



Information on Crosswalks



*Why are there not marked crosswalks at every intersection?
Will I get a ticket for jaywalking if I cross at an intersection without a crosswalk?
Isn't it safer to cross the street with a marked crosswalk than an unmarked crosswalk?
Doesn't traffic have to stop for me if I am at a crosswalk but have not started crossing?*

What is a Crosswalk?

Crosswalks are considered part of the roadway used to channel pedestrian traffic safely across the roadway. Crosswalks can be both marked and unmarked. Nevada Revised Statute (NRS) 484A.065 defines a crosswalk to mean "1. That part of a highway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or, in the absence of curbs, from the edges of the traveled portions of highways; or 2. Any portion of a highway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface." (NRS 484A.095 defines any public road as a highway.) Accordingly, a legal crosswalk exists at all public street intersections whether marked or unmarked. However, the only way a crosswalk can exist at a mid-block location is if it is marked. Clark County uses the "bar pattern" as shown above to mark crosswalks in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

How are Crosswalks used?

At marked and unmarked crosswalks, motorists must yield the right-of-way to pedestrians that are in the crosswalk when the pedestrian is upon the same half of the roadway the motorist is on (NRS 484B.283). Crosswalks are marked to define the location where pedestrians can legally cross and to delineate the pedestrian path crossing the road. Pedestrian crossing safety relies on the judgment exercised by pedestrians and drivers; therefore, educating pedestrians and drivers is essential in providing for a safe operation.

Collisions at marked Crosswalks

Research indicates that on multi-lane streets with more than 12,000 vehicles per day, pedestrian collisions are higher at marked crosswalks versus unmarked crosswalks at uncontrolled locations especially on higher speed roadways. This appears to occur because pedestrians believe and expect a motorist to stop for a pedestrian in a crosswalk. However, drivers frequently fail to stop and a collision results. Another frequent factor in pedestrian crosswalk collisions is when the driver of a vehicle in the lane nearest to the curb stops for the pedestrian that is crossing in a crosswalk. This will sometime block the visibility of the pedestrian to another motorist in the lane next to the stopped vehicle and the motorist passes the stopped vehicle and hits the pedestrian. **Pedestrians should always be very cautious when walking in a crosswalk, especially when their visibility is limited by a vehicle already stopped at the crosswalk. At all crosswalks, both marked and unmarked, it is the pedestrian's responsibility to be cautious and alert before starting to cross the street.**

School Crosswalks

Marked crosswalks for school aged pedestrians follow somewhat different criteria. Crosswalks are marked to provide a walking path and to concentrate the area where school aged pedestrians must cross at uncontrolled crossing locations. Crosswalks are not installed for school bus or public transit bus stop locations. The best safety measure is to educate children on how and where to safely cross the street.

Want More Information?

This flyer is for general purposes only. For more information, please contact the Clark County Department of Public Works, Traffic Management Division at (702) 455-6000 or email InTheWorks@ClarkCountyNV.gov.

NOTE: The **MUTCD** is used throughout the country as the standard by which traffic control decisions are made. Nevada Revised Statute 484A.430 and County Code 14.12.070 require the County to use the **MUTCD** for placement of all traffic control devices. The complete **MUTCD** can be found at: <http://mutcd.fhwa.dot.gov/pdfs/2009/pdf-index.htm>



Information on Traffic Safety Myths



What is a Myth?

A myth is an idea that forms part of the beliefs of a group but is not founded on fact. However, through many years of gathering facts on impact to traffic control devices and law, actions based on facts rather than myths can improve traffic flow and safety. What some citizens may perceive as a difference of opinion is in reality myth vs. factual evidence.

Myth

Changing a speed limit sign will significantly change the speed at which people drive.

Crashes occur with a greater frequency as the speed limit is increased.

Marking crosswalks with lines and signs will improve safety.

Wearing white at night makes you more visible to drivers.

A green light means it is safe to cross the street

The installation of a traffic signal will always improve safety.

(over)

Fact

Most drivers drive at a speed they consider reasonable and comfortable regardless of the posted speed limit. "Before and after" studies have shown that there is no significant change in speeds following the posting of a revised speed limit. This is true whether the speed limit is increased or decreased. Speed limits provide notice to drivers of the maximum speed limit on a roadway and are an enforcement tool to assist law enforcement in separating violators from the reasonable majority.

Crash frequencies have little relationship to the posted speed limit. However, severity may be impacted. In essence, a person driving significantly slower or faster than the majority of the other drivers is at a greater risk of being involved in a crash regardless of the speed limit. This is why law enforcement officers are concerned about enforcement of all speed limits.

At locations away from STOP signs or traffic signals, crosswalks are typically not marked. It has been found that marking crosswalks at such locations away from STOP signs and traffic signals increases the potential for incidents. Often pedestrians will assume the crosswalk provides significant protection and they are less cautious in crossing the street.

Even if you wear white clothes, drivers will have a hard time seeing you at night. Pedestrians should wear reflective clothing, carry a flashlight, walk facing traffic, and continue to assume drivers will not see them.

Whether walking or driving, a green light does not guarantee that vehicles will see you or yield to you. A green light should be considered as "permission" to cross, but only after carefully looking for potential conflicts. Look Left-Right-Left for vehicles. When clear, cross and stay observant.

Some types of crashes (such as right angle or broadside types) may be reduced in frequency with the installation of a traffic signal. However, other types of crashes (such as rear-end types) may increase with the installation of a traffic signal. When one street serves a much greater number of vehicles than the crossing street, the potential for an increase in the frequency of traffic crashes is higher. Other potential negative impacts may result when a traffic signal is installed when not justified.

(over)

Traffic signals are only installed when fatal or severe crashes have occurred.

If a traffic sign is posted, then almost all drivers will obey the sign.

Parking on the street is a driver's right.

If the pedestrian sees the driver, then the driver sees the pedestrian.

Persons may hear of one incident, especially if a fatality occurs, and conclude that a traffic signal should be installed. Traffic signals do not necessarily reduce the frequency of crashes. In any case, making significant conclusions from a single or few incidents, especially without knowledge of the actual crash causes, will result in incorrect actions. If traffic signals were only installed when a fatal or a severe crash occurred, many times they would make no sense. For example, a driver under the influence of alcohol may run into a pole in the middle of the block. A traffic signal would not be appropriate in such a situation.

The vast majority of traffic signals are installed without a fatal crash first occurring. However, actions, which result in fewer traffic crashes, are rarely recognized. There is seemingly no impact of a traffic crash not occurring. There is no evidence, claim, court case, or media attention related to a particular crash when the incident is prevented.

If a sign is not reasonable, a large percentage of drivers will ignore it. Therefore, signs should have a clear purpose and be installed base on engineering experience. Unreasonable signs result in disrespect for the signs and law enforcement officers that attempt to enforce them. In addition, unreasonable signs may create poor driving habits in the public. For example, if a STOP sign is placed where it is unjustified and drivers will violate it, then drivers may carry this poor practice to other locations where it is crucial to stop.

