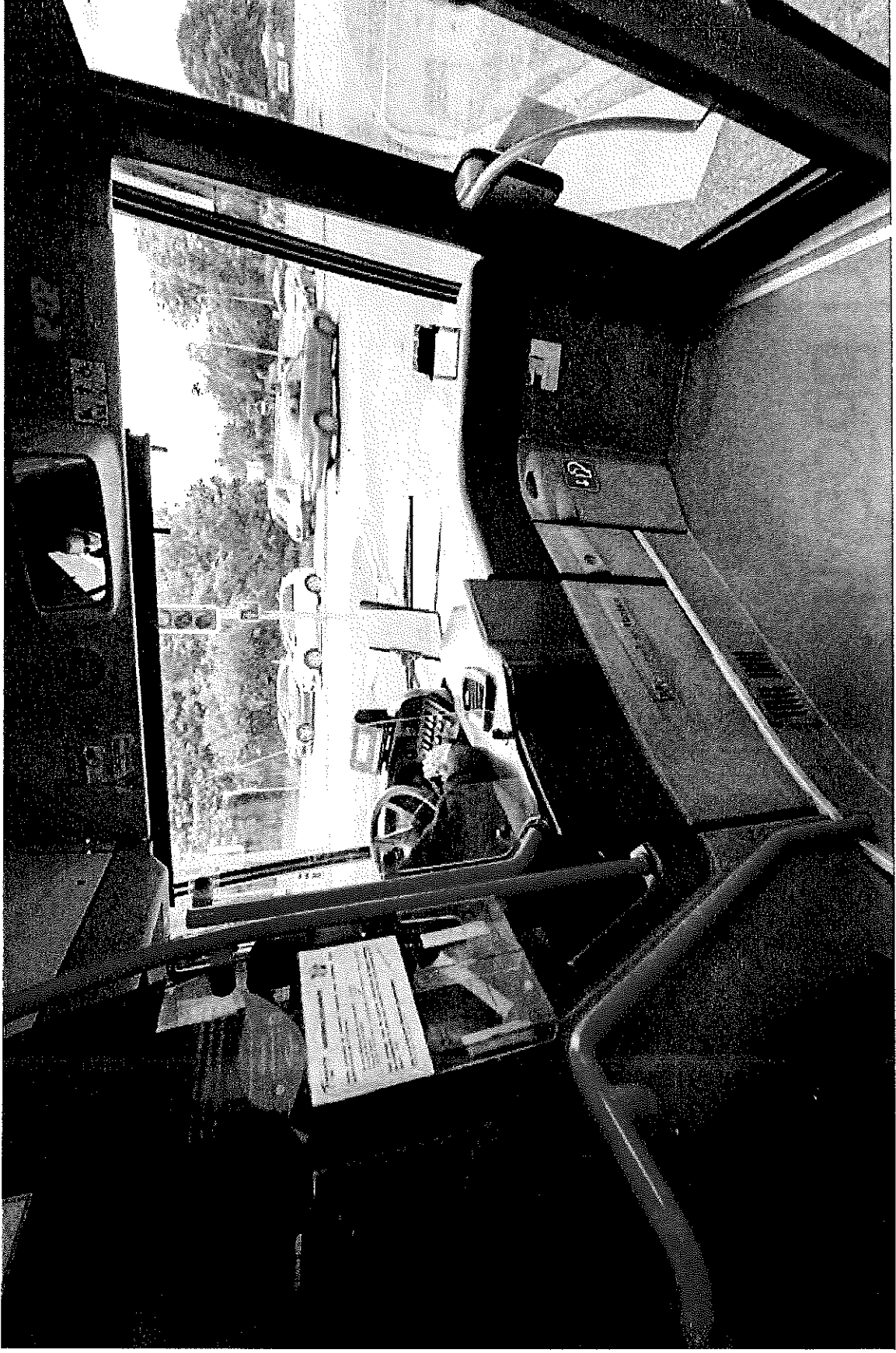
1. Passenger count and low cost have been the top priorities in municipal transit bus design, making it essentially impossible to install a good barrier.
2. The driver's work station has been compressed to fit more passenger seats. This causes:
 - Insufficient clearance and adjustability for claimed population of drivers
 - Discomfort, injury and disability are direct results
 - Worst wellbeing of any job classification in NIOSH studies, worker's compensation utilization, insurance pool analysis and other surveys
 - Enormous burden on manpower and budgets
 - insufficient space for needed controls and displays
 - Reflection hazards
 - Unacceptably distorted vision
 - HVAC problems

Partial Barrier with Good Design

- Greatly improved ergonomics
- Unobstructed windshield and mirror views
- Sufficient clearance for steering, etc.
- Room for more extensive barrier glazing and improved security



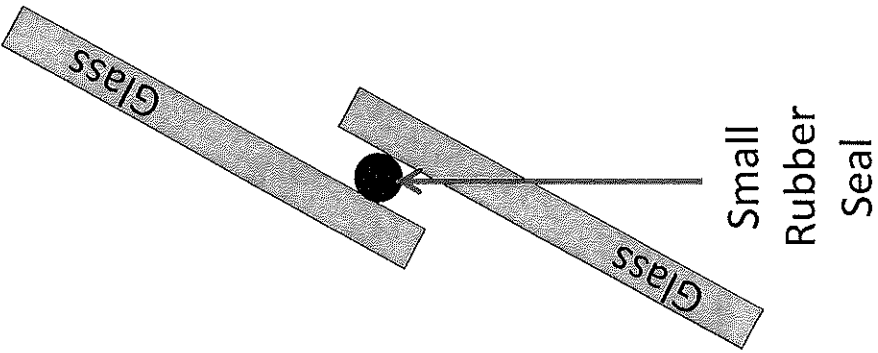
Another view of the Mercedes design



Options for full closure of the Driver's area



A seal between the glass panels would prevent both rattling and fluid insertion



An example offering powered glazing

Windows which quickly rise when needed provide the option to have an open and welcoming environment or security, at the drivers choice. The photo at left shows an Irisbus which utilizes a barrier with the glazing retracted into the bottom half of the door.

At the touch of a button, the security window rises from the base, guided in the channel seen near the driver's shoulder. This design is not a complete enclosure but is far more secure than the Mercedes designed partial barrier.



Activating Powered Glazing

(a video – run mouse over image for play button to appear)

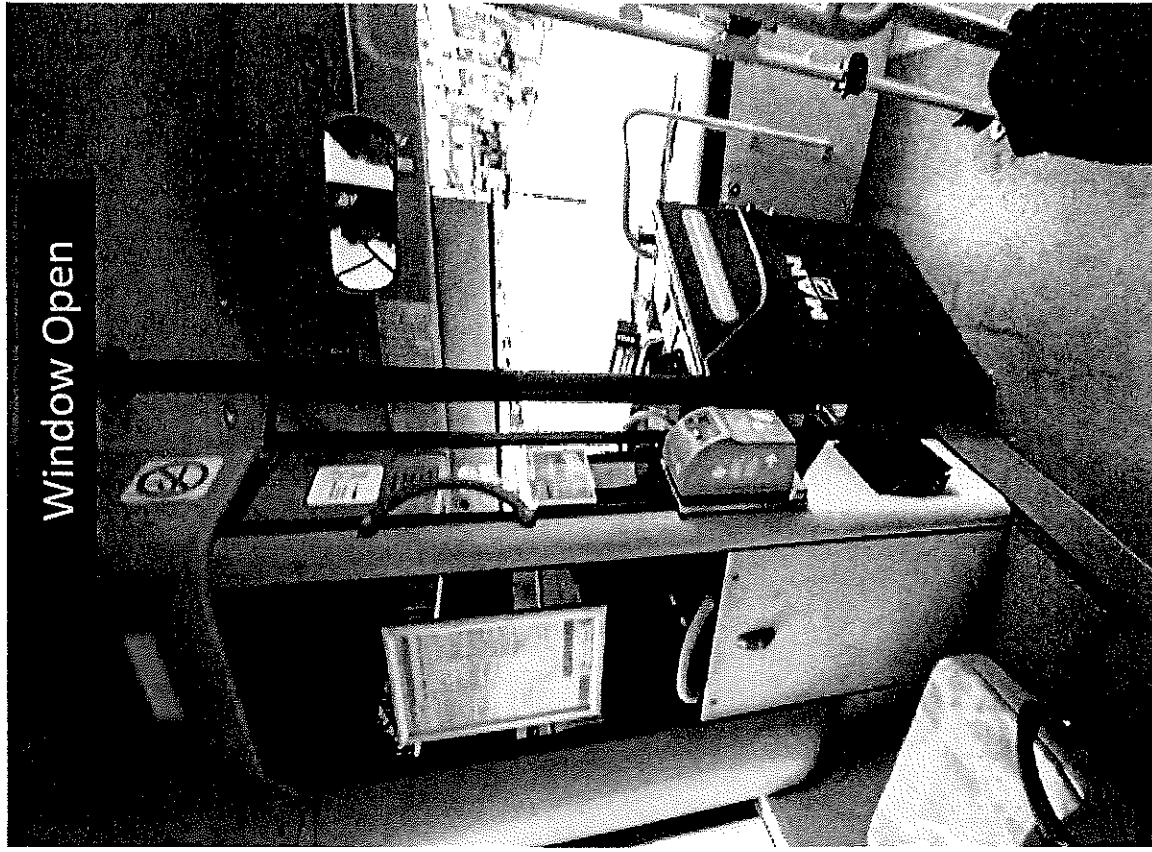


Window Closed



A MAN bus with another barrier utilizing driver-controlled glazing

Window Open



Careful design prevents the barrier interfering with views of the windshield or right side mirror



View from
RF Pillar
(Mirror is
ahead of
pillar)

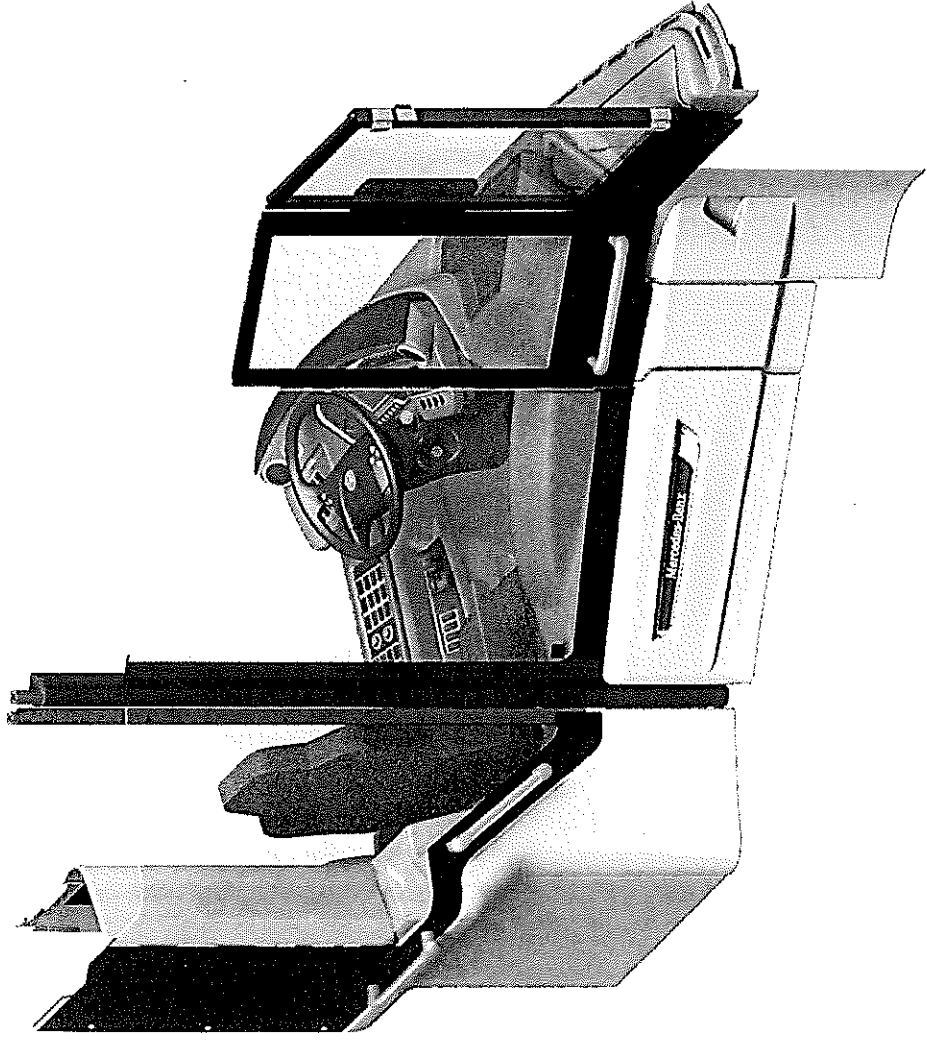
Edge of Security Door

Barrier Creates Protected Exit

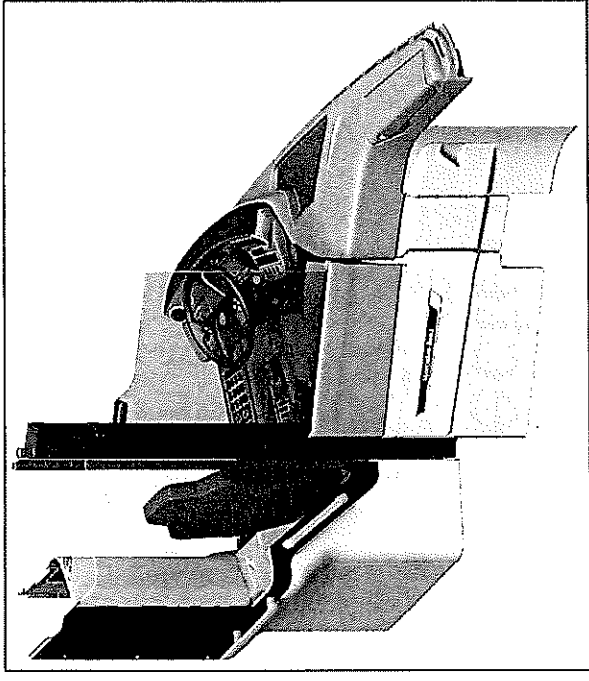
- Barrier door can latch to stanchions dividing entry
- Driver can operate only back half of door for passengers
- Driver can escape through protected front half
- Powerful electromagnetic latch connects barrier door to either the dash or the stanchion



Mercedes makes a wide range of barrier options including powered glazing on the driver security door and a full-width barrier.

