

TOWN OF ACTON, MA
RESIDENCES AT QUAIL RIDGE
SPECIAL PERMIT
FIRE SERVICE ANALYSIS
SEPTEMBER 2008

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Town of Acton, Massachusetts



Residences at Quail Ridge Special Permit Process

September 2008

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EXECUTIVE SUMMARY



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EXECUTIVE SUMMARY

Municipal Resources, Inc. (MRI) was hired by the Town of Acton to perform an access review of the proposed Residences at Quail Ridge (RQR) Subdivision and the immediate surrounding area. This report will concentrate on the following eight focus areas. These areas can serve as a foundation for action and are discussed more fully later in the body of this report.

1. Assess the adequacy and reliability of gated emergency access as the sole emergency access for the residences at Quail Ridge.
2. Risk analysis/assessment for a single street access as opposed to multiple street access alternatives.
3. Quantify the risk analysis assessment.
4. Alternatives for gated and ungated emergency access.
5. Methods to insure long-term, full-time reliability of the emergency access ways.
6. Solutions and potential problems with gated emergency access ways.
7. Acorn Park risk analysis/assessment.
8. Fire and emergency medical services standards, guidelines, and recommendations.



Figure 1 - Entrance Roadway to the proposed Residences at Quail Ridge

The Acton Zoning By-laws and Special Permit Rules and Regulations do not allow single access streets for more than 40 dwelling units without a variance. It was clear that a 174 unit development with a single access and no other means of ingress or egress would not be allowed by the Town. The proposal we reviewed had two emergency access areas into Acorn Park from the proposed development at Quail Ridge: one from Hazelnut Street and the other from Palmer Lane.

Traffic consultants estimated daily traffic from the new Quail Ridge development (including the residences, golf course, and restaurant) at 1,476 cars; current volume from Acorn Park averaged 894 cars per day. Acorn Park residents objected strenuously to any traffic being allowed to traverse through their neighborhood from Quail Ridge. Acorn Park streets are generally narrower and curvier than those accepted for traffic volumes expected from a combined Quail Ridge/Acorn Park complex. We observed cars parked along Acorn Park streets that would create public safety dangers to residents and travelers alike. In fact, one errant basketball passed by our vehicle which easily could have resulted in a pedestrian being struck by a car if one party or the other were not paying attention.

Acorn Park is pre-existing and non-conforming with respect to the Acton Planning Board Sub-division Rules and Regulations 8.1.9, which requires a secondary means of access when more than 40 residential dwelling units are constructed. The residents of Acorn Park have a realistic concern that additional traffic would create a public safety issue based upon the unique demographics and configuration of the neighborhood. We agree.

The Acton Fire Department has expressed the need for gated emergency access which the Acton Highway Department has indicated they do not have the capacity to maintain.

Utilizing the secondary access points outlined in the Scope would add two to four minutes for an emergency response by firefighters and police.

Based upon these factors, our analysis, and research, a single, electronically-activated gated emergency access point should replace the existing well access gate on Hazelnut Street. We feel that adding such a gated mechanism at the Palmer Lane entrance point would not add value to the project at this time for reasons we will discuss in the body of the report.

Various types of gates are available from manual lock/unlock; electronic lock via card, key or keypad or remote mechanism access; and siren access; all of the above with a break-away gate option; and the below ground security gate style.

Without compromise to access, response times were measured and estimated utilizing the closest fire station, located at 7 Concord Road. Presently response times into either development approach a minimum of seven (7) minutes. This exceeds the nationally-recognized standard of four (4) to six (6) minutes (medical situations involving cardiac or stroke emergencies and building fires where room flashover can occur within this time frame).

Therefore, to provide an adequate level of service in emergency situations here, it is essential that the proposed fire station at Route 2A and Main Street be constructed.

There are national standards for Fire Department operations designed to provide minimum safety requirements for firefighters at incident scenes while still providing minimum public safety services to citizens in need. Most notable are the OSHA Two In/Two Out standard and the National Fire Protection Association (NFPA) 1710 standard. The International Fire Code standard "Emergency Access Gates and Barriers" has also been adopted by many western communities in their zoning or Fire Prevention codes (not a reference standard in Massachusetts).

PURPOSE, SCOPE, AND METHODOLOGY

MRI was engaged by the Town of Acton to review the access to the Residences at Quail Ridge development. We have attempted to produce a report containing recommendations that will assist the Town to address public safety concerns relative to ingress and egress for the Residences at Quail Ridge and additionally for Acorn Park.