There is no right of any person to park a vehicle on a public street. On-street parking is a privilege and recognized to be a convenience in many situations. However, when the parking of a vehicle begins to significantly impact traffic flow, sight visibility, or safety, the parking privilege may be restricted. Typically, the more traffic a street serves, the greater the need to restrict parking. In new commercial development areas, parking is always restricted on the streets.

The driver may not see you. Make certain the driver sees you and stops before crossing in front of a vehicle. Try to make eye contact with the driver and cross at intersections.

[Want More Information?](#)

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April 2012



Information on No Parking



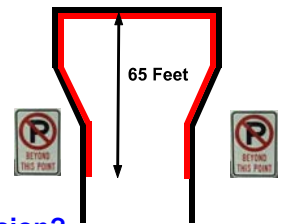
*Why can't I park in my cul-de-sac? How do I get NO PARKING signs on my street?
Can I get a Handicap parking place in front of my residence? Can I paint my curb red or blue to restrict parking?*

Parking

Parking on public roads is a privilege and may be eliminated at anytime without notice. Public roads are those roads and streets maintained by Clark County within the unincorporated areas of Clark County. Parking is normally allowed on most residential streets except near fire hydrants, in front of driveways, and at intersections. Parking is normally prohibited on the public streets along the frontages of apartment/condos complexes and the public streets in commercial areas. Commercial business and apartment/condo complexes are required by zoning codes to have sufficient on-site parking for employees, residents and visitors.

Why can't I park in my cul-de-sac?

Cul-de-sacs come in two versions, the round end type and the "hammerhead" flat end type. Parking is normally allowed in round end type. Parking is always restricted in the hammerhead type for the first sixty -five feet as shown in red in the drawing. This is to allow for emergency vehicle and service vehicles access to the properties located on the end of the cul-de-sac.



Why did the County post NO PARKING in my cul-de-sac in my new subdivision?

Chances are that the County did not. All developers must follow County requirements to post NO PARKING signs in the hammerhead type of cul-de-sacs. The County does not require the signs be installed until the developer wants the County to accept the roads for maintenance. The developer then installs the signs and requests the County to inspect and accept the roadways. The County will repost the NO PARKING signs on any hammerhead type cul-de-sacs where the signs have been removed after the streets have been accepted.

Can I get a waiver to not have the NO PARKING signs on my cul-de-sac?

No, the County does not issue waivers for safety required traffic control devices.

How do I get NO PARKING signs on my street?

Clark County Traffic Management will review the request and determine if the parking restriction is need for safety reasons. If a safety reason exists, NO PARKING signs will be installed in the area where they are needed.

Can I get a Handicap parking sign installed in front of my residence?

Clark County does not restrict any on street parking for handicap use, as most locations would not be ADA accessible as required by law.

Can I paint my curb red or blue to restrict parking?

No, all parking restriction in the unincorporated areas of Clark County must be signed by the County. Curb painting has no restriction in County Code or State Law. Curbs painted by fire hydrants indicate the area restricted by State Law on parking near a fire hydrant. Curbs found painted will have the painting removed.

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Department of Public Works

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Denis Cederburg, P.E.
Director of Public Works and County Engineer

ABOUT PUBLIC WORKS

Public Works is one of the largest departments within Clark County government. Under the general direction of the Board of County Commissioners and the County Manager, the department is responsible for administering specific portions of the following ordinances:

- Title 5 - Franchises (Right-of-Way Management)
- Title 14 -Traffic
- Title 16 -Roads and Highways (Permitted Roadway Uses)
- Title 30 -Unified Development Code

The Department of Public Works delivers a wide range of services to the community including the design, construction, inspection and maintenance of essential road and infrastructure such as roadways, bridges, traffic control devices, flood control facilities and trails and is responsible for the proper stewardship of revenues expended for these purposes.

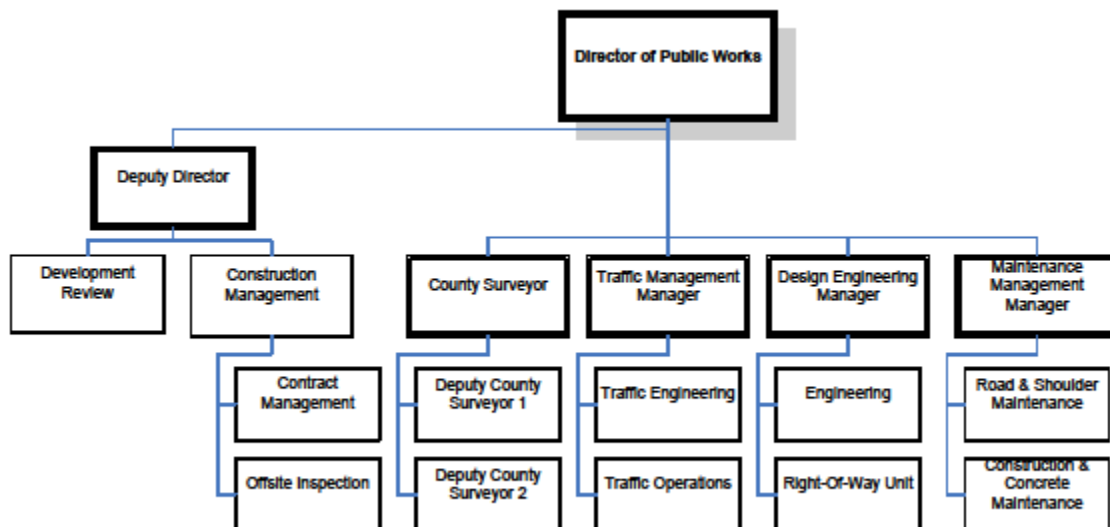
Contact us

Clark County Government Center
500 S Grand Central Pky - 2nd Floor

Telephone: (702)455-6000
Email: InTheWorks@ClarkCountyNV.gov
Website: www.ClarkCountyNV.gov/PubWorks

Divisions

The Public Works Department is comprised of the Director's Office and six individual divisions including:



ABOUT PUBLIC WORKS

The primary functions of our department involve the design, construction, inspection and maintenance of essential public infrastructure consisting of:

- Local, collector, and arterial **roadways**, the Clark County 215 Bruce Woodbury Beltway and **curbs, sidewalks and medians** in public rights-of-way including the "Welcome to Fabulous Las Vegas" Sign median & parking lot.
- Structures such as retaining walls, bridges, shared-use and **pedestrian bridges** including those located on Las Vegas Boulevard from Flamingo Road to Spring Mountain Road.
- Flood control facilities including multi-purpose regional **detention basins** and **wash channels** with recreational parks and **trails**, as well as **storm drain** systems to mitigate local area drainage issues.
- Traffic control and safety signage, pavement markings such as **crosswalks** and lane striping, **school flashing beacons, street lighting** and **traffic signal** operations.
- Technical review, permitting and inspections of **developer off-site improvement plans** to ensure infrastructure is built to County Code and standards are met.
- General **permits and inspections** for encroachments on County right-of-way.
- **Vector control** to abate bees, weeds and other pests as well as provide pest control for County building and in County right-of-way.
- **Newsrack permitting** per County Code Chapter 16.08, regulation of newsracks within the H-1 zoning district. Permits are issued annually through a lottery process.
- **One-Call** location services as part of the national 8-1-1 Call Before You Dig program to identify storm drain lines.
- **Special event** permits as required to conduct an event that may affect the normal flow of vehicular and/or pedestrian traffic on public right-of-ways.

