APPENDIX G
Traffic Control Sign Policy

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ATTACHMENTS:

PURPOSE

This policy establishes consistent procedures for addressing traffic-related concerns that may occasionally arise along roadways within or nearby residential areas in the city. Traffic concerns specifically addressed in this policy include the following:

- No Parking/Parking Zone Requests
- Cut Through Traffic Mitigation Requests
- Pedestrian Treatment Requests
- School Zone Safety Requests
- Speed Control Requests
- Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts)
- "Children at Play" Sign Requests
- Other Advisory or Advanced Warning Sign Requests
- Other Public Safety and Traffic Issue Requests

Other traffic concerns not specifically addressed in this policy may be presented to staff for review by any citizen, Homeowners Association (HOA) business, or group. The Engineering staff will work with those parties to review their situation and formulate an appropriate response as necessary.

In accordance with the City of Friendswood Code of Ordinances Chapter 82 – Traffic and Vehicles and further stated in Ordinance 300, the Traffic Engineer or their designee, will be responsible for all traffic investigations in the City of Friendswood.

SCOPE

The City of Friendswood is committed to improving the quality of life within its City. When a request is made to review a traffic concern, the City's direct efforts are to work and coordinate with the requesting party in understanding and addressing concerns in a defined area. The Engineering Department (hereafter called "Engineering") will inform the affected residents of any significant changes. This policy is applicable only to non-state routes.

The adoption of this policy is not intended and should not be construed to affect or waive the City's immunity from damages under the Texas Tort Claims Act (CPRC Chapter 101) or any other law or ordinance. This policy does not require the City to install, remove, or modify any traffic control device, sign, signal, or warning device if the City has, in the absence of this policy, the discretion under State law to install, remove, or modify the traffic control device, sign, signal, or warning device. All investigations for traffic concerns and signage shall be investigated and warranted in compliance as outlined in the Texas Manual on Uniform Traffic Control Devices (TMUTCD), latest edition.

TERMS

City Traffic Director – The Duties of the City Traffic Director will be encompassed by the City Engineer. The City Manager will retain the final approval/disapproval authority over all decisions of the City Traffic Director.

Engineering Judgment – The evaluation of available pertinent information, and application of appropriate principles, provisions, and practices as contained in the TMUTCD (see below) and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, licensed to practice engineering in the State of Texas, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgement is not required.

HOA – Homeowners Association approved, recognized, and incorporated by law.

Ordinance 300 – The City of Friendswood Ordinance 300 grants the power to the City Traffic Director the authority to determine installation and proper timing and maintenance of traffic control devices, to conduct engineering analyses of traffic accidents to devise remedial measures, to conduct engineering investigations of traffic conditions, to plan the operation of traffic on the streets and highways of the City of Friendswood, and to cooperate with other officials in the development of ways and means to improve traffic conditions, and to carry out the additional powers and duties imposed by the ordinances of this City.

ROW – Right(s)-of-way, the area between property lines given the legal right by usage or grant, for traffic or pedestrian travel.

TMUTCD – Texas Manual on Uniform Traffic Control Devices. The TMUTCD is the authoritative manual on installation, implementation, and maintenance of all types of traffic control devices, both permanent and temporary, for the State of Texas.

Traffic Committee – The Traffic Committee is composed of employees of the City of Friendswood representing the Police Department, the Fire Marshal's Office, the Public Works Department and Engineering Department.

Traffic Study – A traffic study is the procedures and other investigations as described in the TMUTCD to determine if a warrant is necessary for a traffic concern.

Warrant – a warrant describes the threshold condition based upon average or normal conditions that, if found to be satisfied as part of an engineering study, shall result in analysis of other traffic conditions or factors to determine whether a traffic control device or improvement is justified. Warrants are not a substitute for engineering judgement. The fact that a warrant for a particular traffic control devices is met is not conclusive justification for the installation of the device.

PROCEDURES

1. Residents, homeowners associations, or similar type groups may make a written request to Engineering requesting that a traffic concern be addressed. Traffic concerns may be submitted directly to Engineering via a fillable form at www.ci.friendswood.tx.us/350/Publications-Forms under Traffic.

2. The requesting party's issue will be entered in the Engineering Traffic database to search for similar requests in the subject area.

3. Staff will communicate with the requesting party to fully understand their request and thoroughly define the area of concern.

4. Engineering will identify the area of concern and define the area affected.

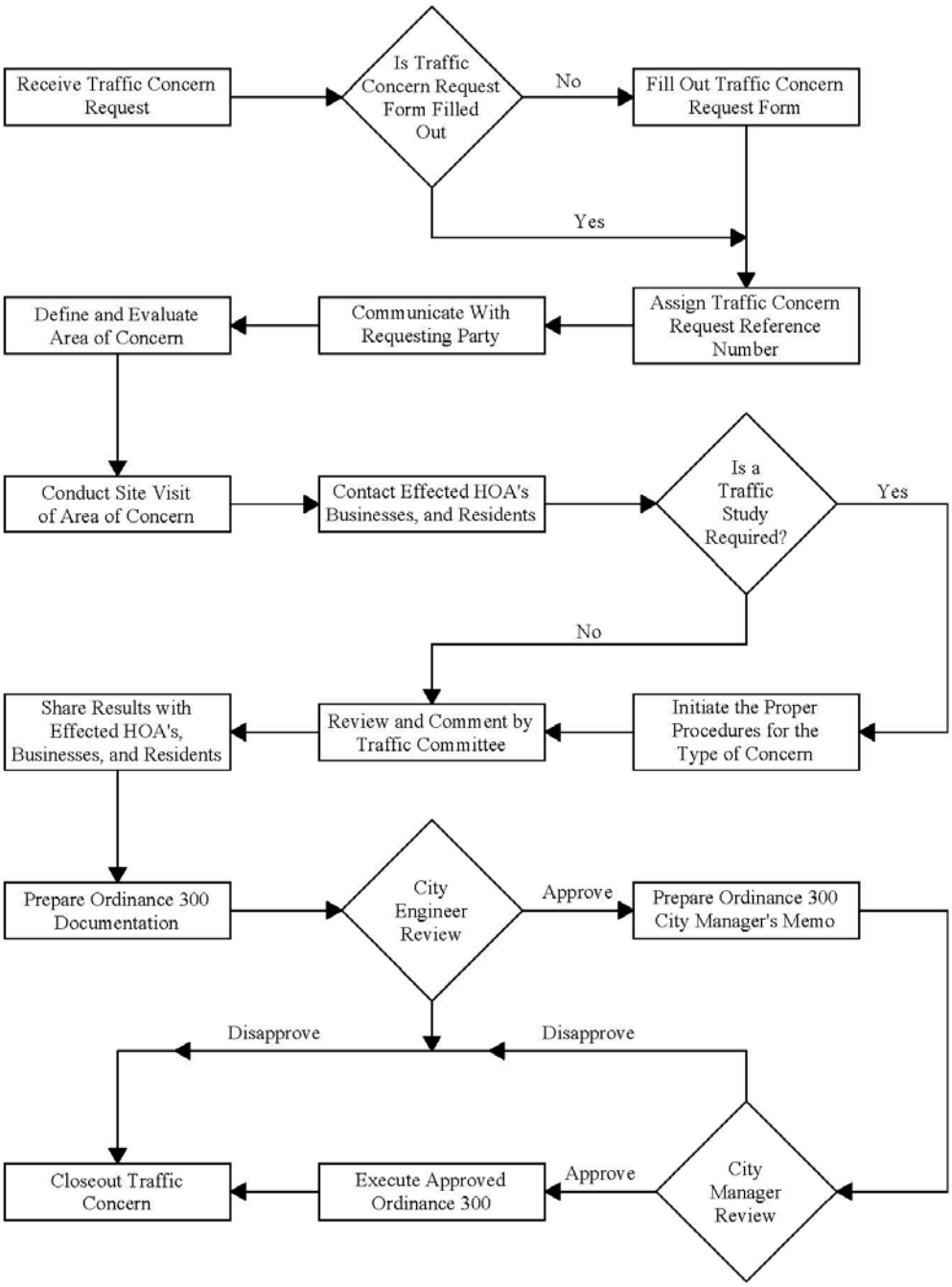
5. Engineering staff will evaluate the request, collect data if necessary to confirm the magnitude of the problem, and determine if further study is necessary.