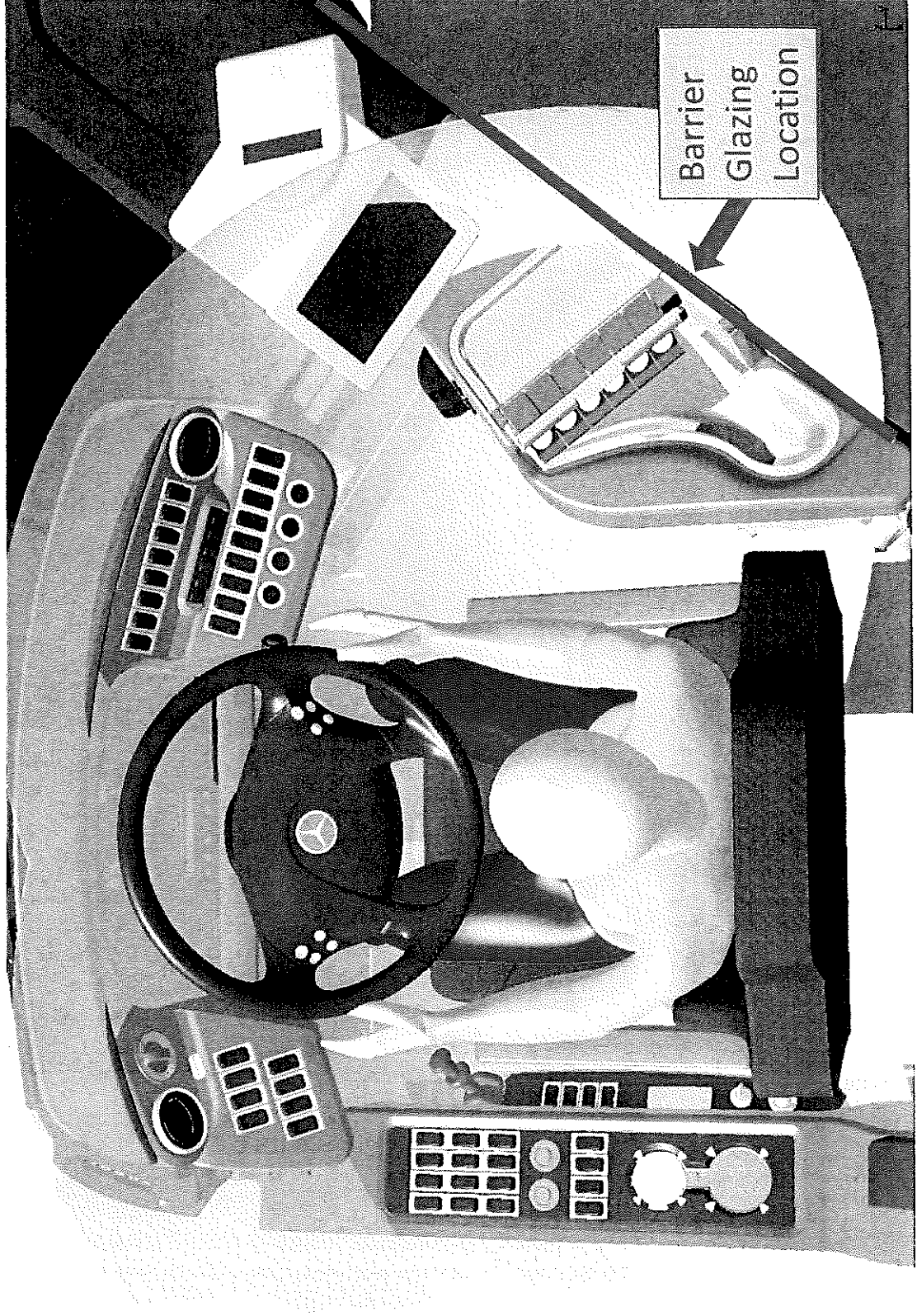


Powered Glazing

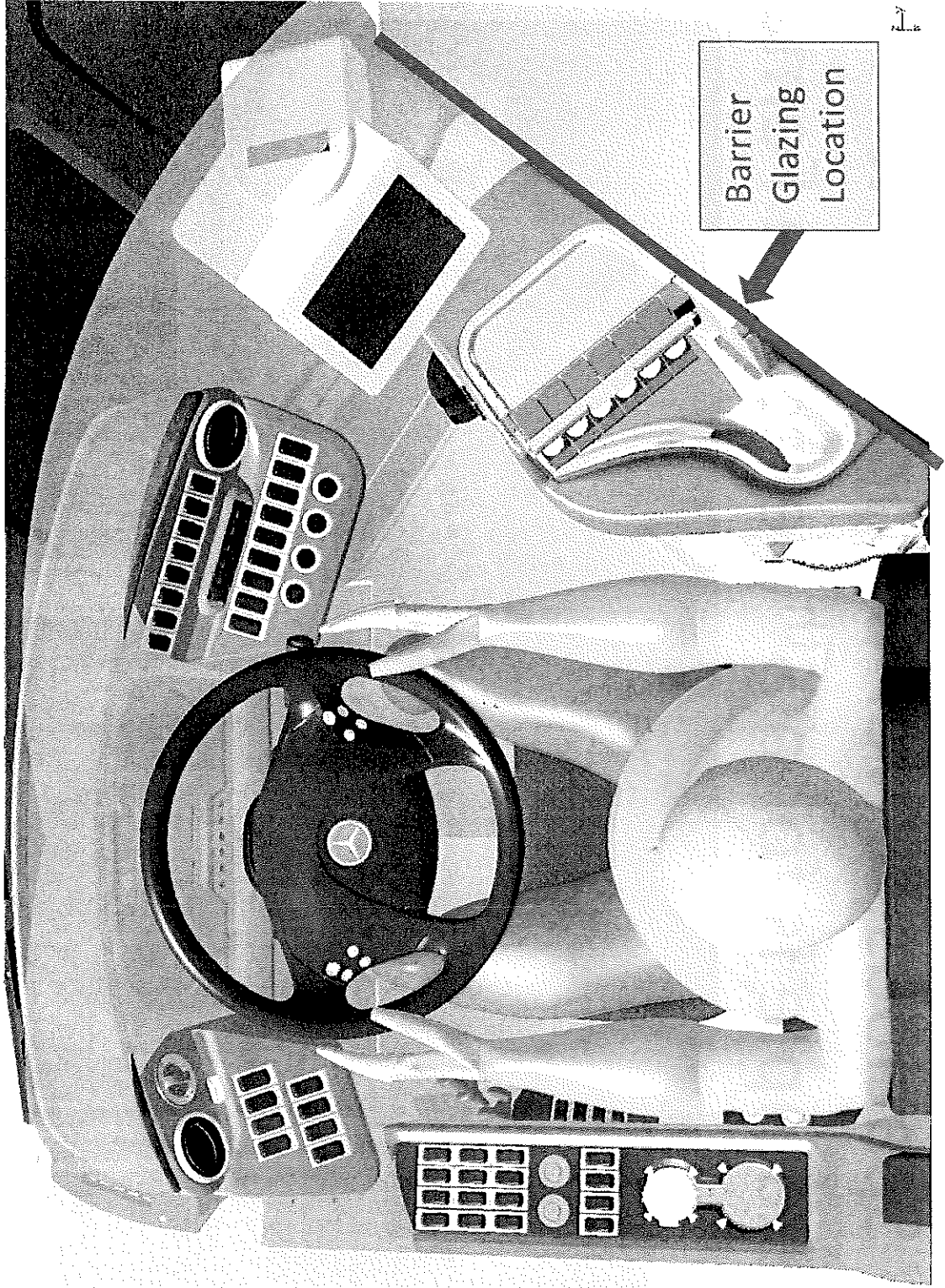


Spacious Driver Compartment

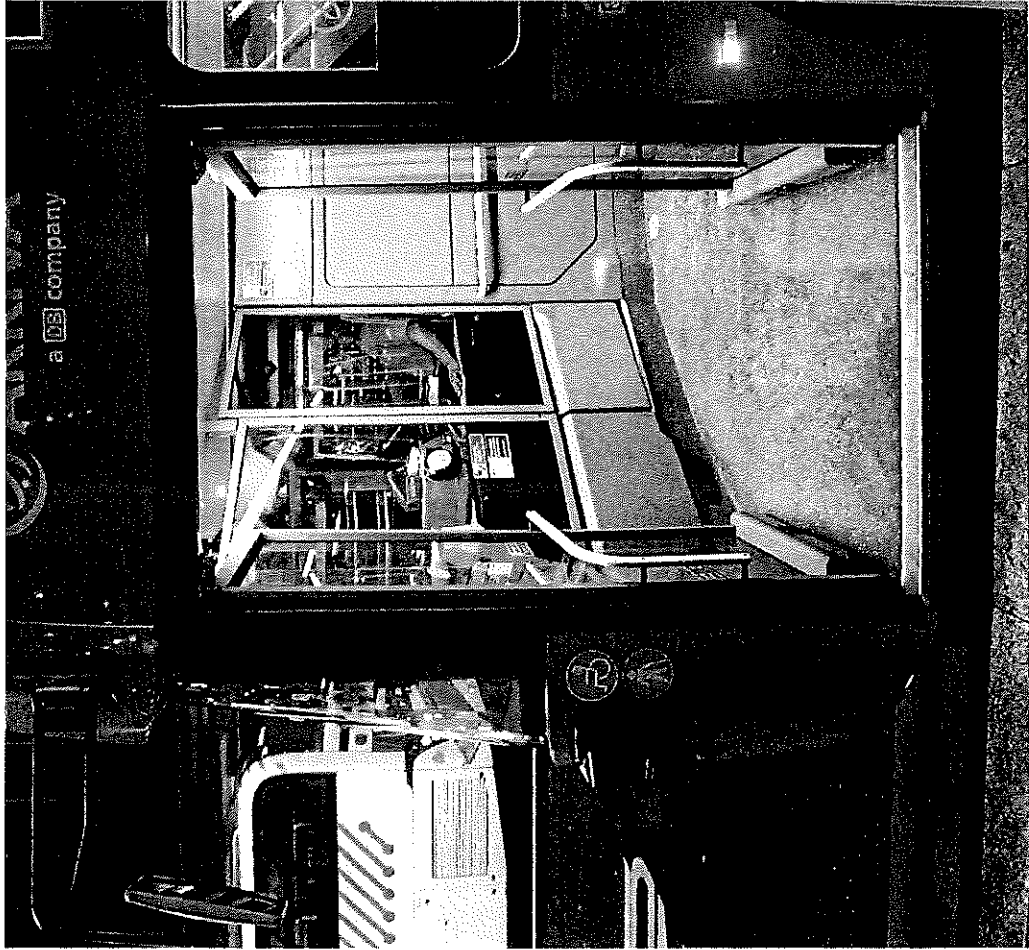
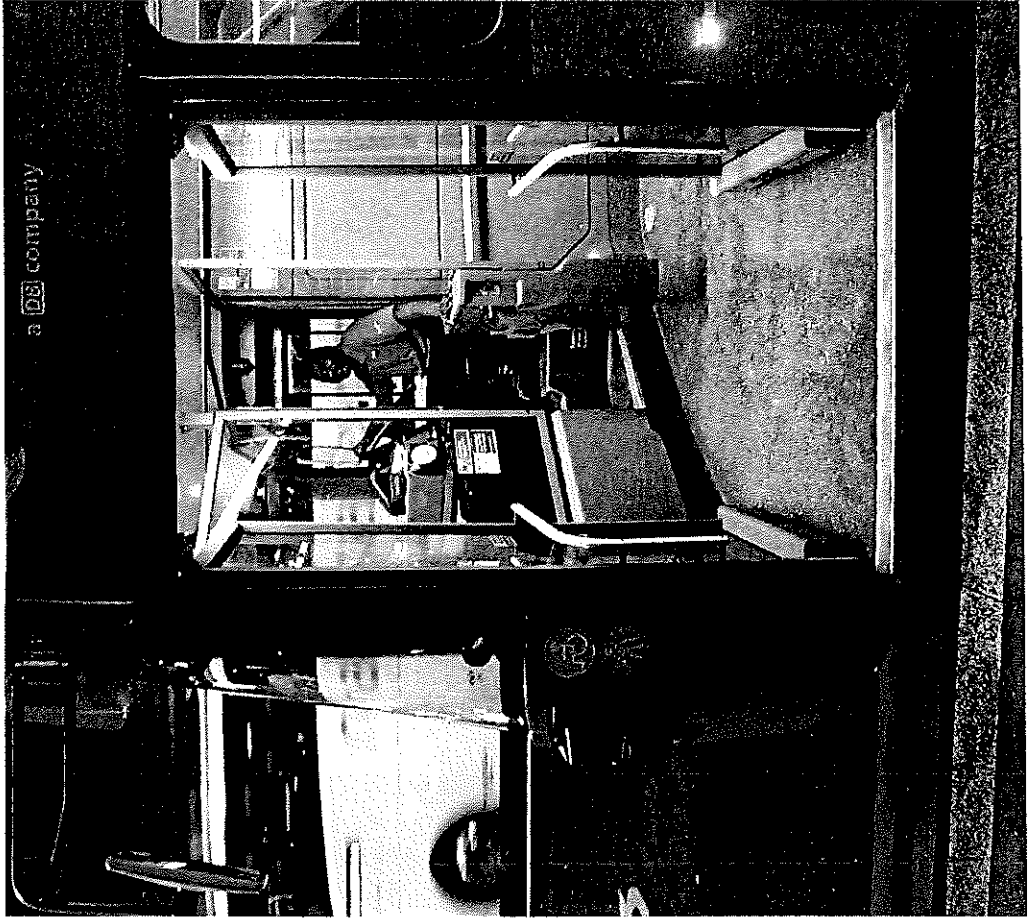
This example is for a 5th Percentile Female