Accreditation

Clark County Public Works received national accreditation by the American Public Works Association for our compliance with recommended public works management practices. The American Public Works Association created the accreditation process to assist public works agencies with improvement of their operations and management, to provide education and training of public works professionals, and to provide a valid and objective evaluation of agency programs. Clark County Public Works was the first such agency in the State of Nevada to be given this honor and remains one of only two in the state.

HIGHLIGHTS & ACCOMPLISHMENTS

Completed Construction in 2012

- 25 total projects valued at \$80.9 million in construction dollars
- Managed 11 ongoing maintenance contracts for pedestrian bridges, flood control facilities, beltway landscaping and various median landscaping and traffic control devices such as signs and lighting.

Contracts Awarded in 2012

- 17 professional services contracts totaling approximately \$6.4 million
- 20 construction contracts totaling more than \$26 million.

Traffic Management & Operations

- 6 traffic signal systems activated in 2011 & 2012
- 172 four-head signal displays with flashing yellow arrows replaced and activated to improve safety at left-turn movements.
- 160+ traffic studies completed including those for stop signs, traffic signals, pedestrians and speed.
- More than 8,200 streetlight repair work orders completed.
- 133 Special Event Permits and 140 Film permits approved so far in 2012.

Project Progress in 2012

- Started construction on 1-215 Beltway Airport Connector, Phase 1
- Widening of CC-215 Beltway up north from Tenaya to east of Decatur.
- Continued work on the construction of Sunset Road at the Union Pacific Railroad
- Completed construction on Sunset Rd, Valley View to Las Vegas Blvd as part of NDOT's I-15 South Design-Build project.

2013 FORECAST

Anticipated Construction Completion

- 37 projects with an estimated construction value of \$64.9 million
- 6 recreational projects valued at an estimated \$20.9 million funded by the Southern Nevada Public Lands Management Act including:
 - Wetlands Park Nature Preserve Trail Enhancements
 - Bunkerville Trail
 - Duck Creek Trail, Wetlands Park to Nellis Blvd
 - Wetlands Park Trails Program, Phase 2
 - Wetlands Park Duck Creek Trailhead

Anticipated Project Construction

- 57 contracts scheduled to advertise for bids with an estimated construction value of \$252.9 million include the following projects:
 - I-215 Beltway Airport Connector, Phase 2
 - Northern CC-215 Beltway, Decatur to North 5th Full Improvements
 - Convention Center Drive Reconstruction
 - Las Vegas Welcome Sign Median Parking Lot Improvements

Traffic Management Project Progress

- 3 new traffic signal systems will be constructed and activated
- Phase 2 of the Flashing Yellow Arrow Project
- Complete Fiber Optics installation on Russell Rd and Tropicana Ave
- Begin Fiber Optics installation project on Las Vegas Blvd and Warm Springs Rd.

TRANSPORTATION PLANNING

Designated under federal law as the Metropolitan Planning Organization, the Regional Transportation Commission (RTC) is responsible for overseeing the transportation planning process for Southern Nevada. The Regional Transportation Plan (RTP) is a long-range transportation plan that describes the regional strategic transportation investments expected to be completed in Southern Nevada over the next 20 years. The Transportation Improvement Plan (TIP) identifies regionally significant roadway, transit, bikeway, and pedestrian safety transportation improvement projects to be funded over a 5-year period. The RTP and TIP are developed in cooperation with the U.S. Department of Transportation, Nevada Department of Transportation, Clark County, and the cities of Boulder City, Henderson, Las Vegas, North Las Vegas and Mesquite. The RTP and TIP are available on the [RTC website](#).

The [Clark County Transportation Element](#) is intended to provide information to the public on future transportation needs in the context of projected growth and development. Pursuant to Clark County Unified Development Code, Title 30 provides for the dedication of a 100-foot right-of-way on each section line, an 80-foot right-of-way on each quarter section line, and a 120-foot right-of-way on township and range lines. This “grid system” of roadways serves as the “historic” plan for the Las Vegas Valley road network. New streets are built in accordance with a functional classification system of streets and highways. Functional class encompasses all categories of roadways from freeways that carry high volumes of traffic from one region to another, to local roads that provide access to individual parcels of land.

The transportation portion of the [Capital Improvements Program \(CIP\)](#) is designed to fulfill the County’s mission to provide a quality transportation system at the right time and cost. The CIP is defined as a schedule for future improvements over a specific timeframe, together with cost estimates and anticipated fund sources. The priority of projects is normally defined by the year of implementation (i.e. first year projects generally are higher priority than year 5 projects). The transportation portion of the CIP is approved annually by the Board of County Commissioners.

FUNDING SOURCES

Clark County meets its transportation infrastructure needs primarily by constructing improvements with federal, state and local funds. Funding may be derived from a number of sources including Master Transportation Plan (MTP) bonds, equity funding such as the one percent motor vehicle privilege tax (MVPT), and state or federal grants like the Southern Nevada Public Land Management Act (SNPLMA) –a distribution of funds to support the development of parks and trail improvements in Southern Nevada.

Fair Share Transportation Funding Program

In November 1990, voters approved an advisory ballot question that was subsequently enacted by the 1991 Nevada State Legislature as Senate Bill 112. This bill authorized the County to implement a "fair share" tax program to support roadway improvements and mass transit throughout the Las Vegas Valley. Clark County Public Works receives project funds from the following four revenue sources:

Plan Element	Revenue Sources	Nevada Revised Statute (NRS)
Resort Corridor	One percent Room Tax	244.3351
Beltway	One percent Motor Vehicle Privilege Tax	371.045
Beltway	Development Tax	278.710
Arterial Streets	Nine cent Motor Vehicle Fuel Tax (administered by RTC)	373.030

A November 2002 voter-approved advisory question, and approval in May 2003 by the Nevada State Legislature, provided the state and county governments with the authority to raise an additional \$2.7 billion over the next 25 years by doubling the development tax over 20 years and increasing sales tax by one quarter of one percent. This additional funding will be used to help fund beltway widening (which is already carrying more than its design capacity in some stretches) along its entire length, with the capability for future expansion to ten lanes.

The principal revenue source for the beltway project is one percent supplemental Motor Vehicle Privilege Tax, and a new development tax currently at \$700 per residential unit and 75 cents per square foot of commercial construction.

- **Senate Bill 5 (SB5) & Question 10 (Q10):** SB5 was passed during the Nevada Legislature's 2010 Special Session to allocate additional streets & highways funding to the RTC from the Petroleum Clean-up fund. SB5 also allowed Legislature to lift the sunset on a temporary sales tax increase that was passed by voters in 2003 – the Clark County Advisory Question No. 10 (Q10): Fair Share Transportation Funding Program. These funds are used to rehabilitate pavement on a number of urban and rural roadways in Southern Nevada, project information is available on the [RTC website](#).