6. If the Engineering staff determines that further study is necessary, procedures to address the specific traffic issue will be implemented. These procedures are detailed in the following portion of this policy, "Specific Traffic Concerns."

7. Should changes be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any improvements are implemented.

A flow chart that graphically illustrates the above listed procedures is illustrated on the following page.

Traffic Concern Request Flow Chart



SPECIFIC TRAFFIC CONCERNS

Specific types of traffic requests in the City of Friendswood are addressed in this section of the policy.

No Parking/Parking Zone Implementation Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for "No Parking"/"Parking" zone implementation will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering and the originator of the request will define a study area for property owners that may be impacted by a proposed "No Parking"/"Parking" zone.
- An engineering study will determine if a "No Parking"/"Parking" zone is appropriate for the requested area for twenty-four (24) hours per day or for specific days and/or time periods.
- In order to implement a "No Parking"/"Parking" zone, 100% of the property owners that are projected to be affected adjacent to their property must agree in writing to the "No Parking"/"Parking" zone implementation. The requestor will be required to obtain signatures from the owners.
- If deemed appropriate by an engineering study and agreed to by the property owners that will be affected adjacent to their property, "No Parking"/"Parking" signs will be posted by the entire street, block, or logical termination point as determined by Engineering. Other advisory or advanced warning signs will be placed as dictated by sound common engineering practices or the Texas Manual on Uniform Traffic Control devices, latest edition.
- All "No-Parking"/"Parking" zone applications shall be thoroughly reviewed by Engineering after a period of two (2) full years from the date of implementation. The "No-Parking"/"Parking" zone shall remain in effect unless a compelling safety reason is discovered.

As with all requests to review traffic concerns in the City of Friendswood, should the implementation of a "No Parking"/"Parking" zone in the study area be warranted, Traffic Engineering and Operations shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones.*

No Parking/"Parking" Zone Removal Requests

As with all requests to review traffic concerns in the City of Friendswood, requests for "No Parking"/"Parking" zone removal will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine if the removal of a "No Parking"/"Parking" zone is appropriate for the requested area. If appropriate, "No Parking"/"Parking" signs will be removed by the entire street, block, or logical termination point as determined by Engineering and the requesting party. Other advisory or advanced warning signs will be placed, or removed, as dictated by sound common engineering practice or the Texas Manual on Uniform Traffic Control devices, latest edition.

As with all requests to review traffic concerns in the City of Friendswood, should the removal of a "No Parking"/"Parking" zone in the study area be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning no parking/parking zones is included in the **Attachment A** under the title *No Parking and Parking Zones.*

Commercial Truck Cut-Through Traffic Mitigation Requests:

As with all requests to review traffic concerns in the City of Friendswood, requests for commercial truck cut-through traffic mitigation control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- An engineering study will determine the measures that are appropriate to address the specific commercial truck cut-through traffic mitigation concerns that may exist for the given the study area. In order to be considered a candidate for measures to reduce commercial truck cut-through traffic, a roadway must be a local roadway or a minor collector roadway with residential characteristics with a peak hour volume of over 375 vehicles in one direction with over 40% cut-through vehicles.
- To implement a plan which limits commercial truck cut-through traffic, 100% of the affected property owners must sign a petition as implemented through these policy guidelines.

As with all requests to review traffic concerns in the City of Friendswood, should changes to the study area to control commercial truck cut-through traffic in the study area be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning commercial truck cut-through traffic is included in the **Attachment B** under the title *Commercial Truck Cut-Through Traffic Mitigation.*

Pedestrian Facility Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for pedestrian improvements will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will study the requested location and perform a crosswalk analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The placement of a crosswalk at an uncontrolled intersection or in the middle of a block shall be considered only in rare cases. In general, the placement of a crosswalk at an uncontrolled intersection may create a false sense of security for pedestrians that could increase the likelihood of a vehicle-pedestrian incident.

As with all other requests to review traffic issues in the City of Friendswood, should pedestrian improvements be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning pedestrian facilities is included in the **Attachment C** under the titles *Pedestrian Safety, Pedestrian Signals,* and *Installation of Marked Crosswalks.*

School Zone Safety Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for school zone safety will be addressed with the same measures outlined in the *Procedures* section of this policy. School zone safety requests encompass a broad range of requests in the vicinity of a school. Common requests in the City of Friendswood are addressed specifically below. Other requests will be addressed on a case per case basis.