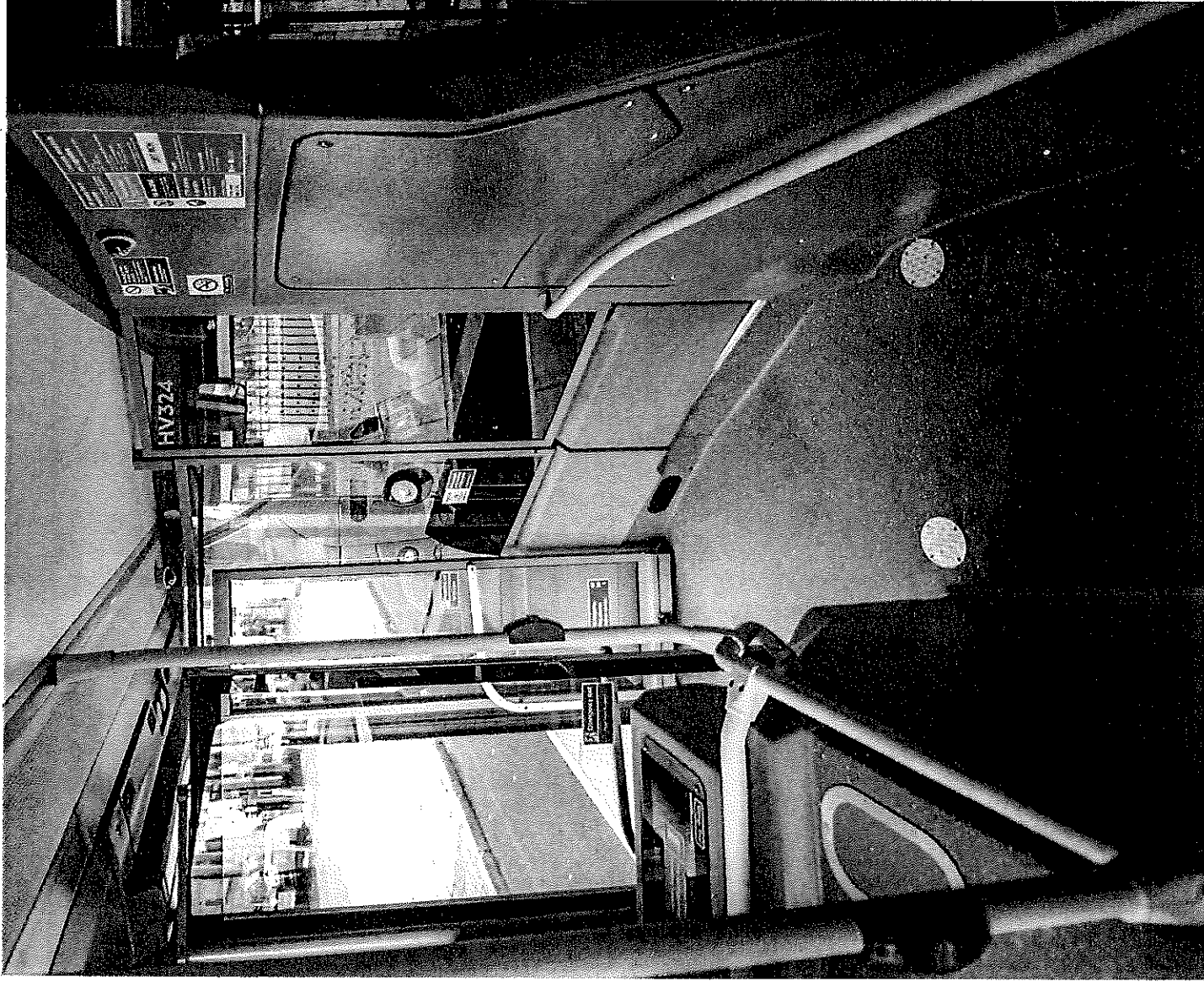
95th Percentile Male Ergonomics



Complete Barriers From England



The British Complete Barrier from Another Angle

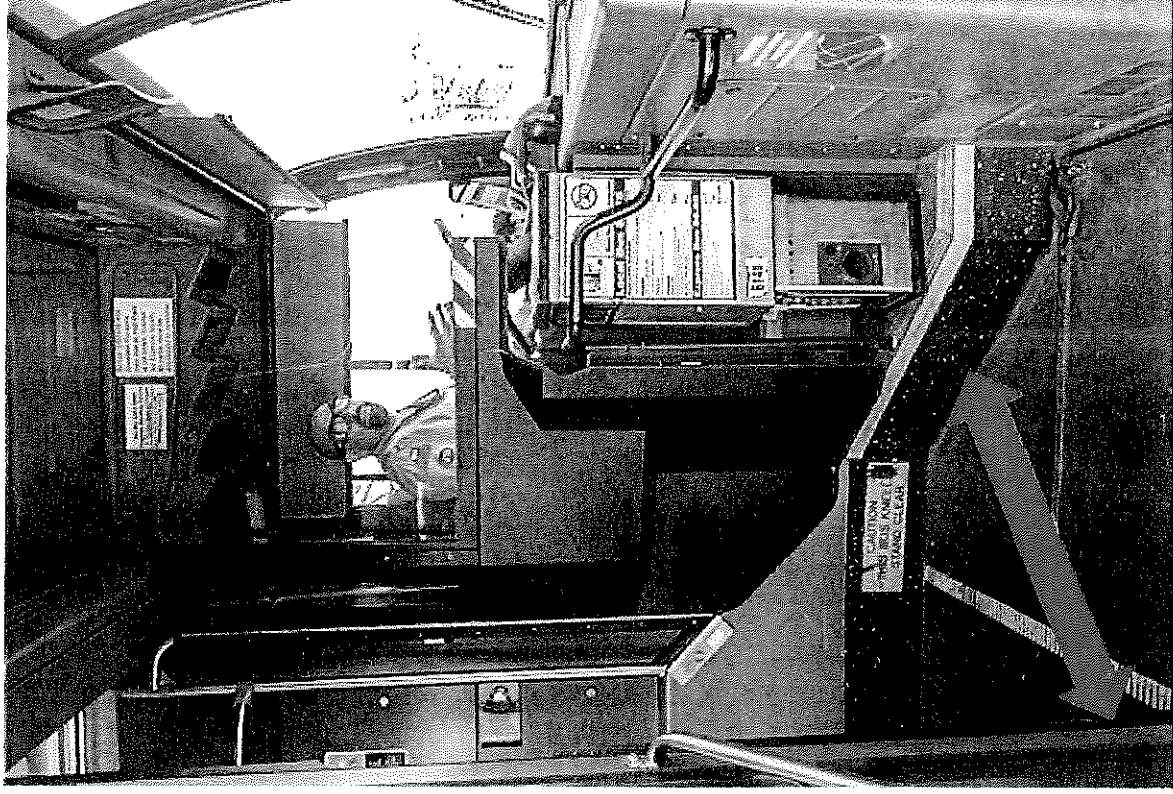


A Complete Barrier Can Be Behind the Operator



New York MTA Security Barrier

Poor angle creates both reflection and refraction hazards



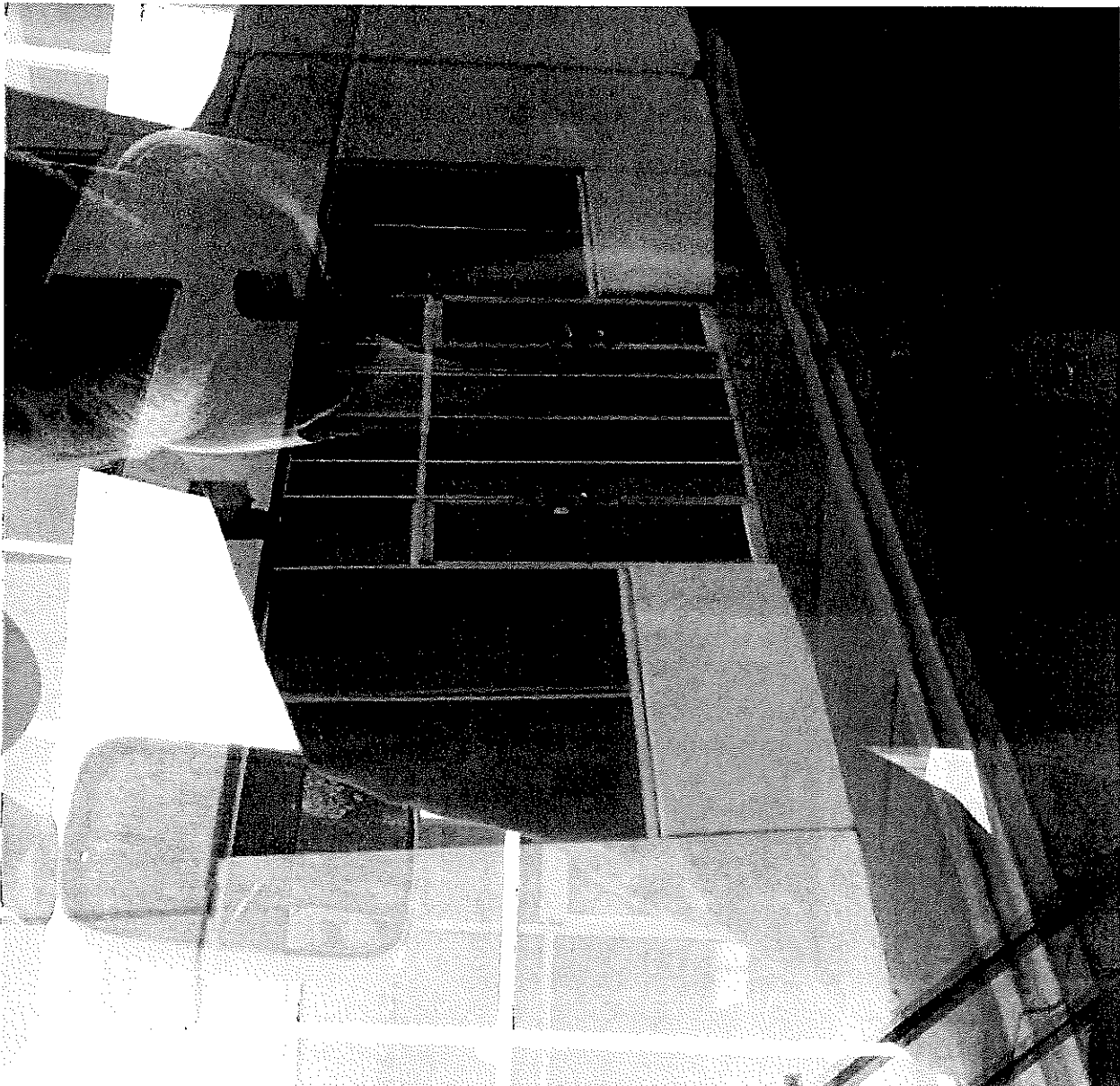
Expanding the passenger seating area, in most North American designs, has gone so far as to confine wheelchair movement. An example is seen here at the red arrow. This pinch point not only makes wheelchair movement difficult, it makes it impossible to design a driver security barrier that stays out of critical sight lines. Moving the front axle back, as in Nova and European designs, would allow more room for a barrier that does not impact sight lines to the right mirror and windshield. There is a cut-out in the glazing but it is insufficient to resolve the problem, as seen at left.

Looking through the NY MTA barrier
glazing creates unnecessary hazards

(a video)

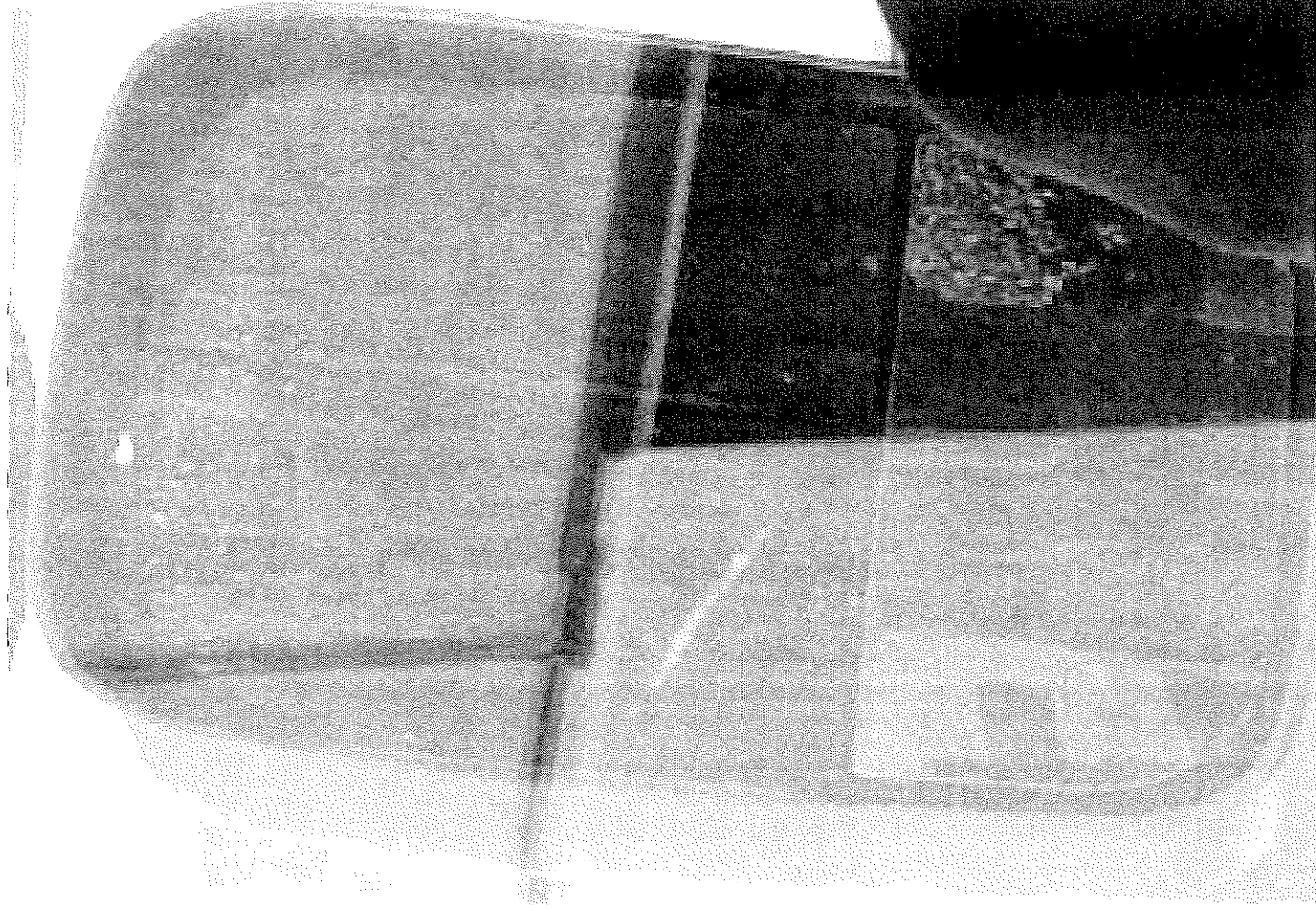


Looking through another North American Barrier



What is Real?