Resort Corridor Improvements

The easing of traffic congestion in resort areas, particularly the Resort Corridor (centered around the portion of Las Vegas Boulevard from Sahara Avenue to Russell Road), is critical to the continued economic health and stability of Clark County's tourism industry. The collection of **one percent room tax** is allocated to Resort Corridor projects. To date, more than **\$400 million** of the available resources have been applied to actual construction, with the balance dedicated to debt service costs and reserves. **Projects on Desert Inn Road, Harmon Avenue, Paradise Road, Sunset Road, and Valley View Boulevard** are considered the highest priority projects for available funding.

FUNDING SOURCES

Road Maintenance Fund

Although the emphasis on new roadway construction may appear to overshadow other arterial improvement efforts, the County is equally committed to maintaining and repairing existing streets, particularly those in older neighborhoods. Consequently, pavement rehabilitation, gravel road paving and street sweeping programs are ongoing in both rural and urban areas of the County. In accordance with Nevada Revised Statute (NRS) Chapter 365, Sections 180, 190, and 192, Clark County receives a **share of 6.35 cents per gallon of gas** sold in Nevada. This amounts to approximately **\$24 million** per year. According to the governing law, all of this money must be spent on road maintenance. Currently, Clark County does not receive any share of the Special Fuels tax. Special fuels include diesel, propane and methane.

Gas Tax Revenue Example			
Clark County		NDOT	
\$23.6M	Portion of 6.35¢ share per gallon	\$89.9M	17.65¢ per gallon
\$0	Special Fuels	\$79.6M	Special Fuels
2500*	Centerline miles maintained countywide	5601*	Centerline miles maintained statewide
\$9,436*	Per mile**	\$49,898*	Per mile**

* Estimated amounts from FY2009

** Centerline miles do not account for road widths and multiple lanes maintained

Special Improvement Districts (SIDs)

Through the Consolidated Local Improvement Law (Chapter 271 of the Nevada Revised Statutes) counties, cities and towns are allowed to form SIDs for the purpose of acquiring, improving, equipping, operating, and maintaining specific projects within their jurisdictions. These Districts were established as a tool to finance local public improvements at a lower rate of interest than conventional loans. **Projects include improvements to streets, curbs and gutters, sidewalks, streetlights, and driveways.** Property owners within a defined district are assessed for their benefited share of the improvements. The Special Assessment Capital Construction Fund accounts for various municipal bond proceeds used for the construction of improvements within the established County Special Improvement Districts. *Projects constructed with SID funding include Durango Drive - 215 Beltway to Hacienda and Cleveland Avenue - Walnut to Gateway and locations in Mountain's Edge Master Planned Community.*

MAINTENANCE SERVICES

Traffic Control Devices: Maintenance & Operations

Traffic studies, engineering, maintenance and operations are a vital component of driver safety.

Traffic signals may be installed as part of an intersection improvement effort, as a component of a larger road project-- or by a private developer whose project is expected to generate traffic impacts in the immediate area. The participation level required of each developer is proportional to the incremental traffic impacts created by the new development. The average cost per signal is approximately \$350,000. Once traffic signal system projects are inspected and found to meet County Code, they are activated and accepted by the County for maintenance of operation by our **Traffic Signals Unit**.

Warranted traffic signals installed in accordance with Nevada Revised Statute 484.781 can provide the following benefits:

- promote the orderly flow of travel along major routes
- allow cross traffic to move with minimum delay and maximum safety
- reduce the frequency of certain types of accidents, such as right-angle collisions, and reduce vehicle emissions

In cooperation with the Nevada Department of Transportation (NDOT) and the Regional Transportation Commission (RTC), new four-head signal displays with **flashing yellow arrow** capability were installed at 172 signalized intersections in unincorporated Clark County. Inspection and activation was completed entirely by the County in-house traffic signal technicians in addition to their normal workload of maintaining more than 525 signalized intersections.

NDOT's decision to implement the flashing yellow arrow in Nevada was based on a national study conducted for the Federal Highway Administration demonstrated that the new indication helps to prevent crashes, increase intersection capacity and provides additional traffic management flexibility. [Please visit our website](#) for more information about the project and intersections impacted.

The **Streetlighting Unit** is responsible for the maintenance, upgrade and repair of streetlights and electrical service points throughout Clark County. Streetlight poles are replaced when severely damaged from accidents or when potential safety and liability problems exist due to deterioration. Clark County Public Works Traffic Management also provides streetlight maintenance services on state highways within Clark County through an intergovernmental agreement with Nevada Department of Transportation. In recent years, copper wire theft has been an ongoing concern costing millions in taxpayer dollars to replace.

The **Traffic Sign and Pavement Marking units** perform maintenance services on County road traffic control signs and pavement markings. These activities include the installation, repair, maintenance, and removal of traffic signs, street name signs and pavement markings; and the testing and evaluation of new traffic control materials and devices. The most common requests received is for the installation or removal of stop signs. A stop sign assists drivers and pedestrians to determine who has the right-of-way at an intersection. **Stop signs are intended to stop traffic, not control speeds.** In fact, traffic studies have indicated that accidents actually increase when stop signs are used improperly. A variety of other measures can be used to address local traffic issues such as limited parking near intersections to improve driver visibility and reduce accidents.

Citizens may submit a written request to Public Works via email (InTheWorks@ClarkCountyNV.gov) for repair; review of existing-- or to suggest new --traffic control devices in unincorporated Clark County. For issue with enforcement, such as speeding, please contact your nearest Las Vegas Metropolitan Police Dept substation for assistance.

MAINTENANCE SERVICES

Roadway & Flood Control Facilities Maintenance

Routine maintenance of roadways is essential, efficient and cost-effective to sustain streets in good condition. The following high-quality maintenance programs are aimed at extending pavement life and improving levels of road serviceability. In-house staff is coordinated to maintain more than 2500 lane miles of roadway.

- **Crack sealing** is the application of a liquid asphalt/rubber compound injected into cracks and voids in existing pavement. Pavement life is extended by preventing water and other extreme elements from entering and deteriorating pavement surfaces.
- **Pothole Patching** is a process routinely used to repair minor irregularities in pavement surfaces. These irregularities can cause hazardous conditions and, in most instances, require immediate attention.
- **Gravel Roadways** are maintained on more than 500 miles of native soil and gravel roadways in Clark County. The majority of these roadways is located in the rural areas of the county and primarily provides residential access. Gravel roadway grading usually occurs when the surface is eroded to the point where a hazardous or unsafe condition may eventually result.
- **Street Sweeping** is a vital public service that not only improves the appearance of neighborhoods, but also helps prevent air pollution removing street dust that can be circulated by traffic. In the street sweeping process, storm drain inlets are also cleaned. Sweepers cycle through each respective central valley route in a seven to ten day period. Outlying area routes are covered approximately every 30 days. Each sweeper picks up six to eight cubic yards of debris on a regular daily route. That amounts to capturing approximately 20,000 cubic yards of debris a year. As the seasons change from fall to winter, the average volume generally increases four-fold due to foliage droppings into curbs and gutters.
- **Snow and Ice Maintenance** is necessary in the upper elevations of Clark County in areas such as Mt. Charleston, Kyle Canyon, Columbia Pass, Mountain Springs, and Cold Creek. Snow removal is accomplished using typical road maintenance equipment and two truck plows. In addition, we utilize two rotary snow blowers when snow depth exceeds our capacity to plow, which allows us to provide service with considerably greater efficiency.