- The traffic policy is not intended to replace or alter the existing provisions and ordinances established by the City of Friendswood.
- Reduced speed school zones are areas in which the speed limit is reduced for certain periods of the day that may be requested by individual citizens, communities, or schools. A traffic engineering study will determine if a reduced speed school zone is warranted based on the proximity of the roadway to the school, the type of school (elementary, junior high, senior high, etc.), vehicular volumes, pedestrian volumes, vehicular speeds, availability of sidewalks, alternative routes between the school residential areas served by the school, and other factors.
- Requests for a crosswalk in the vicinity of a school will be treated with the same procedures as outlined in the "Pedestrian Facility Requests" section of this policy. Proximity to schools and type of vehicular control are major factors in the consideration of crosswalks.
- Parking restrictions in the vicinity of a school will be treated with the same procedures as outlined in the "No Parking Zone Implementation" section of this policy. Proximity of schools is a major factor in the consideration of parking restrictions.
- No right-turn on red at signalized intersections in a school zone is a means to reduce the likelihood of conflicts between right-turn vehicles and school aged children in crosswalks. If appropriate, a traffic engineering study will determine the need for no right-turn on red restrictions based on vehicular volumes, pedestrian volumes, traffic signal timing, and other factors.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) does not require the installation of flashing beacons to alert motorists to school zones. The City of Friendswood will consider the installation of school flashing beacons on arterial and collector roadways, but not on local streets.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the conditions within a school zone be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning school zone safety is included in the **Attachment D** under the titles *School Zones* and *School Traffic Safety*

Speed Control Requests.

As with all other requests to review traffic issues in the City of Friendswood, requests for speed control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Engineering will maintain a database of locations at which excessive vehicular speeds have been reported that will be shared with the Police Department for enforcement purposes.
- The Texas Manual of Uniform Traffic Control Devices (latest edition) states that a speed limit should be posted within 5 mph of the 85th percentile speed of the free-flowing traffic. Engineering Judgement is the overriding determination for all speed limit postings.
- The following alternatives are available to address speed control requests.

    - The Neighborhood Speed Watch Program is a public awareness program through which concerned citizens can take an active role in making neighborhood streets safer by observing and recording traffic speeds in their neighborhood. Additional information and application forms to participate in the Neighborhood Speed Watch Program may be obtained from Traffic Engineering and Operations, the Appendix of this policy, or downloaded at www.ci.friendswood.tx.us.
    - A speed feedback sign may be installed to alert motorists to their actual speed and the posted speed limit on a roadway. Additional information concerning the speed feedback sign is included in the Appendix of this policy.
    - A speed study may be conducted at the site. The speed study will determine the 85th percentile speed and consider other issues in the site vicinity including pedestrian traffic volume, roadway curvature, the frequency of traffic accidents, sight distance restrictions, and other issues specific to the study site. The speed study may determine that the posted speed limit at the study site is too low/high and may recommend that the posted speed be adjusted to within 5 mph of the 85th percentile speed.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the speed control in the study area be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning speed control is included in the **Attachment E** under the title *Speed Limits.*

Intersection Control Requests (Multi-way Stops, Traffic Signals, and Roundabouts):

As with all other requests to review traffic issues in the City of Friendswood, requests for intersection control will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Multi-way stop signs or traffic signals shall not be installed within the corporate City limits of the City of Friendswood unless approved by an authorized warrant analysis and by the City Traffic Director.
- Multi-way stops and traffic signals are warranted based on vehicular traffic volumes, pedestrian traffic volumes, vehicular speeds, traffic accident data, and other traffic data in accordance with guidelines defined in the Texas Manual of Uniform Traffic Control Devices (TMUTCD).
- According to the TMUTCD, "regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness." If confirmed by a traffic engineering study, existing multi-way stop locations that are not warranted will be removed by the City of Friendswood.
- According to the TMUTCD, stop signs or traffic signals shall not be installed for the purpose of controlling the speed of a roadway as they have been shown to become a hazard at times when installed without warrant.
- Implementation of multi-way stop signs, traffic signal, and roundabouts will be in accordance with necessary budget considerations.

As with all other requests to review traffic issues in the City of Friendswood, should changes to the intersection control in the study area be warranted, Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

Additional information concerning intersection control is included in the **Attachment F** under the titles *Stop Signs, Signal Installation,* and *Roundabouts.*

“Children at Play” and “Deaf Child Area” Sign Requests:

“Children at Play” and “Deaf Child Area” signs are not recognized by the State of Texas or by the Federal Highway Administration as official traffic control devices. These signs may create a false sense of security for parents of children and typically do not achieve the desired safety benefits.

The city does not recommend installing “Children at Play” signs within its boundaries. Existing “Children at Play” signs will be removed by the city that have previously been placed without proper authorization and are not in compliance with this sign policy.

“Deaf Child Area” signs may only be installed in school zones if deaf children attend the school. If installed, these signs will be removed when the deaf child no longer attends the school.

Additional information concerning children at play signs and deaf child area signs is included in the **Attachment G** under the title *Children at Play Signs.*

Other Advisory or Advanced Warning Sign Requests:

As with all other requests to review traffic issues in the City of Friendswood, requests for advisory or advanced warning signs will be addressed with the same measures outlined in the *Procedures* section of this policy.

- Traffic Engineering and Operations will study the requested location and perform an advisory/advanced warning sign analysis which includes volume of pedestrian traffic, proximity of the subject location to schools, parks, swimming pools, retail centers, hike and bike facilities, vehicular traffic volume, etc.
- The requesting party will be informed that it is City policy to only install advisory or advanced warning signs that are in accordance with the Texas Manual on Uniform Traffic Control devices, latest edition.

Other Public Safety and Traffic Issue Requests:

Other requests to review traffic issues in the City of Friendswood will be addressed with the same measures outlined in the *Procedures* section of this policy.

Engineering shall attempt to convey the proposed changes with the impacted residents before any modifications or improvements are implemented.

ATTACHMENT A
No Parking and Parking Zones

Parking Zones:

Commercial Zones are designated for commercial vehicles to load and unload merchandise for up to 20 minutes. Yellow zones are usually found in commercial areas for the use of adjacent commercial areas.

Green Zones are used for limited term parking, usually 20 minutes as indicated on a sign. In any limited parking you can receive a citation if you exceed the maximum limit by 1 minute or more. To avoid a citation, you must vacate the parking space within the time limit specified and let other members of the public use these high demand spaces.

Red Zones indicate no parking at any time and are reserved for fire and emergency vehicles. Any other vehicle parked or encroaching on or in the red zone is considered a violation of the parking restriction and may receive a ticket and/or be towed.

Blue Zones are reserved parking spaces for vehicles used by disabled persons and displaying the appropriate disabled parking placard or license plate.

Where is it illegal to park?