This is an
enlargement of the
mirror view seen in
the previous slide.

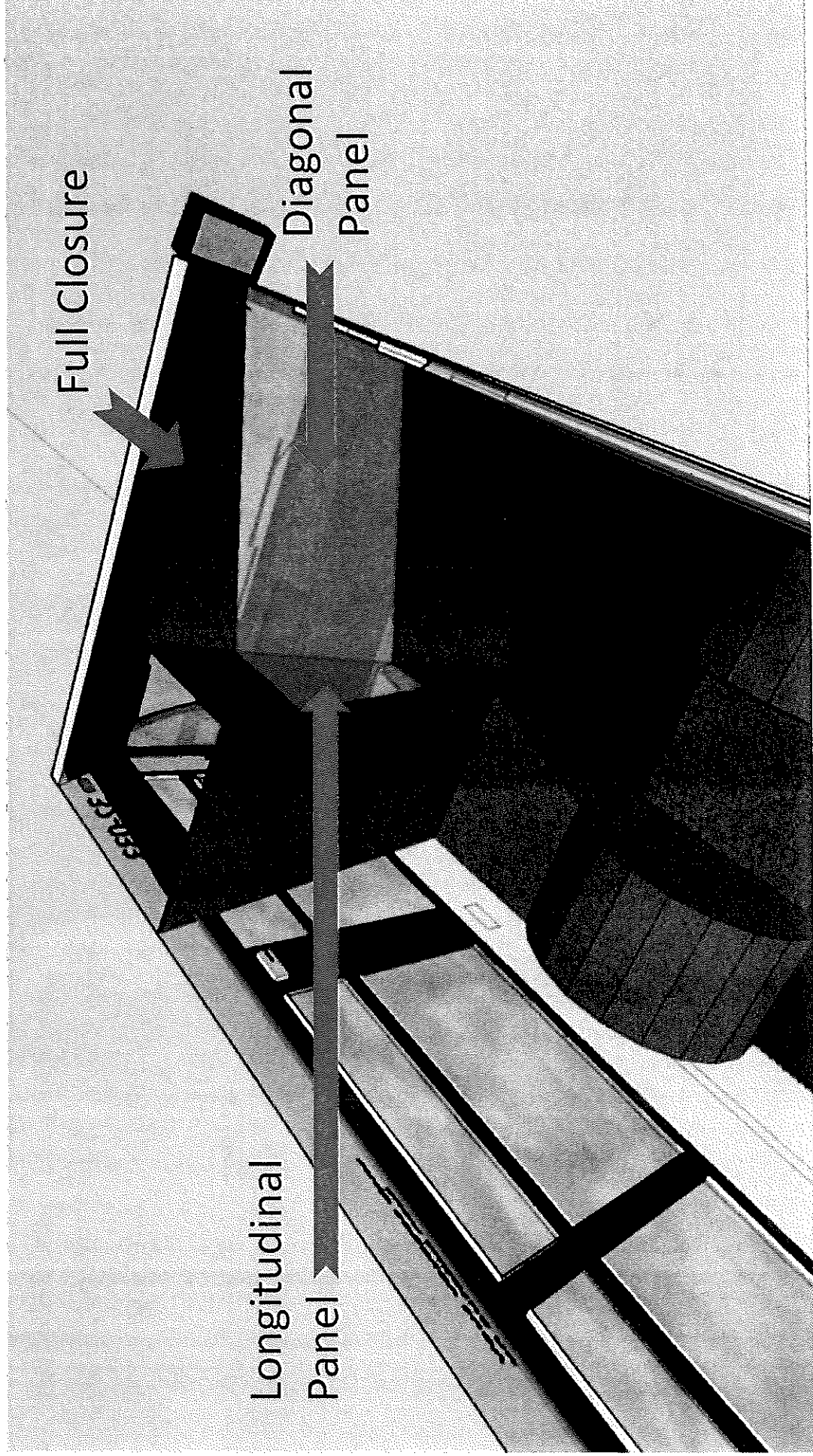


Amalgamated Transit Union Optimized Security Barrier Feasibility Study

Can the best design elements be improved for both greater security and improved safety through improved vision?

Modeled in 3-D and based approximately upon the Nova 40-foot Low Floor bus

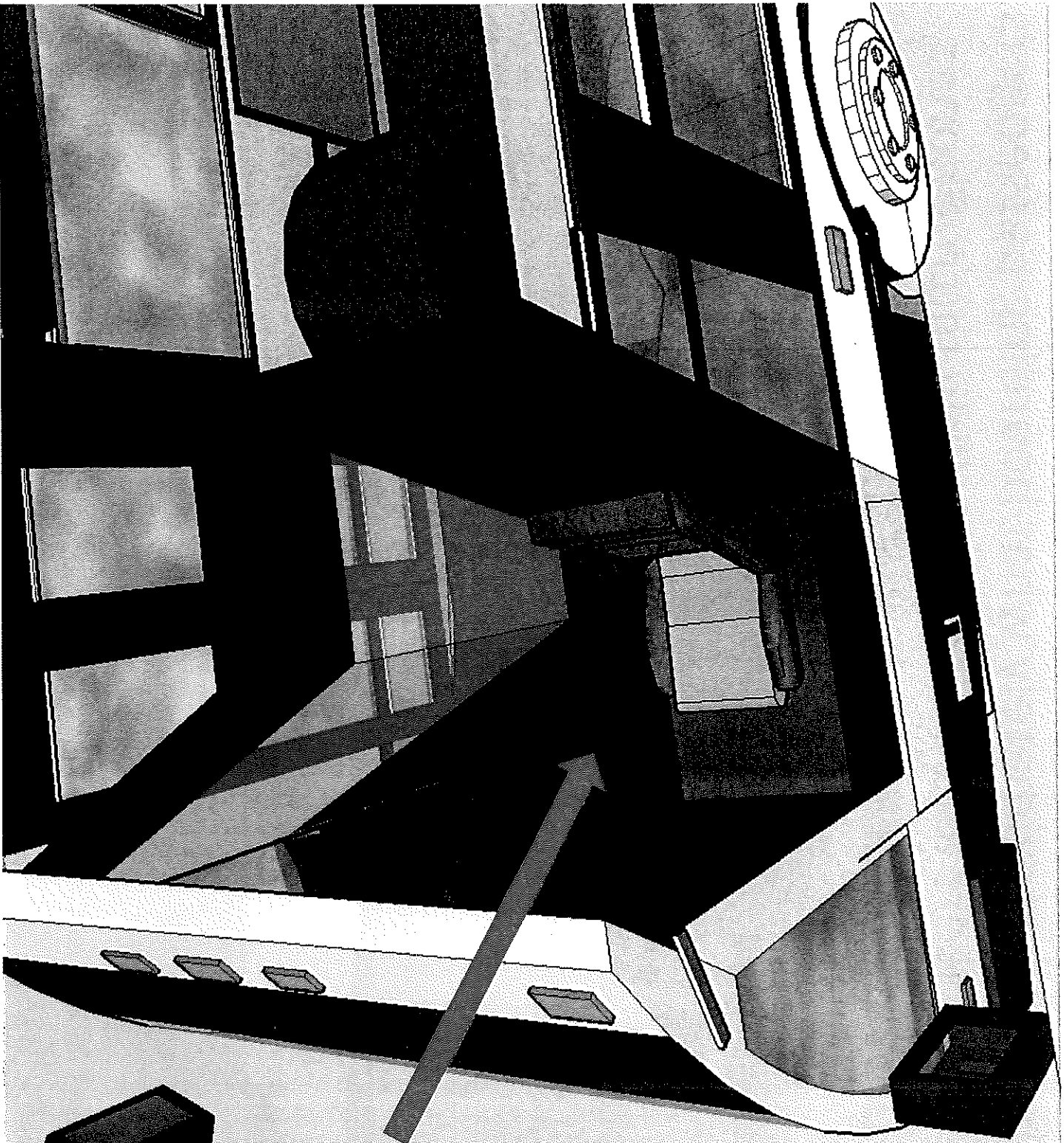
The view below shows the 3-D model with the roof removed to show a diagonal security door which can leave windshield and curbside mirror views unimpeded. A smaller “longitudinal” panel next to the driver could improve vision out the front passenger door by preventing the problems of looking through the larger panel at a shallow angle. Optical coatings on the glazing would minimize reflections.



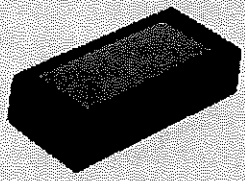


The diagonal panel is aligned between the driver's eyes and the pillar adjacent to the door, creating no direct visual effects.

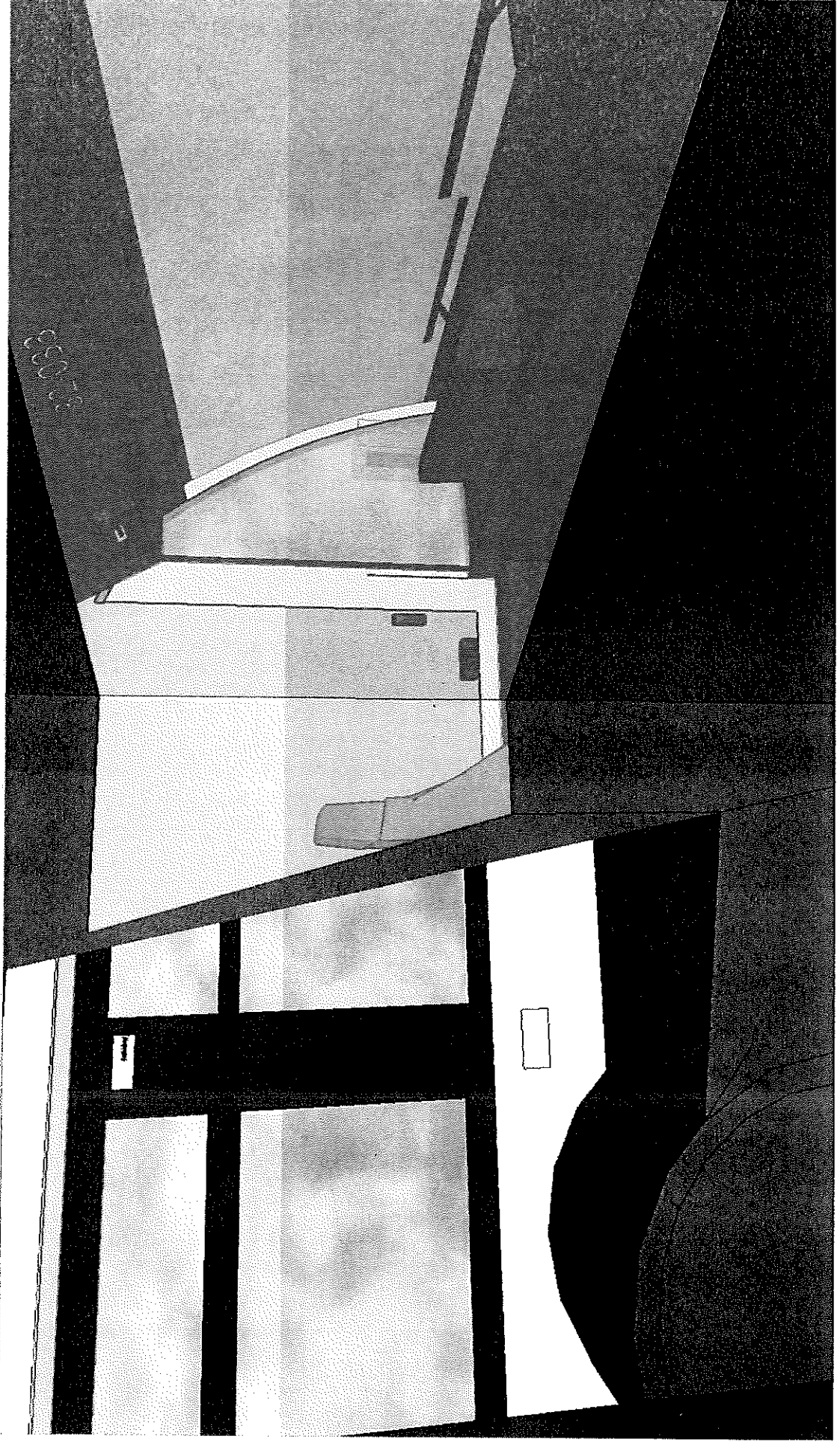
The optically coated longitudinal panel Provides an unobstructed view out the door