In addition to the efforts of in-house staff, Public Works contracts with outside firms for both routine and specialized pavement maintenance activities. These projects maximize the value of the County's roadway assets by: extending useful life, remediating badly deteriorated roadway sections and by bringing County roadways into compliance with the Americans with Disabilities Act (ADA). Over the past nine years, more than \$60 million in local gas tax monies have been directed toward this effort.

- **Slurry seals** are mixtures of fine-graded sand and aggregates with quick setting asphalt emulsions. These are typically used on pavements that are 5 to 15 years old to extend the life of pavement by sealing out water and shielding the asphalt from oxidation due to ultraviolet rays.
- **Pulverize and pave** projects involve grinding up the existing asphalt on older, more deteriorated streets and recycling it as a high-quality base for an new layer of asphalt paving.
- **ADA compliance** provides wheelchair ramps at intersections or the replacement of non-conforming intersection wheelchair ramps which do not meet applicable standards.
- **Flood Control Maintenance** crew's activities are supplemented each year by an annual maintenance contract. The contractor provides equipment and personnel to complete a myriad of activities associated with the Flood Control infrastructure. This includes but is not limited to, inspections, channel debris removal, concrete repair, fence repair and replacement, box culvert cleaning, and detention basin maintenance.

FAST FACTS

1. **Las Vegas Strip:** The State of Nevada relinquished ownership of Las Vegas Boulevard South (from Russell Road to Sahara Avenue) to Clark County in 2003. CCPW maintains the pedestrian bridges on LV Blvd from Flamingo to Spring Mtn. NDOT maintains the pedestrian bridges at Tropicana.
2. **Welcome to Fabulous Las Vegas Sign:** The sign is leased to Clark County by YESCO and is installed on a median maintained by CCPW. In 2008, CCPW constructed a small parking lot in the median that now allows the millions of visitors' safe access to the sign. In 2009, the sign was listed with the National Register of Historic Places.
3. **Clark County 215 Beltway:** At more than \$2 billion, the 53-mile full-freeway beltway facility "clocks-in" as the most expensive road project in southern Nevada history and the largest scope since U.S. 95 was expanded from a surface highway into a limited access freeway.
4. **Clark County 215 Beltway:** After completing the full 53-miles of the initial 215 Beltway facility in 2004, the Las Vegas Beltway was renamed as the Bruce Woodbury Beltway, honoring Commissioner Woodbury's dedicated leadership on the Master Transportation Plan. A small section of the southern 215 Beltway is designated as Interstate 215 (I-215) and maintained by NDOT from I-15 to Windmill Lane and near Stephanie St to US 95/93.
5. **Traffic Signals:** CCPW maintains the traffic signal systems at more than 525 intersections throughout unincorporated Clark County. This is approx. 45% of the signalized intersections in southern Nevada and over 100 more than all of traffic signals in northern Nevada's Truckee Meadows region. Traffic signal timing and cycles are networked by RTC's Freeway and Arterial System of Transportation (FAST).
6. **Service Requests:** On average, each year CCPW responds to 93% of 3000+ roadway maintenance requests within 24 hours. Traffic signal and stop sign requests are responded to on a 24-hour basis and dispatched by LVMPD after-hours.
7. **Vehicle Miles Traveled on County roads:** According to an NDOT study, in 2008 there were approximately 21 billion vehicle miles of travel (VMT) on Nevada's improved roads. 65% of the state's total vehicle miles of travel is on Clark County roads.
8. **Miles of Road maintained:** There are approximately 26,275 miles of improved roads in the state of Nevada. Clark County Public Works maintains more than 2,500 miles of improved roads or nearly half of what is maintained by NDOT and close to 10% of the state's total.
9. **Flood Control Facilities:** Clark County maintains the regional flood control facilities within our jurisdiction – over 40% of the entire region's total. On average, we are reimbursed approx. \$3 million by the Regional Flood Control Districts Maintenance Works Plan.

FREQUENTLY ASKED QUESTIONS

1. What are the future plans for specific roadways in Clark County?

The Transportation Element of the Clark County Comprehensive Plan is intended to provide information to the public on future transportation needs in the context of projected growth and development. It highlights not only the transportation facilities and elements already defined within Clark County Code, but also addresses the needs of development as approved by Clark County.

Designated under federal law as the Metropolitan Planning Organization, the Regional Transportation Commission (RTC) is responsible for overseeing the transportation planning process for Southern Nevada. The Regional Transportation Plan (RTP) is a long-range transportation plan that describes the regional strategic transportation investments expected to be completed in Southern Nevada over the next 20 years. The Transportation Improvement Plan (TIP) identifies regionally significant roadway, transit, bikeway, and pedestrian safety transportation improvement projects to be funded over a 5-year period. The RTP and TIP are developed in cooperation with the U.S. Department of Transportation, Nevada Department of Transportation, Clark County, and the cities of Boulder City, Henderson, Las Vegas, North Las Vegas and Mesquite. The RTP and TIP are available on the [RTC website](#).

2. Why aren't there bike lanes on every street?

The Regional Transportation Commission of Southern Nevada (RTC) is committed to making cycling a greater part of improving mobility in Southern Nevada and that commitment is represented in the RTC's Alternative Transportation Mode Master Plan including a master plan of pedestrian and bicycle facilities. The RTC's plan seeks to extend alternative modes of travel by linking bicycle facilities to the farthest reaching points of transit service. More information is available on the RTC website at www.rtcnv.com.

3. Why are there so many roads under construction at one time?

Driven by the tremendous growth experienced in this area during the last two decades, an ambitious roadway and infrastructure construction effort is underway in the Las Vegas Valley. Clark County's population and tourism growth since the 1980s has far outpaced measures taken to increase roadway system capacity. The current population in Clark County is more than 2 million residents in addition to millions of tourists. To ensure that our transportation network provides for the safe and efficient movement of people, goods and services, a number of road improvement projects were "jump-started" or "fast-tracked" before gridlock and deteriorating air standards adversely affect our economic base and quality of life. In addition to road improvements being completed by local agencies and the Nevada Department of Transportation, developers and utility companies also work on the roads and public right-of-ways to meet the needs of an ever-growing community.

4. Why are roads torn up almost immediately after work on them is finished?

In accordance with the County's No-Cut Ordinance, a newly constructed street cannot be torn up again for a period of five years unless an emergency exists. Nonetheless, during construction of a project, a street may be temporarily patched after underground work has been completed. Patches cover any opening that may have been made on the surface of the street, and allow cars to continue using the roadway. After all underground facilities are installed or repaired, temporary patches are removed, and the permanent paving is finally poured. As a result, it may appear that a street is being "ripped-up" more than once.