- No Parking Zones marked by No Parking, No Stopping, or No Standing signs.
- In front of a private or public driveway.
- In front of or within 15 feet of a Fire Hydrant.
- Within marked or unmarked crosswalks. An unmarked crosswalk is considered to be an extension of sidewalk boundary lines across a street or driveway.
- On sidewalks.
- In public rights-of-way for the purpose of advertising or selling without proper authorization.
- In handicapped parking spaces without a legally obtained handicap placard or license plate.
- Where a vehicle will obstruct or block a handicapped parking space.
- Within 30’ on the approach to a flashing signal, stop sign, yield sign, or traffic control signal located at the side of the roadway.
- Within 3’ of a handicap access ramp.
- In stripped loading zones next to handicapped parking spaces.
- Straddling the markings or lines designating a parking stall.
- Along the curb return within 10’ of an intersection.
- Within marked hatched no parking areas.
- Within 15’ of the entrance to a fire or ambulance station.
- Within 500’ of fire trucks or emergency equipment when these are stopped answering a fire alarm or emergency call.
- Other areas as designated in the Texas State Transportation Code section 545.302 which restricts parking even if no signs are posted.

Parking areas for persons with disabilities

Parking areas for persons with disabilities, also known as handicapped parking spaces are established for the exclusive use of vehicles transporting persons with disabilities. Any vehicle parked in a marked handicapped space or tow away zone parking space that does not display a placard or license plate with the international symbol of access can be given a ticket, towed, and impounded. Handicap spaces can be established on public or private property if the property owner and the City Engineer determine the need for such space/spaces.



A citizen with a valid handicap placard or license plate is allowed to park in a regular metered space without paying provided there are no other restrictions by signage. For example: *No Parking 7 – 9 AM or 4 – 6 PM.* However no one can park at meters in commercial loading/unloading zones unless they possess and have visibly displayed in the vehicle a commercial loading/unloading parking permit.

How close to the curb must I park?

All vehicles parking parallel to the curb must park within 18 inches. All vehicles parking at an angle must have 1 front tire within 6 inches of the curb. All parallel parking must have passenger side to curb, unless parked on a one-way street.

What is the maximum length of time I can park my vehicle on the street without moving it?

- Passenger vehicles cannot be parked on public streets for more than 48 hours.
- Trailer/Semi-Trailer cannot be parked on a public street for more than 2 hours.

ATTACHMENT B
Commercial Truck Cut-Through

Truck cut-through traffic trying to avoid congestion on major streets is a growing concern to city residents. Local and residential streets were not typically designed to carry high volume or heavy loaded through traffic. This unnecessary through traffic generates noise, air pollution, and creates other issues, including safety, for residents. Some trucks also try to park on narrow residential streets, which also causes concerns for the residents and emergency vehicles.

Residents concerned with high volumes of truck traffic traveling through, or parking in, their neighborhood have several remedies available. The City will evaluate the specific problems of your street and implement the most effective solution if the conditions warrant action.

Definitions of "Commercial Vehicle" and "Commercial Truck"

A commercial vehicle can be defined as any vehicle that is used and maintained for commercial purposes. A commercial truck is a commercial vehicle with more than 2 axles.

Cut-Through Traffic

Cut-through traffic can be defined as commercial vehicles passing through a neighborhood without at least 1 trip end (origin or destination) in that neighborhood. Cut-through traffic causes unwanted noise, dust, pollution, and safety issues for residents. Cut-traffic can be passenger vehicles, commercial vehicles, and/or commercial trucks. A cut-through commercial vehicle or truck is one that passes through a street/neighborhood without a scheduled stop in that neighborhood.

In additions to pollution and safety issues, cut-through commercial traffic cause pavement deterioration of the neighborhood roads since most neighborhood roads are not designed for heavy commercial traffic.

Cut-through traffic is also defined as motorized vehicles cutting through a parking lot and/or business to avoid heavy traffic or traffic control devices such as Stop/Yield Signs or traffic signals.

Possible Solutions

If your neighborhood has a high volume of cut-through traffic, you can request a traffic study by filling out the Traffic Concern form at www.ci.friendswood.tx.us/350/Publications-Forms. Upon receiving a completed request form, the Engineering will make an initial determination of the need for a study as in outlined in the procedures of this policy. Counteractive measures such as signage and enforcement, or traffic calming measures may be instituted.

Parking in Residential Neighborhoods

Residential neighborhoods, which are in close proximity to busy commercial areas with limited parking facilities or near a truck parking facility/compound, may find unwanted vehicles parked in the neighborhood. Commercial Vehicles cannot be parked on a public street overnight and trailer/semi-trailer cannot be parked on a public street for more than 2 hours.

ATTACHMENT C
Pedestrian Facilities

I. PEDESTRIAN SAFETY

The need for Pedestrian Safety:

Whether for school, work, or recreation, most of us walk every day. However, some people have to walk as their primary means of transportation or choose to walk to improve their health. Whatever our reasons may be for walking, pedestrians have a legitimate right to walk without feeling unsafe or uncomfortable. Since most of our roads were designed for vehicular traffic, we need to improve walkability in our communities and make them safer for walking.

Typical Issues with Pedestrian Safety

The first step in improving pedestrian safety involves identifying the problem. Residents can help identify the pedestrian safety concerns in their neighborhoods. The following lists some of the typical problems associated with pedestrian safety and can be used as a guide in identifying problems in a neighborhood.

Poor or Inadequate Walking Facilities

- Existing sidewalks and trails are insufficient and do not connect to schools, parks, churches, etc. Dirt paths or desire lines show that more sidewalks or paths are needed.
- Existing sidewalks are not wide enough for people to walk comfortably or pass each other.
- Sidewalk surfaces are uneven, broken, or covered with debris.
- Sidewalks and paths are blocked by barriers such as vehicles, trash cans, vegetation, utility poles, mail boxes, benches, or other obstructions.
- There is not enough space between the sidewalk and the roadway to make pedestrians feel comfortable.
- The intersections are wide and crossing distances are long. Turning radii at the intersections allow cars to turn at higher speeds.
- Bicyclists riding on the sidewalk (possibly because they do not feel safe in the street) cause conflicts with people walking.

Unsafe Driver Behaviors or Traffic Characteristics

- Drivers do not stop or yield to pedestrians crossing the roadway.
- Drivers drive too fast through neighborhoods, around schools, or near other places where people are walking.
- Drivers take short cuts through neighborhoods to avoid traffic on major roads.
- Red light or stop sign runners endanger pedestrians and bicyclists.
- Drivers pass other vehicles stopped at crosswalks for pedestrians or pass stopped school

buses.
- Drivers are more distracted than ever by cell phones, electronic media, passengers, and other activities.

Unsafe Pedestrian Behaviors

- Pedestrians do not look both ways before crossing the street.
- Pedestrians attempt to cross the street when traffic is approaching.
- Pedestrians cross against pedestrian signals.
- Pedestrians crossing midblock where there are no crosswalks.
- Pedestrians, like drivers, can be distracted by cell phones and other electronic devices.

Typical Solutions

Once the problem or problems have been identified, the next step is developing an appropriate solution. Pedestrian transportation improvements or potential solutions for pedestrian safety are described in terms of the "Four E's":

1. **Engineering** – Physical changes to infrastructure (i.e., sidewalks, traffic signals, signs, etc.) that affect the operation and movement of traffic and pedestrians.