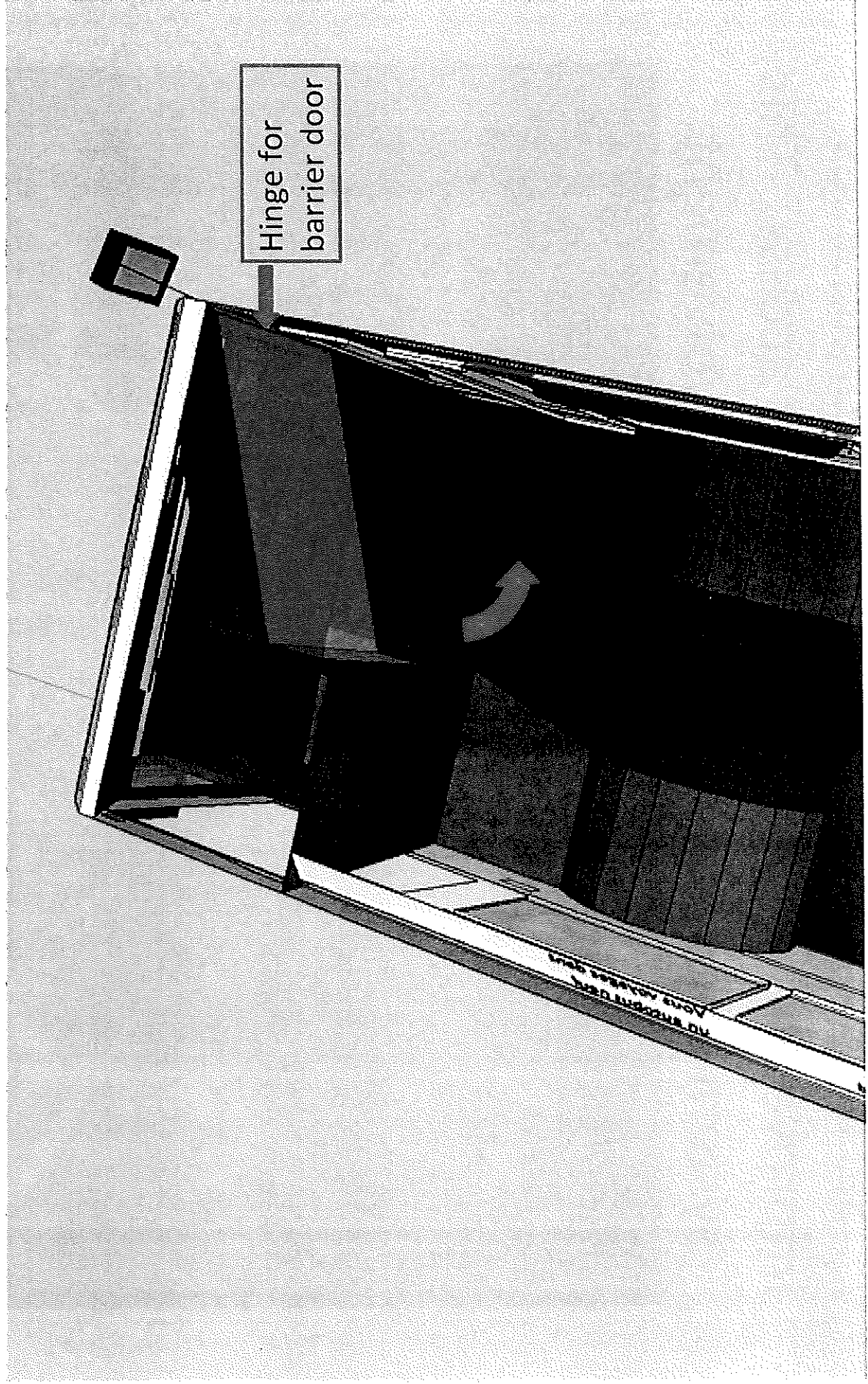
Secure space
for the
Operator's
belongings



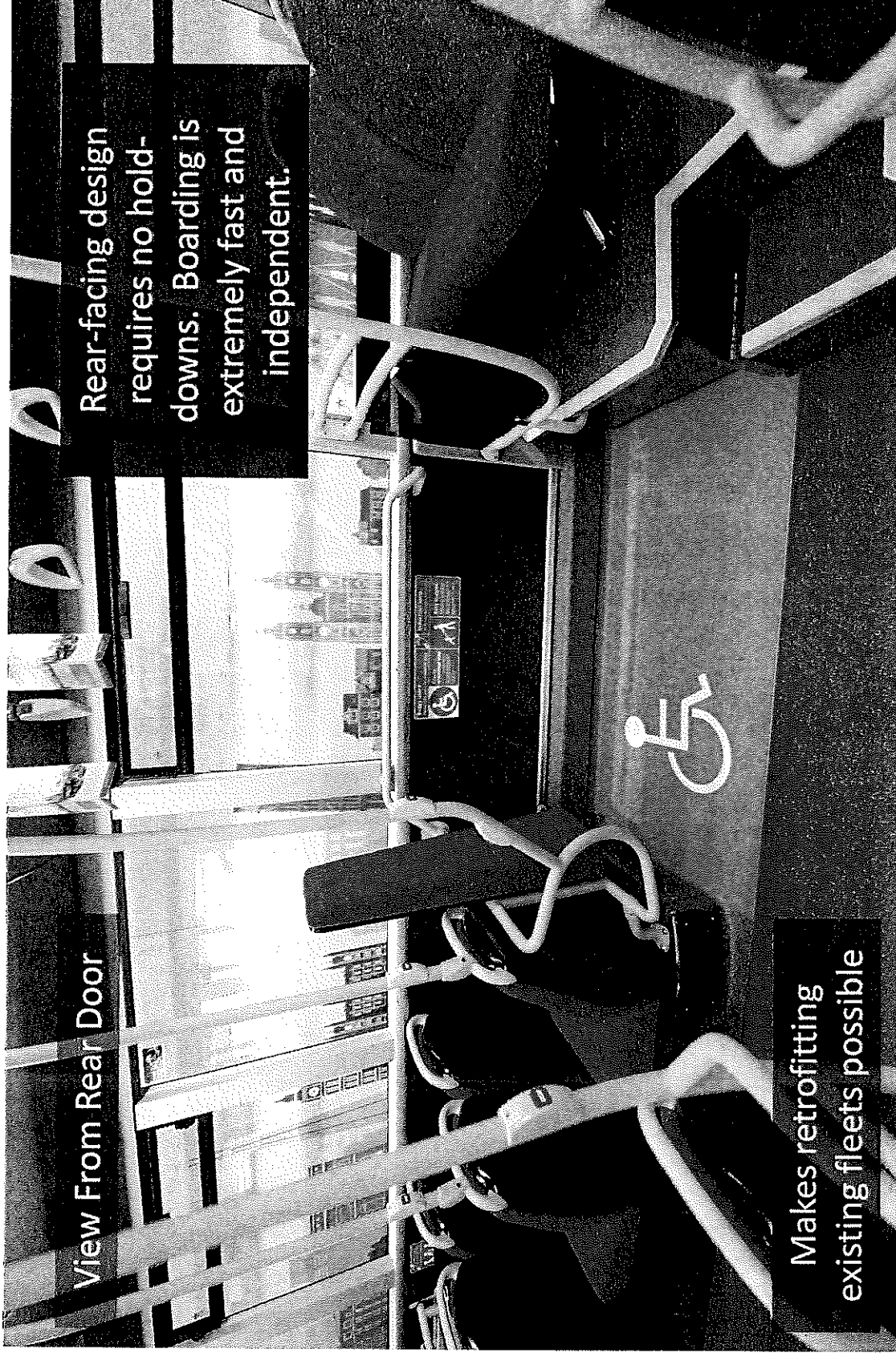
This view shows approximately what boarding passengers would see. Speakers and noise cancelling microphones could provide clear and secure communication.



- This view from above shows how the barrier door would hinge for driver access.
- Full-width barrier glazing maintains panoramic view for passengers looking forward.
- Opaque barrier elements occupy view angles that are opaque in the existing bus design



Security and a number of additional issues improve with rear-door wheelchair access. This system does not require driver involvement.

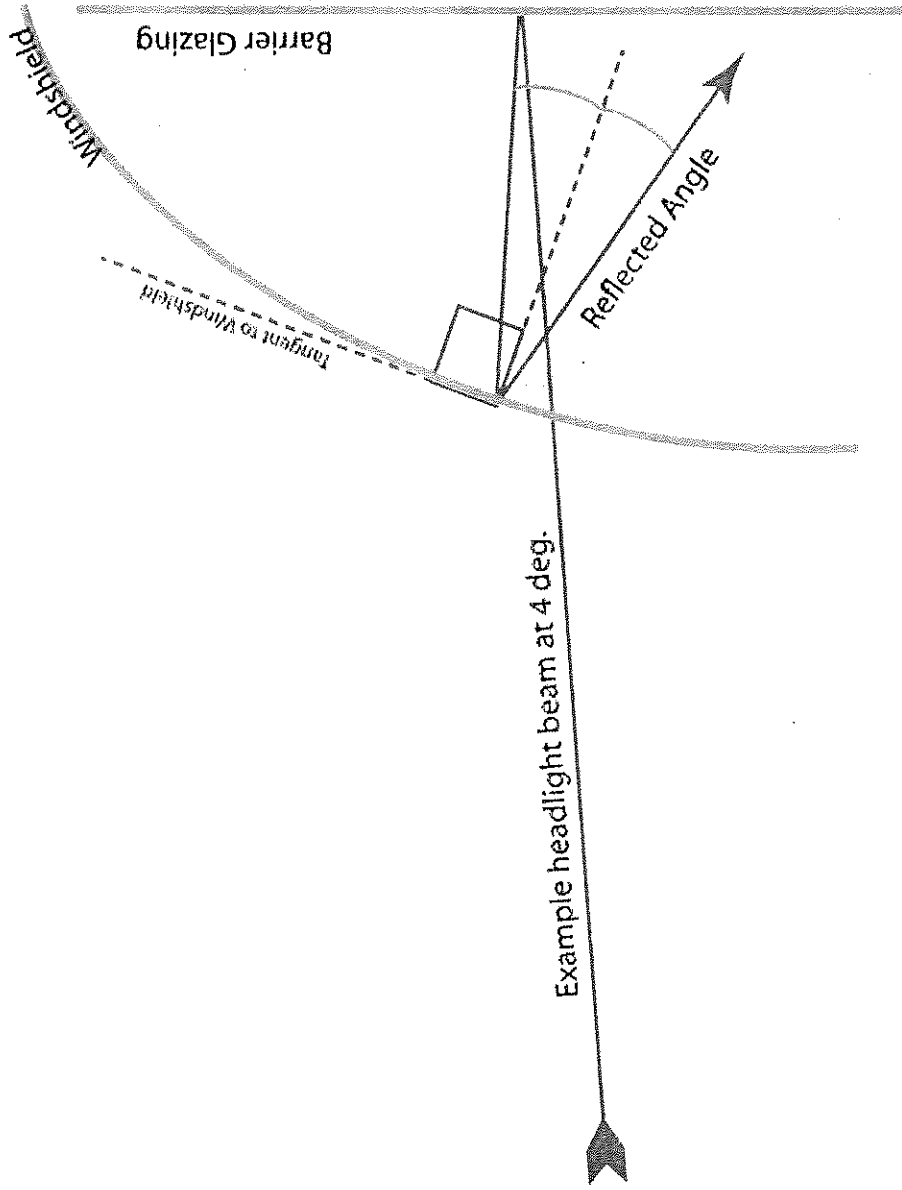


View From Rear Door

Rear-facing design requires no hold-downs. Boarding is extremely fast and independent.

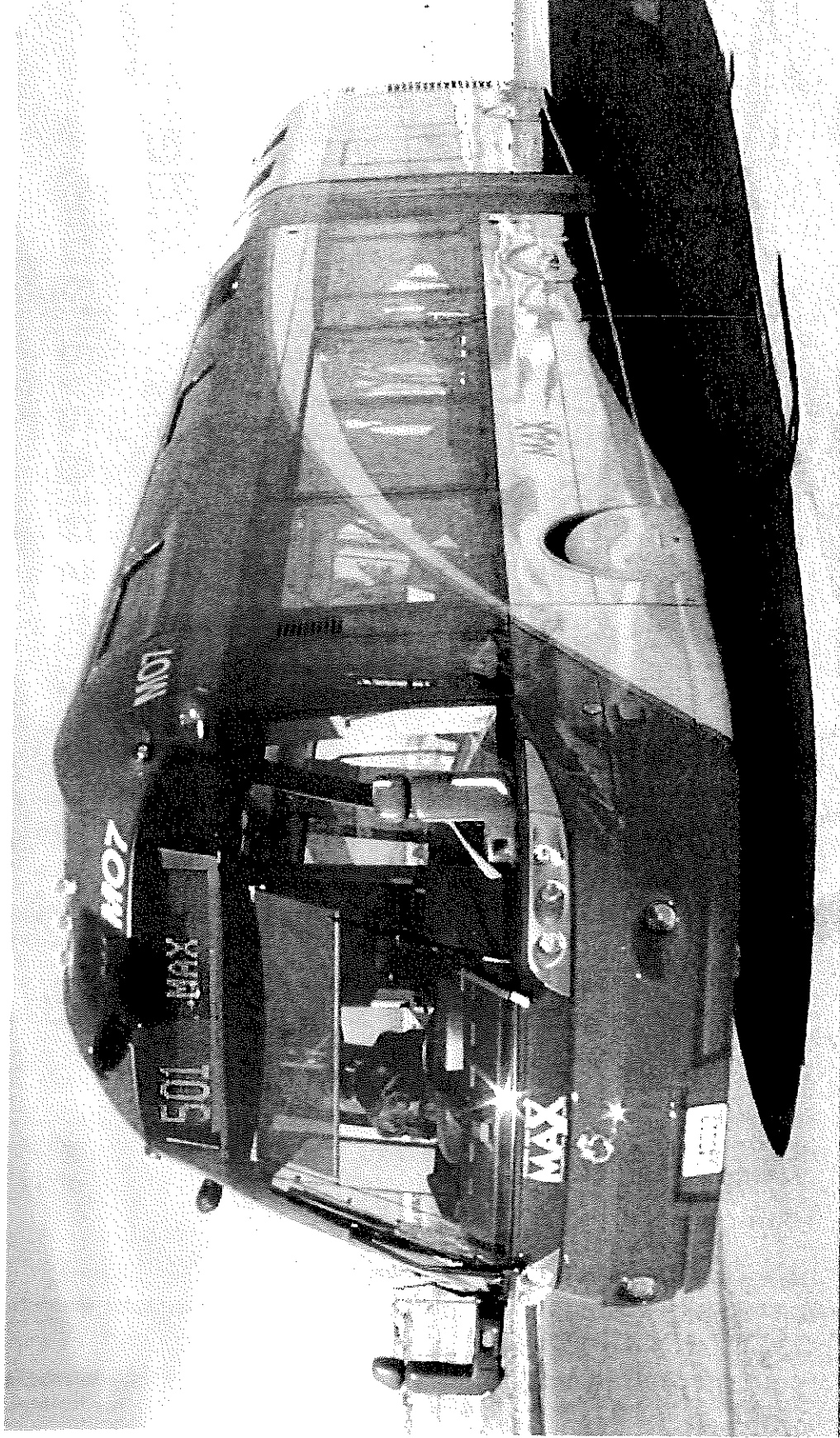
Makes retrofitting existing fleets possible