FREQUENTLY ASKED QUESTIONS

5. What are the factors in determining whether work is done at night?

Construction may be conducted at night in areas where daytime traffic volumes are high in an effort to minimize disruptions to the motoring public and surrounding businesses. Nevertheless, working at night can be disruptive to residential neighborhoods, makes obtaining specific types of materials difficult, and is more hazardous to work crews. In light of these circumstances, the decision to work at night must be carefully considered. As an alternative, work may be conducted during early morning hours, which is another “off-peak” travel time.

6. Why not do one project, finish it, and go on to another?

The need to upgrade local roadways is so great that working on a project-by-project basis would make it impossible to catch up with current traffic demands or get ahead of future growth. Clark County is committed to completing a supporting network of roadways in conjunction with the opening of major freeway, resort corridor and beltway projects.

7. Why don't the various entities coordinate their efforts?

To the greatest extent possible, public and private sector organizations work together when planning and constructing road projects. However, coordination does not always mean that all work-related conflicts can be identified or avoided prior to the start of a project. A variety of mechanisms (i.e., utility and project coordination meetings, partnering agreements, etc.) serve to minimize construction-related conflicts.

8. Why do we see road equipment or lanes blocked off when no one is working?

Typically, roadwork is conducted between the hours of 7 a.m. and 3 p.m. Sometimes, however, work may be taking place at night or may be underway in a location further down the road. Unforeseen problems such as underground leaks, utility conflicts, and bad weather can contribute to work delays.

9. Why don't projects start and finish on time?

For the most part, County road projects start on time. It is not uncommon, however, for completion dates to be extended when necessary work items are added during the course of construction. In addition, procedures are in place to charge contractors for damages for each day the project exceeds the authorized date of completion.

Please email your questions, comments, and concerns to the Public Works department at InTheWorks@ClarkCountyNV.gov .

PUBLIC SERVICE COMMITMENT

In 1991, the Board of County Commission approved a resolution expressing a commitment to the public for the road and other projects contained within the Clark County Master Transportation Plan. Over thirteen years later, the Clark County Department of Public Works staff continues to follow the tenets set forth in the resolution as follows:

1. To the greatest extent possible, perform roadwork with minimum disruption to traffic flow.
2. To the greatest extent possible, coordinate with impacted commercial and residential property owners before and during actual roadwork.
3. To the greatest extent possible, perform roadwork during non-peak hours.
4. To the greatest extent possible, coordinate other public works projects in conjunction with roadwork projects to minimize cost and increase speed of completion.
5. To the greatest extent possible, coordinate with other public works projects to avoid subsequent additional work along newly completed road projects.
6. To the greatest extent possible, maximize funding capability, pursuing federal funds, bonding, joint ventures, and other forms of financing to expedite road project completion.
7. To the greatest extent possible, inform the public in advance of pending roadwork and inform the public of work status, anticipated completion dates, and other important information on road projects throughout the life of the projects.
8. To the greatest extent possible, coordinate planning and plan implementation to address overall transportation needs, including but not limited to surface access improvements and mass transit demand.
9. To act as responsible partners with the local community in providing adequate, well-planned transportation facilities, infrastructure and services.
10. To address quality of life issues in transportation planning, including but not limited to air quality access to public services, convenience and cost of public transportation, managed growth and economic stability.



Information on School Zones



Why are some school zones 15 MPH and others 25 MPH? Why do some have flashers and others do not? How do I get a crossing guard? Why are some school signs yellow and others yellow-green? Are school zones in effect all day?

School Zone and School Crossing Zones

School Zones are considered the frontage of school that have access to the adjacent street that is not fenced or blocked off. **School Crossing Zones** are locations away from the school frontage where school aged pedestrians need to cross the street at non-controlled locations. State Law establishes **School Zones** at 15 miles per hour and **School Crossing Zones** at 25 miles per hour.

Signage for School Zones and School Crossing Zones

Clark County signs all **School Zones** and **School Crossing Zones** in accordance with the **Manual on Uniform Traffic Control Devices (MUTCD)**. Each zone is marked with a SCHOOL ZONE sign (newer signs will have AHEAD below the sign). If a speed reduction is required, a SCHOOL SPEED LIMIT 15 or 25 is posted. At each uncontrolled crosswalk, a SCHOOL CROSSING sign (newer signs will have a downward arrow) will be placed at the crosswalk. At the end of each zone, an END SCHOOL ZONE or speed limit sign will be placed.



or



AHEAD

indicates a school zone or school crossing zone.



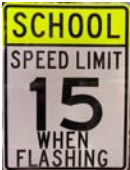
or



indicates where a school crossing/crosswalk exists.

Time School Zones are in Effect.

School Zones and **School Crossing Zones** are in effect from 30 minutes prior to the start of the education day until 30 minutes after the education day ends per State Law. State law does allow for the speed reduction to not be in effect during the education day hours and for the school zones and school crossing zones can be posted **WHEN CHILDREN ARE PRESENT**. All **School Zones** and **School Crossing Zones** are in effect during the times that are on the signs, the flashers are active, or 30 minutes prior to the educational day starting until 30 minutes after the educational day ends when children are present in the zone depending on the sign posted.



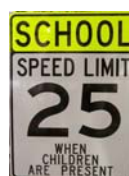
or



School zone or school crossing zone is only in effect when flashers are operating



or



School zone or school crossing zone is in effect during school hours when children are present in the school zone or school crossing zone.

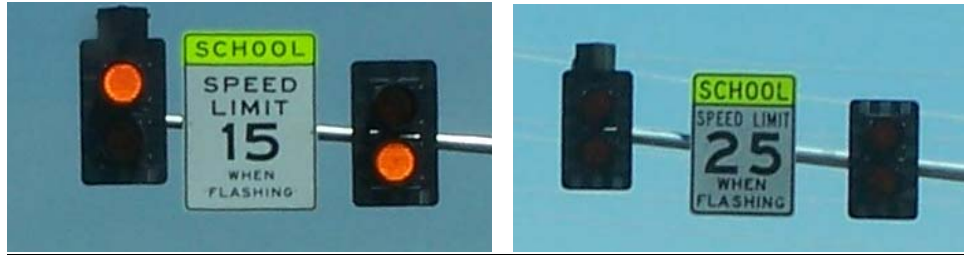
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Yellow vs fluorescent Yellow-Green School signs

A recent change in the **MUTCD** allows for the use of more visible Fluorescent Yellow-Green (FYG) colored signs. Clark County has adopted this newer FYG color as our standard and is changing the older yellow signs to the newer FYG color, as the older signs need replacing. Both color are proper and legal.

Flashers

Flashers are installed on roadways with multiple lanes and normal speeds are over 35 miles per hour. Clark County is working with the school district to have flashers installed with the construction of the newer schools. Flashers in areas with older schools are being installed as funds permit.