2. **Education** – Includes strategies that aim to educate pedestrians, drivers, or other groups in order to motivate a change in behavior.

3. **Enforcement** – Community-based or law-agency-based measures to enforce laws and regulations related to pedestrians.

4. **Encouragement** – Efforts to promote walking and increase the level of walking in a community.

II. Pedestrian Crosswalks

Crosswalks

A crosswalk is typically defined as a designated portion of the roadway that pedestrians use to cross the street. A crosswalk may be marked or unmarked. There is no legal difference between marked and unmarked crosswalks at controlled intersections (those with stop signs or traffic signals). However, marked crosswalks at mid-block locations provide a designated and legal crossing zone for pedestrians.

1. *Unmarked Crosswalks* – most every intersection is considered to represent a crosswalk, even if it is not marked as such. An unmarked crosswalk is basically the extension of a sidewalk that extends across intersecting roads.

2. *Marked Crosswalks* – are those crosswalks marked with pavement markings,

usually 12' wide white pavement markings on 6' centers, either plain, perpendicular crosshatched, or 45 degree crosshatched.

3. *Enhancements* – are traffic control devices or signals that enhance and aids the safe movement of pedestrian traffic in the roadways.


Benefits of Marked Crosswalks

Marked crosswalks guide pedestrians to a proper crossing location and alert motorists of a pedestrian crossing point. However, at uncontrolled locations, marked crosswalks may create a false sense of security for pedestrians resulting in a greater number of pedestrian crashes (if additional safety treatments are not provided).

City Policy on Marked Crosswalks

The City's current policy is to install marked crosswalks at controlled intersections where there is a demonstrated need. Crosswalks are also marked at established school crossings. At other locations, an engineering study must be conducted to ensure that marked crosswalks are installed only where there is significant pedestrian activity and/or based on engineering judgment. The need for, and potential use of, a proposed crossing varies with each location, each should be considered individually, and with an effort to maintain consistency in the decision making process. Approval of marked intersection on state highways, or an intersection of a state highway and city road, within the City Limits shall be coordinated with TxDOT.

Categories of Marked Crosswalks

Marked crosswalk locations fit into 1 of 3 categories:

1. Marked crosswalks are **Standard** on signalized approaches at intersections.

2. Marked crosswalks alone (without other enhancements or treatments) are **Permitted** on roadways with posted or 85th percentile speeds less than or equal to 35 mph, if recommended as part of an engineering study and approved by the City Engineer.

3. Marked crosswalks with enhancements or active devices are installed on roadways with posted or 85^{th} percentile speeds greater than 35 mph, if recommended as part of an engineering study and approved by the City Engineer. Such enhancements might include traffic calming features (i.e. median refuge

islands, curb extensions, narrowed travel lanes, traffic diverters, chicanes), illumination, or enhanced devices (i.e. advance signage), or active devices (i.e. pedestrian-activated signals).

III. Pedestrian Signals

Why do some traffic signals have push button and signal indications for pedestrians and others do not?

Pedestrian signals are primarily installed for 2 reasons:

1. A high volume of pedestrian traffic present; or

2. The green time given for vehicles in a particular direction is not sufficient for pedestrians to cross the roadway in that direction.

When signal indications for vehicles are easy to see and provide plenty of green time for pedestrians to cross safely, push buttons and pedestrian signal indications are often not needed. Push buttons are sometimes provided at intersections where the signal timing is typically controlled by the volume of vehicular traffic. If traffic volumes are low at these intersections, pedestrians will not have enough time to cross the street without push buttons. If pedestrian crossing times were factored into every signal cycle, many intersections would become inefficient and delay vehicles more than necessary. The use of pedestrian push button allows extra time to be provided only when a pedestrian is present.

What do pedestrian signals mean, and why isn't there enough time to cross the street during the walk indication on a pedestrian signal?

The City has in use the pedestrian signals that indicate illuminated symbols of a walking person and an upraised hand, along with a countdown timer of how many seconds of time until the pedestrian signal indicates "Do Not Cross". The signals are timed for an average walking distance of 4 feet per second.

- The steadily illuminated upraised hand indication means that a person should not enter the roadway in the direction of the signal.

- The walk symbol (the white colored walking person) means that a pedestrian may start crossing the road toward the signal.

- The flashing orange upraised hand means you can continue to cross, but there is not adequate time to begin crossing. The purpose of the flashing indication is to keep pedestrians from entering and intersection too late and to let pedestrians already in an intersection know that their time to finish crossing is becoming shorter, which is now indicated by the countdown timer.

Will pushing the pedestrian walk button several times make the signal change faster?

No, the walk button will send a message to the controller requesting a walk indication be granted to the requested direction in the next ***available*** signal cycle. Continuously pressing the pedestrian button does not send additional messages to the controller since the controller has already acknowledged the pressing of the walk button with the first push.

Why do vehicles keep turning even when the pedestrian signal indicates that pedestrians have the right to cross?

Pedestrian signals assign the right-of-way for pedestrians to cross the street. However, since right turns on red are allowed, some drivers may make right turns without yielding to pedestrians or do not see the pedestrian signals. This is why it is important to always be cautious when crossing busy intersections. The following suggestions are offered in the interest of safety:

- Always cross intersections defensively.
- When crossing the street, regardless of the availability of signals, cross as quickly as possible. Minimize your time in the roadway.
- Always watch for turning vehicles. You have the legal right to be there, but that does not protect you from the carelessness of some motorists.
- Whether marked or unmarked, or signalized ***ALWAYS*** look both ways before crossing the roadway.

ATTACHMENT D
School Traffic Safety

School Traffic Safety Statistics

On average, each year 23 school-age children die in school related traffic accidents in the United States. Out of these, 6 are occupants of school transportation and 17 are pedestrians. Based on these statistics, the City would like to stress the importance of pedestrian safety around schools and school buses. However, pedestrian safety is not solely dependent upon the pedestrians themselves but is very much dependent upon the driving practices of motorists near and around schools and school buses.

I. AROUND SCHOOLS

Pedestrian Safety Tips for Children

Most people, and especially young children, cannot judge the speed, distance, and size of oncoming vehicles. Parents should walk the route to school (or other destinations) with children and point out safe and unsafe practices. This includes locations where children may go to catch a bus.