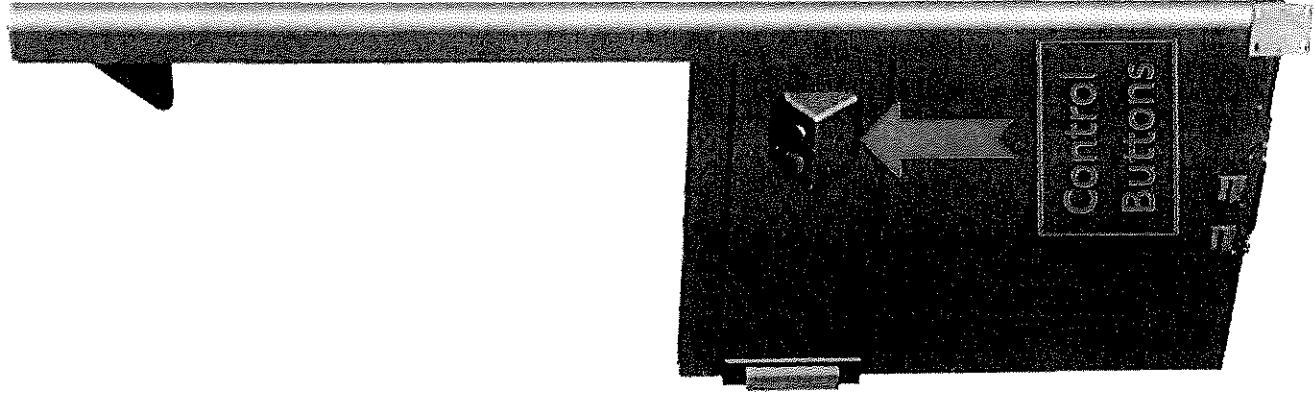
The curved and sloped windshield will result in headlights being reflected to a point below the operator's sight line.



Notes

Below is the only North American bus of which I am aware that achieves both excellent security and vision. Las Vegas uses the "Civis vehicle manufactured by Irisbus" for their MAX BRT project. The operator sits centered in front with a full barrier behind the driver's seat. Although spacious and secure, a majority of operators do not want to be this isolated.





This security door from Vision Systems features a window which opens and closes pneumatically. It can lift 300 lb. or 136 kg., in case an assailant refuses to break off an attack, and has an electromagnetic lock. It is the basis of the recommended designs. A wide range of options are available, including a wide top for an armrest, storage spaces for the operator, etc.

Additional Details:

- Anti-reflective coatings are needed in the driver's area. It is most important for the two parallel surfaces of the driver's side window and longitudinal barrier window.
- The packaging of the driver's area benefits from designs placing the front axle far enough back to allow the barrier to stay outside critical sightlines. The Las Vegas design is the most extreme example, with the barrier behind the driver.
- European bus designs often have slightly extended front overhangs allowing better barrier designs.
- Increased overhang will tend to amplify front-wheel shock inputs. Use of an independent suspension is critical to driver health. This is the standard in Europe. Testing is needed, as this is a very serious issue. The ATU has approached the PhD ergonomist most expert in this area and he expressed interest in doing that work.
- Volvo, who owns Nova, offers an active seat as a new equipment option for trucks and it greatly reduces the whole-body vibration hazard.
- Keeping the eye location within the range of the small barrier glazing is likely to require additional adjustability of the steering, dash and pedals. These systems are available.
- For operation with the barrier closed, a noise-cancelling microphone system would be needed. These already exist for the transit market.

Additional Details, Continued:

- Polling of operators in many North American cities shows low support for barriers in general, but significant support for a Dutch-door style barrier, with pneumatically deployed glazing that could be left open most of the time and quickly closed at will.
- Farebox location is always a problem. European designs (seen below) put it to the rear of the driver and utilize a “proof of payment” system where fare inspectors periodically come through and ticket those without proof of payment. The extra security greatly improves the environment and is partially subsidized by the fines.



The Effectiveness and Safety of Pepper Spray

ABOUT THIS REPORT

This report presents the findings from two recent unpublished NIJ-funded studies that used different methodologies to test pepper spray's safety and effectiveness.

One study looked at officer and suspect injuries in three North Carolina police jurisdictions before and after pepper spray was introduced. The other examined the deaths of 63 suspects held in custody after pepper spray was used in their arrest.

What did the researchers find?

- The North Carolina study found that the number of injuries to police officers and suspects declined after pepper spray was introduced. Complaints that the police used excessive force also declined.

- The study of in-custody deaths concluded that pepper spray contributed to death in two of the 63 cases, both involving people with asthma. In the other cases, the researcher concluded that death was caused by the arrestee's drug use, disease, positional asphyxia, or a combination of these factors.

What were the studies' limitations?

- In the North Carolina study, procedures for identifying officer and suspect injuries differed considerably from agency to agency and within each agency over time.

1990-1998. Information on State Highway Patrol officer injuries came from their Worker's Compensation and Medical Only Claims files. Records in which the injury resulted from a motor vehicle crash or actions unrelated to an arrest were excluded. Researchers applied statistical methods to determine whether observed declines in the number of injuries after the introduction of pepper spray were significant enough to be attributed to its use.

Injuries to suspects.

Suspect injury data were available from the Charlotte-Mecklenburg and Winston-Salem police departments. No information was available for injuries to suspects

1. Action Center
2. ATU COPE
3. JANUS
4. Assaults on Transit Workers
5. Bathroom Breaks
6. Workstation Initiative
7. Find Elected Officials
8. Legislation
9. Mobilization

Media Center

Media Center » Releases » ATU Applauds Governor Cuomo for Approving 500 Additional Uniformed Police Officers to Patrol City Subways and Buses to Protect Workers
Jun 23

ATU Applauds Governor Cuomo for Approving 500 Additional Uniformed Police Officers to Patrol City Subways and Buses to Protect Workers

The Amalgamated Transit Union (ATU), the largest union representing public transit workers in the U.S., strongly supports Governor Andrew Cuomo's move to provide more police on NYC buses. ATU represents MTA workers in Staten Island and Queens.

Last month, a man boarded the Q88 bus near the Queens Center Mall and started shouting at the bus driver. He then punched the operator in the face and fled. A few months earlier, a driver on the Q5 bus between Jamaica and Rosedale was punched in the face after refusing to allow an unruly passenger a free ride. "These incidents happen daily. Our members get spit on, punched and stabbed. They've even had urine thrown on them," said John A. Costa, ATU International President. "Many of these incidents occur while our members are trying to navigate massive vehicles through city streets. This of course puts everyone on the bus and on the street in grave danger."

Transit worker assault is a widespread problem which has led to a national public transportation safety crisis. Just last month, an ATU member in Tampa was murdered behind the wheel of a moving bus. ATU is pushing legislation in Congress, the *Transit Worker and Pedestrian Protection Act* (HR. 1139/S. 436), that would simply require transit systems to determine if they have an issue with assaults and work with their front line employees and unions to come up with solutions to make the attacks stop. The bipartisan bill currently has 148 cosponsors, but only 17 of New York's 27-Member Congressional delegation are on board.

"Can you think of any other workplace in America where this type of danger is tolerated? NOT ONE MORE transit worker should have to deal with this madness!" Costa continued. "Members of Congress from New York should follow Governor Cuomo's lead and do something to protect transit workers and riders. The Governor's action will save lives. We thank him for providing the resources necessary to enhance public safety."

Macon-9

**COUNTY OF MILWAUKEE
INTEROFFICE COMMUNICATION**

DATE: June 2, 2016

TO: Michael Mayo, Sr., Chairperson, Transportation, Public Works & Transit Committee

FROM: Brian Dranzik, Director, Department of Transportation

SUBJECT: UPDATE ON THE TRANSIT SECURITY TASK FORCE

POLICY

This report is for informational purposes only.

BACKGROUND

File 15-187 created a Transit Security Task Force and requires an informational report to the Board following each meeting. The task force is intended to help develop strategies that will increase awareness and compliance with laws and ordinances designed to combat fraud and misconduct at bus stops, on buses or in connection with fare media produced by the Milwaukee County Transit System (MCTS).

The fourth meeting of the task force took place on May 25, 2016 at 3:00 PM. In attendance were representatives from the Milwaukee County Department of Transportation, MCTS, Amalgamated Transit Union Local 998, Allied-Barton Security, Milwaukee County Sheriff's Department (MCSO), Milwaukee County Board of Supervisors and Milwaukee County District Attorney's (DA) Office. Conflicts prevented Milwaukee Police Department participation.

The agenda for the meeting included a review of the goals of the task force and a review of the task force history for new attendees. Key discussions at the meeting included:

- A review of MCTS physical security projects.
 - In the past 6 months, over 360 operators have been trained on Suspicious Activity Awareness and Conflict Avoidance. The training will conclude by early 2017.
 - Replacement of building cameras and expansion of access control system and consolidating these two technologies on one integrated platform.
- Bus camera system project – new on bus cameras, including exterior cameras
 - The project is scheduled to be completed near year's end.
 - A discussion took place regarding whether MCSO could issue citations for “right turn in front of the bus” violations if we have video evidence showing a person's license plate. (§ 346.075 Overtaking and passing ...motor buses).

- DA clarified the Statue -- the bus has to be actively loading/discharging passengers for a violation to occur. MCTS will inform bus operators of this clarification.
- Consensus from the DA and MCSO was that proof of identity of the driver would be necessary for a citation to be issued.
- Resource limitations would prevent investigations of “right turn in front of bus” violations by law enforcement, except in accidents/incidents resulting in injury/damage.

With no other agenda items from members, the MCTS Manager of Security and Risk began a discussion of whether the meetings should continue in light of the fact that MCTS management and union members already hold monthly transit security meetings. At those monthly meetings, topics similar to those discussed in the Transit Security Task Force are covered including security incidents, repeat offenders, case updates, physical security issues and projects. It was agreed that participation in two to three of these meetings annually by law enforcement agencies and the DA’s Office beginning in September or October 2016 would be beneficial.

Based upon the above referenced agreement there was consensus to discontinue the Transit Security Task Force.

RECOMMENDATION

This report is for information purposes only.

Prepared by: Julie Schneider, Manager of Security and Risk, MCTS
Dan Boehm, Managing Director, MCTS

Approved by:

James H. Martin
Director of Administration, Department of Transportation
(for Brian Dranzik, Director, Department of Transportation)

cc: Chris Abele, Milwaukee County Executive
Theodore Lipscomb, Sr., Chairman, County Board of Supervisors
Kelly Bablitch, Chief of Staff, County Board of Supervisors
Raisa Koltun, Chief of Staff, Milwaukee County Executive
Chris Abele

**COUNTY OF MILWAUKEE
INTEROFFICE COMMUNICATION**

DATE: August 11, 2016

TO: Michael Mayo, Sr., Chairperson, Transportation, Public Works & Transit Committee

FROM: Brian Dranzik, Director, Department of Transportation

SUBJECT: Transit Operations, Workers Compensation, Family Medical Leave and Employee Morale

POLICY

The Chairperson of the Transportation, Public Works and Transit Committee requested a report on transit operations, Worker's Compensation, Family Medical Leave and employee morale.

BACKGROUND

The Milwaukee County Transit System (MCTS) employs over 1,000 individuals, many of which are represented by the Amalgamated Transit Union (ATU) Local #998, and to a lesser extent the Office Professionals Employees International Union (OPEIU) Local #35. The majority of employees (750) are bus operators, who report to work at three different transit stations or depots. MCTS also employs a large number of mechanics (165). Rules and regulations pertaining to work performed by represented staff are negotiated and made available to each employee.

MCTS Management understands the importance of being supportive of all employees especially the front line workers that interact with our customers, and maintain the large fleet of transit vehicles. Transit employees are called upon to work long hours when situations demand it. MCTS operates through snow storms, and provides a respite for residents forced from their homes during building fires, as well as takes thousands of passengers to and from Brewers Games, State Fair and the Maier Festival Grounds during each day of the world's largest music festival and the many other lakefront festivals.

Transit Operations

Our employees feel a strong commitment to serve the community in which they live. We operate 365 days a year, nearly 24 hours each day. Our fleet of over 400 buses travel over 18 million miles each year, serving 39 million passengers with a supply of 1.4 million annual bus hours of service.

The mission of MCTS is to provide reliable, convenient and safe public transportation services that efficiently and effectively meet the varied travel needs of the community and contribute to its quality of life. Being a mission driven organization helps our employees maintain high

expectations for quality delivery of customer services, reliability, and safety in operations. Since hundreds of transit buses are in operation every day, accidents involving vehicles occur about once each 50,000 miles. Often these accidents are caused by other drivers. When an accident does occur that results in injury to an employee, we closely follow Worker's Compensation rules established by the State of Wisconsin.