Crossing Guards

Crossing guards, within the unincorporated areas of Clark County, work for the Las Vegas Metropolitan Police Department. Request for crossing guards at a particular location need to be made by calling 702-828-3446.

Safe Routes 2 School program

Clark County has a **SAFE ROUTE 2 SCHOOL** program, which provides maps of the walking area of each elementary school and middle school in the unincorporated areas of Clark County. A map and an information pamphlet are updated for each school prior to the new school year and a copy is provided to each student at these schools at the beginning of each school year. For further information, please visit: http://www.clarkcountynv.gov/Depts/public_works/Services/Pages/SafeRoutetoSchool.aspx.

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April 2012



Information on Speed Humps/Bumps



*How can I get a speed hump/bump on my street?
Aren't speed humps safe?
Don't speed humps reduce speeds on a street?*

What is a Speed Hump or Bump?

Speed Humps are raised sections of pavement across the travel way of the road and are approximately 3 to 4 inches high. They are an elongation shape. The intended purpose of a speed hump is to attempt to reduce speeds by vertically deflecting the wheel and frame of a vehicle. The occupants experience an uncomfortable sensation if the vehicle travels at speeds greater than the design of the speed hump. Speed Bumps are raised sections of pavement commonly found in parking lots. They are half moon shaped and cause deflection at any speed.

Advantages of Speed Humps

- Can reduce vehicle speeds near the speed hump
- Can reduce vehicle volumes
- No restrictions to on-street parking

Disadvantages of Speed Humps

- Increased noise from vehicles that transverse the speed humps day and night
- Motorists may drive on sidewalks or through yards to avoid the speed humps
- Traffic may divert to previously quiet parallel streets in neighborhood to avoid the speed humps
- Fire, Ambulance, and Police service response times increase with each speed hump
- Speed humps interfere with street repaving, decreasing the effectiveness of both the speed hump and the new pavement
- Speed humps can affect drainage, blocking the flow of water and can cause flooding problems
- Speed humps require signing and striping which some residents consider unattractive.
- Speed humps increase vehicle emissions due to increased deceleration and acceleration
- Speed humps conflict with school and transit bus operations
- Speed humps present a hazard to bicyclists and motorcyclists
- Speed humps are an attractive nuisance as they are used by skateboards as ramps
- Speeds tend to increase between the speed humps as drivers attempt to make up time for slowing down over the speed humps

County's Policy

Clark County does not use or allow speed humps/bumps on public maintained roadways within the unincorporated areas of Clark County. Clark County does not regulate the use or design of speed humps/bumps on private property and roadways.

Traffic Calming

Clark County uses other methods to address speeding within neighborhoods. Radar Speed Trailers can be scheduled to be placed at a location (25 miles per hour speed limit areas) to assist with educating motorists of the posted speed. Clark County also has a traffic-calming program that is neighborhood driven to find ways to address these types of issues in neighborhoods.

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Information on Multi-Way Stops



Why aren't there 4-way stop controls at every intersection? Why was a 4-way stop changed to a 2-way stop? How can we get a 4-way stop near our house? Who can I talk to?

Where Multi-Way STOP Control Can Be Useful

Clark County is required to use the **Manual on Uniform Traffic Control Devices (MUTCD)**, which states that: *"Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersection roads is approximately equal."*

Criteria for a Multi-Way STOP Sign Installation

The decision to install multi-way stops is based on a traffic engineering study. The **MUTCD** gives the following criteria for a multi-way stop sign installation:

- A. Multi-way stops can be used as an interim measure when traffic signals are justified.
- B. Five or more reported crashes in a 12-month period, that are susceptible to correction by a multi-way stop installation.
- C. For any 8-hours of an average day, a minimum volume of 300 Units (vehicles, bicycles and pedestrians) per hour on the major street and a minimum volume of 200 Units per hour on the minor street, with an average delay on the minor street of 30 seconds per vehicle during the highest hour. If major street traffic exceeds 40 mph, volume warrants are 70% of the above values.

Other criteria that are considered in an traffic engineering study include: (1) The need to control left-turn conflicts; (2) Vehicle/pedestrian conflicts or locations near high pedestrian volumes; (3) Locations where a driver cannot see conflicting traffic, even when stopped; and (4) An intersection of two neighborhood collector through streets of similar design and where the installation of a multi-way stop would improve the operational characteristics.

STOP Signs for Speed Control

While it is a common belief that placement of STOP signs will slow traffic down, the **MUTCD** states that STOP signs should not be used to control speed. When STOP signs are placed at unwarranted locations, they encourage drivers to make decisions based on their emotions (their comfort level while driving on the roadway or just wanting to get wherever they were headed) instead of their intellect (understanding the laws of the signs they see on the roadway). Unwarranted multi-way stops cause problems with the need for even more traffic enforcement; increased traffic noise and poor driver behavior (such as speeding away from the intersection to "make up time"); and liability issues of justifying in court the placement of a STOP sign that wasn't warranted.

Many people ask our engineers to consider their neighborhood as a "special case." The County must treat each neighborhood equally as all neighborhoods have the same concerns and needs.

Most people believe that additional STOP signs in their neighborhood will help slow down traffic and provide a safer environment for pedestrians and motorists. Unfortunately, it simply is not the solution in most cases. Historically, the majority of speeders in a neighborhood are the people who live in that area and are comfortable driving on those roads.

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Information on Traffic Studies



What is a traffic control device? What does it take to get a traffic signal or STOP sign put in? What is the MUTCD thing? Why don't you just go put up two more STOP signs? How many names do you need on a petition to get something done?

What is a traffic control device?

Traffic control devices are those items used to promote highway safety and efficiency by providing for the orderly movement of all road users on streets and highways. Traffic control devices notify road users of regulations and provide warning and guidance needed for the reasonably safe, uniform, and efficient operation of all elements of the traffic stream. Traffic control devices are the signs, pavement markings, and traffic signals (including flashers) that are used. Streetlights are not considered traffic control devices.

Legal Requirements

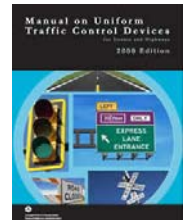
Clark County is required by Nevada Revised Statute 484A.430, which states:

- 1. The Department of Transportation shall adopt a manual and specifications for a uniform system of traffic-control devices consistent with the provisions of this chapter for use upon highways with this State. The uniform system must correlate with and so far as possible conform to the system then current and approved by the American Association of State Highway Officials and the National Joint Committee on Uniform Traffic Control Devices.*
- 2. All devices used by local authorities or the Department of Transportation must conform with the manual and specifications adopted by the Department.*

Clark County code 14.12.070 also requires the County to conform to the standards adopted by the State of Nevada Department of Transportation.

The manual is the **Manual on Uniform Traffic Control Devices** or **MUTCD**.

Any person may contact Clark County Traffic Management and request a traffic study be conducted at a location. A single request is equal to a petition with numerous names in getting a traffic study conducted.



Traffic Studies

To meet these requirements, traffic studies are conducted by qualified and trained engineers using the criteria within the **MUTCD** for guidance in the installation, modification, placement, and justification of traffic control devices.