- At a traffic signal, the green light or walk signal (the white walking person) means that children should stop at the curb or edge of the road, look both ways for oncoming traffic, and then if it is safe, cross the street. Having the walk indication or green light does not guarantee that cars will stop. Pedestrians must always look for oncoming and turning traffic even when they have the right of way.
- Before crossing the street, children may want to wait for a “fresh green light.” This means that they wait for the next new walk indication if the “don’t walk” indication (upright orange hand) is flashing and the countdown timer is nearing zero. Doing this gives them the most time to cross.
- If children are in the middle of the street and the “don’t walk” indication begins flashing, they should not stop or return to the curb or edge, but continue on to walk at their maximum comfortable pace until they reach the other side. They should not run as they might fall.
- And Remember;

    - Children crossing the street should be accompanied by an adult whenever possible.
    - Avoid crossing streets at mid-block, especially when parked vehicles may obstruct vision. Use stops signs, traffic signals, and crossing guards when available.
    - Children should not follow others or run to others when the call until a safe crossing is available.

Vehicle Safety Around Schools

Parents and other adults can do much to improve traffic safety around schools by driving cautiously, teaching children safe practices, and limiting vehicle trips. Drivers should obey all traffic laws and apply the following practices:

- Carpooling can reduce the number of vehicles near the school, especially during inclement weather.
- Avoid parking on the opposite side of the street from the school. When it is necessary, instruct children on how to safely reach the vehicle.
- Make sure that children are careful when opening vehicle doors and that they enter and exit on the curbside of the vehicle. Children should not be allowed to cross in the middle of the block to reach the vehicle.
- Drivers should not double park or block traffic. Waiting or parking in red zones is also not allowed.
- Do not block buses or use areas designated for buses only. If an emergency vehicle requires access, the area should be cleared.
- Never leave a vehicle unattended in a loading zone.
- Do not park in a crosswalk or pass a stopped vehicle allowing pedestrians to cross.
- Do not violate the law by using the excuse "I will just be here a minute" when picking up or dropping off children. Violations still present a danger and cause congestion during the time of day when it is most important to provide safety for children and avoid congestion.
- Learn the traffic patterns at and near a school to avoid being a disruption.
- Pay attention to children getting in and out of vehicles. Children sometimes forget to use the curb side door and exit suddenly.

Crossing Guards

The City is responsible for the assignment and designation of crossing guards for the schools within the City Limits. Crossing Guards are employees under the Police Department and have the force of law for traffic movements in school zones. Children and motorists should follow their directions when directing traffic and helping children crossing the street.

II. AROUND SCHOOL BUSES

School Bus Safety – Children

When waiting for, riding, and exiting the school bus, children should follow these rules:

Getting on the School Bus

- When waiting for the school bus, stay away from traffic and avoid roughhousing or other behavior that can lead to carelessness. Do not stray into streets, alleys, or private property.

- Line up away from the street or road as the school bus approaches.
- Wait until the bus has stopped and the door opens before stepping into the roadway.
- Use the handrail when stepping onto the bus.

Behavior on the Bus

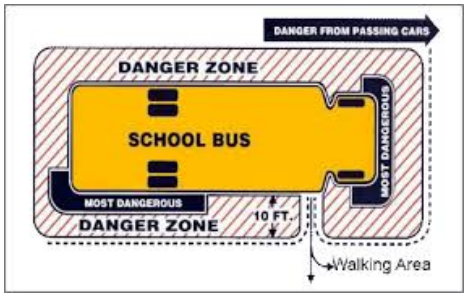
- When on the bus, find a seat and sit down. Loud talking or other noise can distract the bus driver and is not allowed.
- Never put head, arms, or hands out of the window, nor throw anything out of the window.
- Keep aisles clear. Books and bags are tripping hazards and can block the way in an emergency.
- Before you reach your stop, get ready to leave by getting your books and belongings together.
- At your stop, wait for the bus to come to a complete stop before getting up from your seat. Then, walk to the front door and exit using the hand rail.

Getting off the School Bus

- If you have to cross the street in front of the bus, walk at least 10 feet ahead of the bus along the side of the road, until you can turn around and see the bus driver.
- Make sure the bus driver can see you.
- Wait for a signal from the bus driver before beginning to cross.
- When the bus driver signals, walk across the road, keep an eye out for sudden traffic changes.
- Stay away from the bus's rear wheels at all times.

School Bus Safety – Parents

- If possible, accompany children to school bus stop and help them get in and out.
- Teach children to follow common sense practices and **ALWAYS STAY OUT OF THE DANGER ZONE OF THE BUS.**



School Bus Safety - Motorists

- When backing out of a driveway or leaving a garage, always watch out for children walking or bicycling to school.

- When driving in neighborhoods with school zones, watch out for young people who may be thinking about getting to school, but may not be thinking about getting there safely.
- Slow Down! Watch for children walking in the street, especially if there are no sidewalks in the neighborhood.
- Slow down! Watch for children playing in and congregating near bus stops.
- Be Alert! Children arriving late for the bus may dart into the street without looking for traffic.
- Learn to obey the school bus laws. Learn the "flashing signal light system" that school bus drivers use to alert motorists of pending actions:

    - ***Yellow Flashing Lights*** indicates that the bus is preparing to stop to load or unload children. Motorists should slow down and prepare to stop their vehicles. It also means that the motorist should NOT speed up to pass the bus before the red flashing lights are on.
    - ***Red Flashing Lights*** and extended stop arms and stop signs indicate that the bus has stopped, and that children are getting on or off. Motorists must adhere to the driving law below and only proceed when the red lights stop flashing and the extended stop sign and bar is withdrawn, and the bus begins moving before they can start driving again.

        - Two Lane roadways, with traffic in both directions, both traffic lanes shall stop.
        - Multi-lane roadways with or without center turn lanes, traffic shall stop in both directions.
        - Roadways divided by raised medians, the traffic traveling in the same directions as the bus shall stop. The traffic in oncoming direction on the other side of the median shall slow and proceed with caution, but it is also suggested that motorist stop for the ultimate safety.

School Zone Signs and Operations

School zones may be installed on streets that border school property line and where students cross a roadway. The signs can be static or include flashers. The flashers are usually installed on roadways with more than 5,000 vehicles per day. The signs conform to the standards and specifications in the Texas Manual on Uniform Traffic Control Devices.

School zone times shall be established and installed according to the following general guidelines:

- **Morning Times** – 45 minutes before start to 15 minutes after the start of school.
- **Midday** – beginning to end of lunch period.
- **Afternoon Times** – 15 minutes before dismissal to 30 minutes after dismissal of school.

These times may be adjusted at each school based on individual campus requirements.

Parking Regulations

In order to promote safe and efficient traffic circulation around a school, it may be necessary to regulate, restrict, or prohibit parking, stopping, or standing adjacent to the school grounds or at an established school crossing. The Engineering Department will determine if the street needs parking restrictions.