Worker's Compensation

In 2015, MCTS followed Milwaukee County's lead and contracted with County Mutual as a third-party administrator of Worker's Compensation. Injured employees report incidents to a claim adjuster with County Mutual. There are about 7 new cases each month resulting in 80 to 90 claims per year. A claim adjuster reviews each case carefully, engages medical expertise when necessary, and renders a decision regarding compensability following best practices in the Worker's Compensation industry. Medical experts can be called in for a second opinion, and surveillance may be used when situations arise that warrant such action.

Denials occur, but are rare. Only about 10% of alleged work related injuries are considered non-compensatory. Complaints from employees about County Mutual have occasionally been filed with MCTS. Investigations of these complaints has identified disagreement about the compensability of an injury as the primary source of discontent.

Family Medical Leave

Sometimes an employee is injured or becomes ill outside of work. If the injury or illness is considered a serious medical condition an employee can request to be absent from work under protections afforded by the Family Medical Leave Act (FMLA). Under FMLA, an employee can be excused from work for up to 12 weeks each year for their own serious medical condition or that of a relative.

In January 2016, MCTS entered a contract with FMLA Source to assist us in managing family medical leave requests. Family medical leave can be taken for a specified period of time, such as the duration needed for an employee to recover from a broken bone or surgery. Under FMLA, intermittent leave is also available for episodic illnesses, some examples of which include migraine headaches, asthma attacks, etc. When an employee is ill and unable to work, we require the employee to notify their supervisor so that we can assign their work to a substitute operator. We also require that the employee contact FMLA Source, when applicable so that they can keep track of an individual employee's approved leave from work.

Transitioning to FMLA Source earlier this year was not without its difficulties. The business of transit is different from that of many of the other customers of FMLA Source. For example, we have rotating days off, and daily work assignments that can include split shifts or runs that are routinely longer than 8 hours. FMLA Source has been modifying their systems to help root out errors in the records that they are maintaining for MCTS and its employees.

As an employer, MCTS should know when an employee is unavailable from work, the reason for an employee's absence, and when the employee expects to be able to return to work. MCTS

continues to communicate this expectation with its employees. MCTS has asked for assistance from ATU in communicating this fact with their members and other call-in changes. A special training session was provided at the union hall for ATU officials back in March 2016.

Employee Morale

Working in a large organization can be difficult. Employees can feel like they are disconnected from the organization because of its size, and miss the personal interaction that is more readily available at smaller employers. Building and maintaining morale is an important job for middle managers. In turn, they need the support of upper management to be effective. In 2016, MCTS has taken steps to provide support of middle managers and their direct reports, our front line workers. A key to these efforts and each of the following initiatives is communication.

Mentoring

MCTS managers know that being an operator can be challenging, especially for younger, less experienced individuals. We value our employees and want them to be happy and satisfied with their chosen career. Based upon the recommendation of a station supervisor, select new employees that are the subject of progressive discipline have been afforded an opportunity to retain their employment provided that they participate in routine check-ins with their supervisor and/or other long-time transit managers (mentors) with many years of experience, both behind the wheel of a bus, and as leaders in the organization.

MCTS mentors know that individual support may be necessary to help an employee balance demands placed on them by work and family. Mentors convey an understanding of the pressures that can be on a new employee, while also emphasizing the value of a stable job with a family supporting wage. Mentoring is private and structured to meet the specific needs of the individual. MCTS is proud of the mentoring program and view it as a reflection of the resources that we are committed to making available, if needed.

MCTS Excellence

The vast majority of bus operator do an excellent job. They build a successful career for themselves in transit. Excellent employees value the position, understand that they can have a positive impact on the community each and every day and put the needs of their passengers first. This service oriented approach to a career results in about 800 commendations from riders/public each year. In turn, MCTS management acknowledges a job well done with written commendation letters customized to each individual good deed and hand-signed by the Managing Director or Chief Operations Officer. Occasionally, we have shared the good deeds of bus operators with local media and on social media, which helps to further demonstrate the value of transit to the larger community.

By highlighting examples of MCTS excellence, the organization is focusing on providing support for good employees rather than focusing too many of our efforts on disciplining poor performers. However, we need to also continue to acknowledge that when truly excellent employees witness a very small percentage of operators bending the rules to their own benefit, and not being held

accountable for their attendance, safety and customer service, it negatively impacts the morale of the vast majority of the work force. To help build and maintain morale, MCTS management has a responsibility to hold employees accountable.

Communication plays a big role in how we interact with employees. From one-on-one informal interaction between an employee and their supervisor, to written letters of commendation, it is important to communicate with our employees about the good job that they are doing. One of the more formal ways in which we communicate with employees is through an annual performance review.

Annual Performance Review

MCTS asks that its bus operators participate in an annual performance review so that they can understand where they are doing well and the areas in which they may need to improve. Some operators refuse to meet with their supervisors, and express no interest in where they may improve. Many times, these are the employees that have been disciplined over and over again for the same type of infraction. These individuals have demonstrated that they are unable or unwilling to change and improve their performance. To lift morale for the majority of employees, MCTS may exercise job-ending actions that ultimately help these individuals to find a career that is more to their liking.

Re-Connect Program

At times, MCTS will demonstrates its support for operators by reaching out in a proactive and positive manner. Recently, MCTS began to hold re-connect meetings at which new and veteran operators from all three stations are brought together to share ideas, help each other manage their careers effectively, and hopefully gain more satisfaction from their jobs in transit.

These meetings provide bus operators with an opportunity to talk about their challenges, concerns, and how we as an organization can help support them better. Re-connect helps to send the message that MCTS management is not just here to discipline them, rather we are here to support the work that they do on the front lines each day. These sessions began in June 2016 and have been very successful. Employees are engaged in the process and conclude each session with very positive reviews of the facilitators (MCTS managers) and the program as a whole.

Critical Incidents Response Program

This year, MCTS established a program to help operators deal with and better understand traumatic events they may have experienced while on the job. Station personnel from all three stations have been carefully selected to reach out to operators that have unfortunately been exposed to a difficult incident/event while on the job. MCTS Management want operators to know that they are not alone and that many of the staff here understand what they're experiencing.

Critical Incident Responders will call on a regular basis just to check-in with operators that may need someone to talk to after a serious incident. The responders are just there to listen. They understand that an Employee Assistance Program (EAP) is available for more advanced support if

needed but prefer to provide support for their co-workers through informal, supportive, interaction and communication.

Training and Employee Development

A more traditional way in which MCTS supports its employees is through training and development. This is especially true in the Maintenance Department where the near constant evolution of buses and on-board equipment and technology requires a commitment to learning. There are many eager learners among the ranks of MCTS mechanics, and managers foster this desire to learn by conducting in-house training sessions, and by bringing in vendors and industry experts to train staff in the latest techniques, tools and equipment. The more our employees know, the more empowered they are to trouble-shoot problems, and make good decisions about solutions that aid in keeping transit service highly reliable to the public.

In Conclusion

MCTS is a large employer that takes a mission driven approach to motivating its workforce. As an organization we strive to providing transit services that are reliable, convenient and safe. MCTS managers value a high level of communication with our employees. We strive to be supportive of employees that have chosen a career in transit. We owe it to our excellent employees to hold under-performers accountable for doing a poor job. MCTS managers can be mentors, and good listeners as we strive to improve the organization as a whole through empowering our employees. Simply put, we value our employees and recognize that our success as an organization is highly dependent upon their success as individuals in their chosen career in transit.

RECOMMENDATION

This Report is for Informational Purposes Only.

Prepared by: Dan Boehm, Managing Director, MCTS

Approved by:

Brian Dranzik
Director, Department of Transportation

cc: Chris Abele, Milwaukee County Executive
Theodore Lipscomb, Sr., Chairman, County Board of Supervisors
Kelly Bablitch, Chief of Staff, County Board of Supervisors
Raisa Koitun, Chief of Staff, Milwaukee County Executive
Chris Abele

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473.407 METROPOLITAN TRANSIT POLICE.

Subdivision 1. **Authorization.** The council may appoint peace officers, as defined in section 626.84, subdivision 1, paragraph (c), and establish a law enforcement agency, as defined in section 626.84, subdivision 1, paragraph (f), known as the Metropolitan Transit Police, to police its transit property and routes, to carry out investigations, and to make arrests under sections 629.30 and 629.34. The jurisdiction of the law enforcement agency is limited to offenses relating to council transit property, equipment, employees, and passengers. The jurisdiction of the Metropolitan Transit Police shall include traffic lanes designed for bus or transit use, freeway or expressway shoulders in the seven-county metropolitan area used by authorized transit buses and Metro Mobility buses under section 169.306, and high-occupancy vehicle lanes used by transit buses. Upon request from, or under an agreement with, any law enforcement agency and subject to the availability of its personnel and other resources, the Metropolitan Transit Police may exercise general law enforcement agency authority to assist any law enforcement agency in implementing or carrying out law enforcement activities, programs, or initiatives. If the commissioner of transportation contracts with the Metropolitan Council for operation of commuter rail facilities under section 174.90, the jurisdiction of the Metropolitan Transit Police extends to offenses relating to the operation, property, facilities, equipment, employees, and passengers of the commuter rail facilities located in and outside of the metropolitan area.

Subd. 2. **Arrests and subsequent investigations.** The initial processing of a person arrested by the transit police for an offense within the agency's jurisdiction is the responsibility of the transit police unless otherwise directed by the law enforcement agency with primary jurisdiction. A subsequent investigation is the responsibility of the law enforcement agency of the jurisdiction in which the crime was committed unless the law enforcement agency authorizes the transit police to assume the subsequent investigation. At the request of the primary jurisdiction, the transit police may assist in a subsequent investigation being carried out by the primary jurisdiction. Persons arrested for violations which the transit police determine are not within the agency's jurisdiction must be referred to the appropriate local law enforcement agency for further investigation or disposition.

Subd. 3. **Policy for notice of investigations.** The transit police must develop a policy for notifying the law enforcement agency with primary jurisdiction when it has initiated surveillance or investigation of any person within the jurisdiction of that agency. The council shall train all of its peace officers regarding the application of this policy.

Subd. 4. **Chief law enforcement officer.** The regional administrator shall appoint a peace officer employed full time to be the chief law enforcement officer and to be responsible for the management of the metropolitan transit police. The chief law enforcement officer shall possess the necessary police and management experience to manage a law enforcement agency. The chief law enforcement officer may appoint, discipline, and discharge all transit police personnel. All police managerial and supervisory personnel must be full-time employees of the Metropolitan Transit Police. Supervisory personnel must be on duty and available any time transit police are on duty. The chief law enforcement officer may not hire part-time peace officers as defined in section 626.84, subdivision 1, paragraph (d), except that the chief may appoint peace officers to work on a part-time basis not to exceed 30 full-time equivalents. A part-time officer must maintain an active peace officer license with the officer's full-time law enforcement employer.

Subd. 4a. **Exception.** Subdivision 4 does not apply to part-time officers employed by the Metropolitan Council Transit Police prior to January 1, 1998, who were full-time employees of another police department upon the date the officer was hired by the Metropolitan Council Transit Police and who subsequently voluntarily separated from the full-time position before January 1, 1998.

Subd. 5. **Emergencies.** (a) The council shall ensure that all emergency vehicles used by transit police are equipped with radios capable of receiving and transmitting on the same frequencies utilized by the law enforcement agencies that have primary jurisdiction.

(b) When the transit police receive an emergency call they shall notify the public safety agency with primary jurisdiction and coordinate the appropriate response.

(c) Transit police officers shall notify the primary jurisdictions of their response to any emergency.

Subd. 6. **Compliance.** Except as otherwise provided in this section, the transit police shall comply with all statutes and administrative rules relating to the operation and management of a law enforcement agency.

Maalen - 9



THE TRANSIT WORKER & PEDESTRIAN PROTECTION ACT



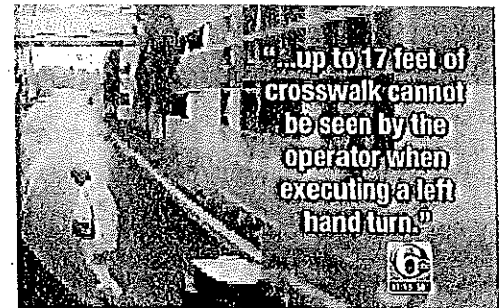
Transit Worker Attacks

Every year, thousands of transit bus and rail workers are assaulted in the course of performing their duties. Many of these brutal attacks occur while massive buses are rolling down the street, placing pedestrians, bicyclists, and other motorists in grave danger. Passengers are tired of paying increased fares for less frequent service, so quite often they take out their frustrations on the drivers -- the neighborhood tax collectors. Other disputes occur when operators simply enforce safety regulations. Mental illness is also an issue in many cases. Some incidents

happen for no reason at all, as juveniles act out on the bus just for laughs. There is no excuse for any of it. Weapons vary. Some drivers get punched or kicked. Others are stabbed or strangled from behind. Some offenders spit, or throw steaming hot coffee or urine in the face of the operator.

Blind Spots

Massive mirrors and left side pillars on transit buses make it impossible for bus drivers to see what they need to see to safely make it through crosswalks. These bus components create blind spots that obstruct the driver's view. Bad bus engineering guarantees needless tragedies. Despite knowing the risks, transit systems from coast to coast continue to order these **massive mobile manslaughter machines** and put them on the road, and innocent people are being run over and killed as a result.



Ergonomics

Most bus operators who have been on the job for a while suffer from back, neck, knee, or shoulder injuries because they perform the same functions day after day in poorly engineered work stations. Drivers' seats cause wear and tear on bus operators' bodies. Other equipment is not ideally located, causing muscle strains that are often irreversible.