What does a traffic study include?

Depending on the type of traffic study, different information is collected and analyzed. Daily traffic volumes, percentage of trucks, prevailing speeds, traffic accidents that have occurred over the last 12 months, turning movements, sight distances, geometric design limitations, parking, pedestrian volumes, walking routes, bike routes, and delay of the vehicles entering the intersection are some of the information collected to conduct the analyses.

What do they do with all that information?

The information using the criteria in the MUTCD, along with engineering experience, is used to determine the safest and most efficient operation of the roadway or intersection. While the MUTCD does set criteria where the use of certain traffic control devices *may* provide a safer and more efficient operation of a roadway or intersection, the installation of any traffic control device does not guarantee that all problems at a location are solved or other issues will not be created. Also, the **MUTCD** does not require any traffic control device be installed; it only requires that if it is installed, it must follow the **MUTCD**.

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Information on Traffic Control Devices



What is the harm in installing an unwarranted traffic control device?

Installing STOP signs and traffic signals where they are not needed can cause significant disruption of traffic flow and increase intersection delay for drivers. The induced delay increases travel time and annoys drivers, and the additional starts and stops result in increased fuel consumption and the consequent production of carbon monoxide, nitrous oxide, particulate matter, and other pollutants.



What is the harm in installing a STOP sign?

Two-way STOP signs assign the right-of-way at an intersection. The warrants for the installation of two-way STOP signs are in the Manual on Uniform Traffic Control Devices (**MUTCD**) are listed below. Because a STOP sign causes substantial inconvenience to motorists, a STOP sign should be only used where warranted. It may be warranted where one or more of the following conditions exist:

- Intersection of a less important road with a main road where the applications of the normal right-of-way rule would not be expected to provide reasonable compliance with the law
- Street entering a through highway or street
- An unsignalized intersection in a signalized area; and/or
- High speed, restrictive view, or crash records indicate a need for control by a STOP sign.

The amount of delay created by the STOP sign depends on both the major and minor street flow of traffic. The gaps in the major flow traffic stream must be adequate to allow the stopped traffic on the minor flow street to execute the through, right or left movements through the intersection. The term "critical gap" is often used to describe the median gap accepted by drivers for specific turning maneuvers and roadway characteristics. According to the 1997 Highway Capacity Manual, typical critical gaps are 6.2 to 6.9 seconds for right turns from a minor roadway and 7.1 to 7.5 seconds for left turns from a minor roadway. Left-turning movements take longer, as a left-turning driver must cross more traffic streams. Additional delay for the minor street vehicle is also determined by the vehicle arrival rate. The arrival rate of vehicles on the minor street is related to how long drivers will wait in the queue to get to the stop line/sign.

The delay times on the stopped approaches can become excessive if either the major or the minor flow is high. The advantage of a two-way STOP is that the major traffic flows do not have to stop and they incur almost no delay at the intersection (i.e. the majority of the traffic does not have to stop).

Four-way or multi-way STOP control is often controversial as it can often confuse motorists and can cause more average delay than other types of traffic control. The multi-way STOP sign should only be used where the volume on all approaches to the intersection is approximately equal and the traffic volumes are relatively low. However, the multi-way STOP sign alternative can be quite useful in unusual situations where two-way STOP control has not solved the safety problem but where signalization is not yet warranted.

What is the harm in installing Traffic Signals?



Justification of traffic signal installations requires considerable data collection and analysis. The following is some of the data that needs to be collected and analyzed:

- Traffic volumes by approach and movement
- Pedestrian counts in crosswalks
- Intersection approach speeds
- A condition diagram showing the details of the intersection
- Collision information showing crash experience for the past year

The MUTCD lists nine (9) warrants for the placement of traffic signals. These warrants are summarized below (please refer to the MUTCD website on back for details of each warrant). If none of these warrants are met, a traffic signal should not be installed. In addition, the fulfillment of a warrant or warrants does not in itself justify the installation of a traffic signal.

Warrant 1 - Eight-Hour Vehicular Volume Warrant. The volume of the traffic on the major and minor streets entering the intersection must be above a certain value for a minimum of eight hours of a typical day.

(over)

Information on Traffic Control Devices

Warrant 2 - Four-Hour Vehicular Volume Warrant. The volume of the traffic on the major and minor streets entering the intersection must be above a certain value for a minimum of four hours of a typical day. These values are higher than the values in Warrant 1.

Warrant 3 - Peak Hour Warrant. The minor street traffic for a facility that attracts or discharges large numbers of vehicles of a short time suffers major delay or exceeds a certain value for only one hour of an average weekday.

Warrant 4 - Pedestrian Volume Warrant. The volume of pedestrians crossing a major street exceeds a certain value.

Warrant 5 - School Crossing. At an established school crossing, a traffic signal can be placed if the frequency and number of adequate gaps in the vehicular traffic for the number of students to safely cross does not exist.

Warrant 6 - Coordinated Signal System. To maintain the proper grouping of vehicles and to effectively regulate the group speed.

Warrant 7 - Crash Experience. When less restrictive remedies and enforcement has failed to decrease the crash rate.

Warrant 8 - Roadway Network. To encourage concentration and organization of traffic flow on major streets.

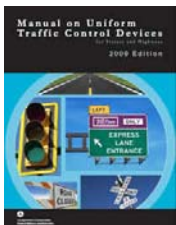
Warrant 9 – Intersection Near a Grade Crossing. The location of the intersection is located so close to a grade crossing that using a STOP or YIELD control is not adequate.

Installing a traffic signal at a low-volume intersection can significantly increase crashes and delay. Again, the increase in delay and stops then translates into higher fuel consumption, increased travel times, and higher point of pollution. The length of delay is directly related to a number of factors. Cycle length is one factor, for example, that is influenced by traffic volumes and the need to safely accommodate pedestrians crossing the intersection approaches. The pedestrian crossing time constraints could significantly increase the necessary cycle lengths. Although traffic signals can reduce the total number of collisions at an intersection, research has shown that certain types of crashes (i.e. rear-end type collisions) may actually increase after a signal is installed. For this reason, the type and number of crashes at an intersection should be analyzed before the installation of a traffic signal.

Traffic signals can represent a positive public investment when justified, but they are costly. A typical traffic signal costs between \$300,000 to \$800,000 to design and install. In addition, there is the cost of electrical power consumed in operating a traffic signal 24 hours a day.

It is important to carefully consider whether a traffic control device is needed before rushing to an implementation decision. The costs and benefits must be carefully evaluated, and a careful analysis and engineering study must be completed.

What is this MUTCD?



The **MUTCD** stands for the Manual on Uniform Traffic Control Devices. The Federal Highway Administration (FHWA) publishes the **MUTCD**, which contains all national design, application, and placement standards for traffic control devices. The purpose of these devices, which includes signs, signals, and pavement markings, is to promote highway safety, efficiency, and uniformity so that traffic can move efficiently on the Nation's streets and highways. Federal, State and local laws required that government agencies use the **MUTCD** for determining which traffic control devices to use and how each device may be used.

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