Crosswalk Location and Installation

Crosswalks are located to enhance the utilization of sidewalks, to serve school routes and to define the appropriate crossing area in the street at high pedestrian volume intersections. When reviewing an area for installation of a crosswalk, the proximity to a school is one factor. Other factors include: volume of vehicular and pedestrian traffic, average vehicular speed, visibility available to motorist and pedestrians, type of traffic controls present, width of street to be crossed, and location of adjacent crosswalks.

ATTACHMENT E
Speed Limits

Authority

Speed limits are set by statute by the Texas Transportation Code § 545.352. The statute specifies the following speed limits:

- Streets in Urban Districts – 30 mph
- Alley in Urban Districts – 15 mph
- State or Federal numbered highways outside of Urban Districts – 70 mph. Any other highway outside of the Urban District – 60 mph.

These are known as "prima facie" limits and do not require signs for enforcement. For example, in the absence of any other speed limits sign, the speed limit is 30 mph in residential districts within the City Limits. The City Council may alter the maximum or prima facie speed limits based on an engineering and traffic study on any street or portion thereof within the City. The altered speed limits are posted regulatory speed limit signs (signs with black text on white background) and are considered prima facie (or legal) for enforcement.

Speed Zoning

When an engineering study determines that statutory speed limits are not appropriate for the existing road and traffic conditions, altered speed limits are established using speed zoning. The types of speed zones are:

- ***Regulatory Speed Zones*** impose a restriction on a particular roadway and indicators of the speed limitations imposed by physical and traffic conditions of the roadway. Regulatory speed limits are posted using regulatory speed limit signs which has black lettering on white background as shown in the Texas Manual on Uniform Traffic Control Devices for Streets and Highways (TMUTCD).
- ***Construction Speed Zones*** may be regulatory or advisory speed zones through a construction project depending on the importance of speed control in the construction zone. Construction advisory signs are typically black lettering on an orange background.
- ***School Speed Zones*** are established in accordance with city policy on School Zone Installation and Removal and in accordance with State Law. Maximum speed reduction allowed is 15 mph under the posted speed limit.
- ***Advisory or Warning Speeds*** are desirable speeds for curves, intersections, or other locations where design standards or physical conditions of the roadway restrict safe operating speeds to value less that the maximum legal speeds or posted regulatory speed limit. Advisory speed signs supplement other warning signs (such as for a curve) and have a black message on a yellow background.

What is the Law?

All drivers are required to obey the posted speed limits. These limits are designed to provide for the orderly flow of traffic under normal driving conditions. During periods of heavy traffic, inclement weather, low visibility, or other poor driving conditions, speed must be adjusted so that accidents will be avoided. In the absence of posted speed limits, prima facie speed limits are in effect. Any speed in excess of the legal speed limit on that roadway will be considered prima facie (or "on the face of it") evidence that the speed is unreasonable, non-prudent, and unlawful.

How are Speed Limits Established?

Regulatory speed zones are established in accordance with the procedures described in the TxDOT manual "Procedures for Establishing Speed Zones". Posted speed limits are set by the 85th percentile method, which represents the speed of the majority of drivers will be traveling at or below. Speed checks are conducted to determine the 85th percentile speed. The observed free-flowing speed for vehicles is tallied and the 85th percentile speed is calculated using collected data. To ensure a true reflection of normal traffic situation, speed checks are made on average weekdays during off-peak hours, under favorable weather conditions.

The speed limit is normally set at the nearest value to the 85th percentile speed ending in 5 or 0. The posted speed limit may be adjusted downwards of the 85th percentile speed based on the following factors:

- Roadway pavement width of 20 feet or less.
- Curves and hills.
- Hidden driveways and other developments.
- High number of driveways.
- Crash history.
- School crossings and characteristics of sites that generate traffic.
- Lack of striped, improved shoulders.

Once a speed limit is determined, the speed zone is added to the Ordinance 300 identifying the limits and speed of the speed limit zone. After approval by the City Manager, or their designee, the sign shop is instructed to install the necessary signs at the locations approved and shown in the Ordinance 300 memo.

Speed Limit Misconceptions

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. Safety is also not improved by establishing unreasonably low speeds limits. Some misconceptions about speed limits include:

- Reducing the speed limit will not slow the speed of traffic;
- Reducing speed limits will necessarily decrease the number of crashes and increase safety;
- Having a posted speed limit is not necessarily safer than an unposted speed limit; and
- Drivers always go 5 to 10 mph over the posted speed limit.

Why Do We Need Speed Limits?

Speed limits which are realistic and reasonable:

- Encourage compliance from a majority of the drivers;
- Give a clear reminder of reasonable and prudent speeds;
- Provide an effective enforcement tool to the police; and
- Encourage drivers to travel at the speed where the risk of crash involvement is the lowest.

Studies have shown crash rates are lowest at around the 85th percentile speed. Drivers traveling significantly faster OR slower than this speed are at greater risk for being in a crash. It is not high speeds alone that relate to crash risk; it is variation of speed within the traffic stream. In fact, on a per mile driven basis, high speed roadways, like interstates, have a lower speed-related fatality rate than low speed roadways because large variations in speed within the traffic stream create more conflicts and passing maneuvers (and opportunities for driver error and collisions).

However, unrealistic speed limits:

- Discourage voluntary compliance;
- Create perception of “speed traps;”
- Cause public antagonism toward the police;
- Create a bad image for a community in the eyes of non-residents; and
- May increase the potential for crashes.

ATTACHMENT F
Intersection Controls

I. STOP SIGNS

Stop Signs

A STOP sign is a sign used to direct motorists to stop at the spot where the STOP sign is located. STOP signs are a method for controlling traffic at intersections where the normal application of the right-of-way rule is insufficient to ensure safety and provide reasonable compliance with the law. These signs are found on the right side of the roadway (and in some cases in the median to increase visibility). When more than two directions are controlled by STOP signs, then a supplemental ALL WAY plaque shall be used to inform motorists of the type of traffic control that exists at the intersection. If a STOP sign is in its correct location and it cannot be seen very well due to hills or curves, a STOP AHEAD warning sign may be used in advance on the approach to the STOP sign.

Installation Policy

STOP sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. STOP signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing STOP signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Should STOP Signs Be Used to Control Speeding in Neighborhoods?

This is a question that is frequently asked or requested from citizens concerned about speeding in their neighborhood. Although the City does share the concerns of the citizens about speeding and safety in residential neighborhoods, the installation of STOP signs is not the appropriate way to solve the problem of speeding. STOP signs are traffic control devices intended for assigning rights-of-way, not controlling speed. Traffic calming devices (as stated in the City's Traffic Calming Policy) and police enforcement have been found to be much more effective in controlling speeding.