The Transit Worker and Pedestrian Protection Act

The Transit Worker and Pedestrian Protection Act (S. 436/ H.R. 1139) requires transit agencies to develop Bus and Rail Operations Safety Risk Reduction Programs to improve safety by preventing assaults on transit workers, reducing the number of bus accidents due to blind spots, and making changes to the bus drivers' workstation to reduce ergonomic injuries. The bill requires transit agencies to work with frontline workers and their unions to implement safety improvements, including:

- Assault mitigation infrastructure and technology, including barriers to prevent driver assaults.
- De-escalation training for bus drivers.
- Modified bus specifications and retrofits to reduce visibility impairments.
- Driver assistance technology that reduces accidents.
- Installation of bus driver seating to reduce ergonomic injuries.

The bill also requires transit agencies to report all assaults on transit workers to the U.S. Department of Transportation, not just those that require immediate medical assistance.

Please support and work to pass the *Transit Worker and Pedestrian Protection Act!* For more information, please contact Jeff Rosenberg in the Amalgamated Transit Union (ATU) Government Affairs Department at (202) 309-4108 or rosenberg@atu.org.

Macon - 9

**COUNTY OF MILWAUKEE
INTEROFFICE COMMUNICATION**

DATE: August 11, 2016

TO: Michael Mayo, Sr., Chairperson, Transportation, Public Works & Transit Committee

FROM: Brian Dranzik, Director, Department of Transportation

SUBJECT: Transit Operations, Workers Compensation, Family Medical Leave and Employee Morale

POLICY

The Chairperson of the Transportation, Public Works and Transit Committee requested a report on transit operations, Worker's Compensation, Family Medical Leave and employee morale.

BACKGROUND

The Milwaukee County Transit System (MCTS) employs over 1,000 individuals, many of which are represented by the Amalgamated Transit Union (ATU) Local #998, and to a lesser extent the Office Professionals Employees International Union (OPEIU) Local #35. The majority of employees (750) are bus operators, who report to work at three different transit stations or depots. MCTS also employs a large number of mechanics (165). Rules and regulations pertaining to work performed by represented staff are negotiated and made available to each employee.

MCTS Management understands the importance of being supportive of all employees especially the front line workers that interact with our customers, and maintain the large fleet of transit vehicles. Transit employees are called upon to work long hours when situations demand it. MCTS operates through snow storms, and provides a respite for residents forced from their homes during building fires, as well as takes thousands of passengers to and from Brewers Games, State Fair and the Maier Festival Grounds during each day of the world's largest music festival and the many other lakefront festivals.

Transit Operations

Our employees feel a strong commitment to serve the community in which they live. We operate 365 days a year, nearly 24 hours each day. Our fleet of over 400 buses travel over 18 million miles each year, serving 39 million passengers with a supply of 1.4 million annual bus hours of service.

The mission of MCTS is to provide reliable, convenient and safe public transportation services that efficiently and effectively meet the varied travel needs of the community and contribute to its quality of life. Being a mission driven organization helps our employees maintain high

Macon-9

expectations for quality delivery of customer services, reliability, and safety in operations. Since hundreds of transit buses are in operation every day, accidents involving vehicles occur about once each 50,000 miles. Often these accidents are caused by other drivers. When an accident does occur that results in injury to an employee, we closely follow Worker's Compensation rules established by the State of Wisconsin.

Worker's Compensation

In 2015, MCTS followed Milwaukee County's lead and contracted with County Mutual as a third-party administrator of Worker's Compensation. Injured employees report incidents to a claim adjuster with County Mutual. There are about 7 new cases each month resulting in 80 to 90 claims per year. A claim adjuster reviews each case carefully, engages medical expertise when necessary, and renders a decision regarding compensability following best practices in the Worker's Compensation industry. Medical experts can be called in for a second opinion, and surveillance may be used when situations arise that warrant such action.

Denials occur, but are rare. Only about 10% of alleged work related injuries are considered non-compensatory. Complaints from employees about County Mutual have occasionally been filed with MCTS. Investigations of these complaints has identified disagreement about the compensability of an injury as the primary source of discontent.

Family Medical Leave

Sometimes an employee is injured or becomes ill outside of work. If the injury or illness is considered a serious medical condition an employee can request to be absent from work under protections afforded by the Family Medical Leave Act (FMLA). Under FMLA, an employee can be excused from work for up to 12 weeks each year for their own serious medical condition or that of a relative.

In January 2016, MCTS entered a contract with FMLA Source to assist us in managing family medical leave requests. Family medical leave can be taken for a specified period of time, such as the duration needed for an employee to recover from a broken bone or surgery. Under FMLA, intermittent leave is also available for episodic illnesses, some examples of which include migraine headaches, asthma attacks, etc. When an employee is ill and unable to work, we require the employee to notify their supervisor so that we can assign their work to a substitute operator. We also require that the employee contact FMLA Source, when applicable so that they can keep track of an individual employee's approved leave from work.

Transitioning to FMLA Source earlier this year was not without its difficulties. The business of transit is different from that of many of the other customers of FMLA Source. For example, we have rotating days off, and daily work assignments that can include split shifts or runs that are routinely longer than 8 hours. FMLA Source has been modifying their systems to help root out errors in the records that they are maintaining for MCTS and its employees.

As an employer, MCTS should know when an employee is unavailable from work, the reason for an employee's absence, and when the employee expects to be able to return to work. MCTS

continues to communicate this expectation with its employees. MCTS has asked for assistance from ATU in communicating this fact with their members and other call-in changes. A special training session was provided at the union hall for ATU officials back in March 2016.

Employee Morale

Working in a large organization can be difficult. Employees can feel like they are disconnected from the organization because of its size, and miss the personal interaction that is more readily available at smaller employers. Building and maintaining morale is an important job for middle managers. In turn, they need the support of upper management to be effective. In 2016, MCTS has taken steps to provide support of middle managers and their direct reports, our front line workers. A key to these efforts and each of the following initiatives is communication.

Mentoring

MCTS managers know that being an operator can be challenging, especially for younger, less experienced individuals. We value our employees and want them to be happy and satisfied with their chosen career. Based upon the recommendation of a station supervisor, select new employees that are the subject of progressive discipline have been afforded an opportunity to retain their employment provided that they participate in routine check-ins with their supervisor and/or other long-time transit managers (mentors) with many years of experience, both behind the wheel of a bus, and as leaders in the organization.

MCTS mentors know that individual support may be necessary to help an employee balance demands placed on them by work and family. Mentors convey an understanding of the pressures that can be on a new employee, while also emphasizing the value of a stable job with a family supporting wage. Mentoring is private and structured to meet the specific needs of the individual. MCTS is proud of the mentoring program and view it as a reflection of the resources that we are committed to making available, if needed.

MCTS Excellence

The vast majority of bus operator do an excellent job. They build a successful career for themselves in transit. Excellent employees value the position, understand that they can have a positive impact on the community each and every day and put the needs of their passengers first. This service oriented approach to a career results in about 800 commendations from riders/public each year. In turn, MCTS management acknowledges a job well done with written commendation letters customized to each individual good deed and hand-signed by the Managing Director or Chief Operations Officer. Occasionally, we have shared the good deeds of bus operators with local media and on social media, which helps to further demonstrate the value of transit to the larger community.

By highlighting examples of MCTS excellence, the organization is focusing on providing support for good employees rather than focusing too many of our efforts on disciplining poor performers. However, we need to also continue to acknowledge that when truly excellent employees witness a very small percentage of operators bending the rules to their own benefit, and not being held

accountable for their attendance, safety and customer service, it negatively impacts the morale of the vast majority of the work force. To help build and maintain morale, MCTS management has a responsibility to hold employees accountable.

Communication plays a big role in how we interact with employees. From one-on-one informal interaction between an employee and their supervisor, to written letters of commendation, it is important to communicate with our employees about the good job that they are doing. One of the more formal ways in which we communicate with employees is through an annual performance review.

Annual Performance Review

MCTS asks that its bus operators participate in an annual performance review so that they can understand where they are doing well and the areas in which they may need to improve. Some operators refuse to meet with their supervisors, and express no interest in where they may improve. Many times, these are the employees that have been disciplined over and over again for the same type of infraction. These individuals have demonstrated that they are unable or unwilling to change and improve their performance. To lift morale for the majority of employees, MCTS may exercise job-ending actions that ultimately help these individuals to find a career that is more to their liking.

Re-Connect Program

At times, MCTS will demonstrates its support for operators by reaching out in a proactive and positive manner. Recently, MCTS began to hold re-connect meetings at which new and veteran operators from all three stations are brought together to share ideas, help each other manage their careers effectively, and hopefully gain more satisfaction from their jobs in transit.

These meetings provide bus operators with an opportunity to talk about their challenges, concerns, and how we as an organization can help support them better. Re-connect helps to send the message that MCTS management is not just here to discipline them, rather we are here to support the work that they do on the front lines each day. These sessions began in June 2016 and have been very successful. Employees are engaged in the process and conclude each session with very positive reviews of the facilitators (MCTS managers) and the program as a whole.

Critical Incidents Response Program

This year, MCTS established a program to help operators deal with and better understand traumatic events they may have experienced while on the job. Station personnel from all three stations have been carefully selected to reach out to operators that have unfortunately been exposed to a difficult incident/event while on the job. MCTS Management want operators to know that they are not alone and that many of the staff here understand what they're experiencing.

Critical Incident Responders will call on a regular basis just to check-in with operators that may need someone to talk to after a serious incident. The responders are just there to listen. They understand that an Employee Assistance Program (EAP) is available for more advanced support if

needed but prefer to provide support for their co-workers through informal, supportive, interaction and communication.

Training and Employee Development

A more traditional way in which MCTS supports its employees is through training and development. This is especially true in the Maintenance Department where the near constant evolution of buses and on-board equipment and technology requires a commitment to learning. There are many eager learners among the ranks of MCTS mechanics, and managers foster this desire to learn by conducting in-house training sessions, and by bringing in vendors and industry experts to train staff in the latest techniques, tools and equipment. The more our employees know, the more empowered they are to trouble-shoot problems, and make good decisions about solutions that aid in keeping transit service highly reliable to the public.

In Conclusion

MCTS is a large employer that takes a mission driven approach to motivating its workforce. As an organization we strive to providing transit services that are reliable, convenient and safe. MCTS managers value a high level of communication with our employees. We strive to be supportive of employees that have chosen a career in transit. We owe it to our excellent employees to hold under-performers accountable for doing a poor job. MCTS managers can be mentors, and good listeners as we strive to improve the organization as a whole through empowering our employees. Simply put, we value our employees and recognize that our success as an organization is highly dependent upon their success as individuals in their chosen career in transit.

RECOMMENDATION

This Report is for Informational Purposes Only.

Prepared by: Dan Boehm, Managing Director, MCTS

Approved by:

Brian Dranzik
Director, Department of Transportation

cc: Chris Abele, Milwaukee County Executive
Theodore Lipscomb, Sr., Chairman, County Board of Supervisors
Kelly Bablitch, Chief of Staff, County Board of Supervisors
Raisa Koltun, Chief of Staff, Milwaukee County Executive
Chris Abele



AMALGAMATED-TRANSIT UNION

LOCAL 998 • AFFILIATED WITH AEL-CIO

734 North 26th Street Milwaukee, WI 53233 (414) 342-4300 Fax: (414) 342-1998

June 27, 2019

County Board of Supervisors
Milwaukee County Courthouse
901 North 9th Street, Room #201
Milwaukee, WI 53233

JAMES MACON
President

MICHAEL BAUTCH
Vice President

JOHN GROH
Financial Secretary
Treasurer

CASSANDRA COBB
Recording Secretary

Dear Supervisor:

This is a follow-up of my letter addressed to you, dated June 13, 2019, which indicated my disappointment of MCTS's Bus Security Study. After doing my research on bus security, I enclosed a copy for your information. The Union is prepared to work on a bus security plan that does not include the "armed" bus drivers' proposal. Therefore, the Union will keep the "armed" bus drivers' proposal on the table, until a solution can be mutually agreed on by ATU Local 998 and Milwaukee County Transit System.

Milwaukee County Transit System has 43 private security firms. The Union suggests converting 21 of those firms to serve as "transit police" with arrest authorities. This could be simplified through the Sheriff's Department by deputizing the transit police. In doing this, it will take "all" security control from Milwaukee County Transit System.

I have enclosed information concerning how the bus security can be handled, which includes the bus driver's area completely enclosed, and bus drivers who carry Mace or a Taser.

Sincerely,

James Macon
President
Amalgamated Transit Union, Local 998

Enclosures:

Macon - 9



AMALGAMATED-TRANSIT UNION

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734 North 26th Street Milwaukee, WI 53233 (414) 342-4300 Fax: (414) 342-1998

9

JAMES MACON
President

MICHAEL BAUTCH
Vice President

JOHN GROH
Financial Secretary-
Treasurer

CASSANDRA COBB
Recording Secretary

July 10, 2019

Milwaukee County Board of Supervisors

901 North 9th Street, Room 201

Milwaukee, WI 53233

Dear County Supervisor,

As you know, Amalgamated Transit Union, Local 998, the Union representing bus operators and mechanics employed by Milwaukee Transport Service (MCTS), has been working without a new collective bargaining agreement since April 1, 2018. Although both sides have agreed to work under the terms of the expired agreement (per existing contract language), it has become clear that Milwaukee Transport Service, along with the Milwaukee County Executive's Office, have used policy implementation and deceitful tactics to circumvent the negotiations process. This includes, but is not limited to, the following:

Attempted changes in sick day policy.

Milwaukee Transport Services negotiating with employees directly, not the Union Officials.

Changes to Employee Retirement Contributions against Union objections.

Forcing the Milwaukee County Insurance Plan, including an insurance co-pay, on the union without involving collective bargaining.

Therefore, ATU998 is formally requesting that the Full Milwaukee County Board suspend any future funding for the East-West BRT and MCTS NEXT until a new collective bargaining agreement is in place. We are also weighing the option of contacting the Federal Transportation Administration and the United States Department of Labor with our concerns for any possible violation of 49 U.S.C. Section 5333(b).

Sincerely,

James Macon

President, ATU998

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