STOP signs result in speed reduction only near the sign, and drivers tend to speed up between STOP sign controlled intersections to make up for perceived lost time. According to National Engineering Transportation Study, when required to stop by cross street traffic, 5% to 20% of all drivers come to a complete stop, 40% to 60% will come to a rolling stop below 5 mph, and 20% to 40% will pass through at higher speeds.

Often, unjustified STOP signs are ignored by motorists, which can be more dangerous than speeding. Therefore, it is the City's policy not to install STOP signs to control speeding.

Adverse Impacts of Unjustified STOP Signs:

- Unjustified STOP signs cause motorists frustration when they are forced to stop for no

apparent reason. Unwarranted STOP signs result in disrespect for all signs and reduce the effectiveness of STOP signs at other intersections where they are essential for safety.

- Vehicle emissions account for much pollution in the air. These emissions increase when vehicles are accelerated and decelerated. It is important to minimize unnecessary stops since steady speeds increase fuel economy and reduce vehicle emissions. Unwarranted STOP signs increase the number of unnecessary stops and reduce the efficiency of our transportation system which results in increased air pollution.

II. YIELD SIGNS

Yield Signs

At intersections where a full stop is not necessary at all times, consideration should be first given to less restrictive measures such as a YIELD. A YIELD sign is used to assign rights-of-ways on certain approaches to an intersection. Vehicle controlled by a YIELD sign need to slow down to a speed that is reasonable for the existing conditions or stop when necessary to avoid interfering with conflicting traffic.

Installation Policy

YIELD sign installations will be addressed according to the City of Friendswood Sign Policy, current edition. YIELD signs at an intersection are installed only upon the approval of the City Engineer and reflected in the Ordinance 300, after a careful investigation has been made of existing conditions. The investigation is conducted using the guidelines for installing YIELD signs provided in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

III. TRAFFIC SIGNAL INSTALLATION

Purpose

When warranted, properly designed, located, and operated, traffic control signals can provide orderly movement of vehicular and pedestrian traffic, can reduce the frequency and severity of certain types of crashes, and can increase the traffic handling capacity of the intersection. These benefits have perpetuated a common belief that traffic signals provide the solution to all traffic problems at intersections.

However, when unwarranted and improperly designed, traffic signals cause excessive delays, driver frustration, disobedience, overuse of less adequate routes, and increased collisions. This is why the City of Friendswood looks at every intersection being considered for signalization very carefully to determine that a signal is indeed needed.

Signal installation requests, like all other requests for signage, starts with a traffic concern report to the Engineering Department at www.ci.friendswood.tx.us/350/Publications-Forms. There will be an initial review and determination as stated in the procedures in the City of Friendswood's Sign Policy. As is true with all warrant justifications, the same is true of Traffic Signals having

to meet the analysis and standards in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Construction, Operation, and Maintenance

Once the signal is approved for placement, plans are created for construction. Depending on the conditions at the intersection, it may require up to two years to recommend design, and construct a traffic signal. Once constructed, the traffic signal is maintained by either Texas Department of Transportation (TxDOT) for signals on highways and Farm-To-Market Roads, Harris County in Harris County or the City in Galveston County. If a traffic signal is malfunctioning, please notify the Police Department.

ATTACHMENT G
Children At Play Signs

We Have a Lot of Small Children in Our Neighborhood; can we get a "Children at Play" sign?

The City of Friendswood often receives a lot of requests to install signs warning drivers of the possible presence of "Children at Play." However, these signs may give a false sense of security and have been proven to be ineffective. In residential areas within the City, drivers should expect children to be present. Studies have shown that signs attempting to warn motorists of normal conditions do not achieve the desired safety benefits.

The City of Friendswood does not want to endorse that children can or should be allowed to play safely on or near streets. These signs are not warranted or part of the Texas Manual on Uniform Traffic Devices (TMUTCD). Current Children at Play signs exist in the city in residential areas, but will not be replaced if faded, stolen, or destroyed. However, the City does have in place a process wherein the HOA can petition for these types of signs to be put in their neighborhood in the rights-of-way. These will still need to follow the typical procedures for all other signage with the addition of the following:

- The HOA will have to submit minutes that this was approved at a general HOA meeting with advanced notification relayed to residents of the proposal to install these signs.
- There will need to be a plan establishing the locations of the signs to be installed.
- If approved by the HOA and the Traffic Committee, the HOA would have to purchase the signs, sign bases, and poles and bring them to the Engineering Department. The City will install the signs at the agreed upon locations that have been approved.
- The signs would have to be added to the insurance policy of the HOA.
- As stated previously, stolen, damaged, or faded sings will not be replaced by the City.

ATTACHMENT H
Speed Bumps, Humps, and Lumps

Speed Bumps, Humps, and Lumps are traffic calming devices that use vertical deflection to slow vehicular traffic in order to improve safety conditions. Although their uses are effective in keeping vehicle speeds down, engineering studies have shown that drivers will increase their speed in between vertical speed traffic calming devices to make up for perceived lost time due to slowing down to negotiate the vertical device.

Speed Bumps

Speed Bumps are an abrupt raised area in the pavement surface, effective at controlling speeds on low volume private driveways and parking lots and have the following characteristics:

- Typically they are 3 to 6 inches in height with a travel lane width of 6 to 12 inches.
- Cause significant driver discomfort at typical residential speeds.
- Cause vehicles to slow at 5 mph or less at the bump.
- Considered an increased liability risk on public roads.
- Truck, Emergency Response, cargo, and bus passengers more likely to be affected.
- Maintenance headache.

Speed Humps

Speed Humps are a gradual raised area in the pavement surface and are typically for use in residential and low speed roadways, and have the following characteristics:

- They are typically 3 ½ inches in height with a travel length of 4 to 6 feet.
- Create a gentle rocking motion slowing most vehicles down to 15 to 20 mph, and 25 to 30 mph when properly spaced.
- They are typically painted to identify vertical change in the roadway.
- Need to be properly designed, marked, and signed according to standards in the TMUTCD.
- Effective at controlling speeds without creating accidents or imposing unreasonable or unacceptable safety risks.
- Either permanent bituminous ones or portable ones can be installed; there are pros and cons to each type.
- Can be utilized as a raised crosswalk as well.

Speed Lumps

Speed Lumps are relatively new and have the effect of slowing vehicles down as does a speed hump, but the main problem is that speed humps still cause ALL traffic to slow down. Speed lumps are a hybrid combination of speed bumps and humps. Speed lumps are in a nominal size and placed with a gap between them. This gap is spaced (normally 2 feet) so that emergency

vehicles, such as fire trucks and ambulances, which have a wider wheel base width, can easily transverse the gaps where normal vehicles cannot. Added to the safety issue is that the edges near the gaps are either parabolic or flat.