SCOPE OF WORK

MRI will conduct a risk analysis/assessment in connection with the Residences at Quail Ridge (RQR) project, consisting of 174 housing units for independent seniors in a variety of arrangements - detached units, duplexes, and multi-unit buildings; a 9-hole golf course with amenities; a 35-50 seat restaurant; and other attractions.

MRI's work will include an assessment of the benefits, drawbacks, and risks associated with various secondary access alternatives. To accomplish this Scope of Work, MRI will:

1. Review all available documents regarding the RQR project in order to get to know the project, the setting, the surroundings, and the issues.
2. Review RQR and Acorn Park plans for general street layout, unit composition, and existing and projected population demographics.
3. Visit the site.
4. Assess the adequacy and reliability of gated emergency access as the sole secondary access for RQR.
5. Prepare a risk analysis or assessments for a single street access with gated emergency accesses and for dual and or multiple street access alternatives.
6. If possible, quantify the analysis for a complete risk assessment.
7. Discuss alternatives for gated and ungated emergency access between RQR and Acorn Park.
8. Discuss various engineering solutions, and management and maintenance systems for gated emergency access, and highlight potential problems that could compromise their functional reliability and delay emergency responses.

9. Prepare a risk assessment and analysis for the Acorn Park subdivision (currently consisting of 80 single-family homes on a single street access with one gated emergency access).
10. Advise the Town of professional fire/emergency service standards, guidelines, or recommendations for access that shed light on the core question and that could provide further guidance to the Planning Board.

METHODOLOGY

To complete the tasks detailed within the scope of work, we performed the following:

- Reviewed all of the documentation located at the following Town of Acton Web SiteZ: <https://doc.acton-ma.gov/dsweb/View/Collection-2182>.
- Spoke with Town officials relative to the proposed development and the associated need for access.
- Toured the proposed project site and the Acorn Park Subdivision area.
- Performed a public safety literature review relating to standards pertaining to fire and emergency medical response.
- Performed research into restricted access roadways with a focus on reliability especially during inclement weather situations.
- Photo documented the areas of proposed access.
- Conducted emergency response distance and time analysis for both the proposed Residences at Quail Ridge and the Acorn Park Subdivision.
- Reviewed Plans for both the proposed Residences at Quail Ridge and the Acorn Park Subdivision.
- Analyzed the differing demographics within the existing and proposed subdivisions.
- Conducted multiple risk assessments for the various options associated with this project. This includes developing a risk assessment for Acorn Park.

THE STUDY TEAM

The following MRI personnel participated in the study:

Project Manager:

Brian P. Duggan now commands the Fire Department in the City of Northampton, Massachusetts, where he has instituted substantial changes to modernize the entire department including equipment, facilities, personnel, training and organizational structure. He formerly commanded the Northborough, Massachusetts Fire Department, and has significant experience with the Massachusetts Department of Fire Services where he held several key positions. He also developed and directed the Graduate and Undergraduate Fire Science Programs at Anna Maria College in Paxton, Massachusetts, from 1995 - 2003. Chief Duggan has a Business Management/Fire Science degree from Providence College, and a Masters Degree of Business Administration (MBA) from Nichols College in Dudley, Massachusetts. He is also a graduate of the National Fire Academy's Executive Fire Officer Program, and is one of only a few fire service professionals to be designated as a Chief Fire Officer by the Commission on Fire Accreditation International. Chief Duggan also leads the Massachusetts fire service through his affiliation as Chairman of the Fire Chief Association of Massachusetts Technology Committee and as a Regional Director on the Massachusetts State Fire Mobilization Committee. In addition, he has authored several publications inclusive of writing Section 7, Chapter 3, "*Fire Department Information Systems*" in the Nineteenth Edition of the National Fire Protection Association's Fire Protection Handbook.

MRI Associates:

Keith E. Hoyle has served as a Fire Chief in two Massachusetts communities and has extensive fire prevention and safety experience through his years of working within the University of Massachusetts Environmental Health and Safety program at the University of Massachusetts Amherst. Keith served as Fire Chief within the Town of Franklin from 1994–1999, and currently serves as the Fire Chief in the Town of Amherst, Massachusetts. Keith offers a Masters degree in Fire Administration from the University of New Haven and is a graduate of the National Fire Academy's Executive Fire Officer Program.

BACKGROUND AND DEMOGRAPHICS

BACKGROUND

The applicant filed a project application with the Town of Acton for the Residences at Quail Ridge for the conversion of an eighteen hole golf course into a senior housing project. In the original application there were three proposed access points for the project:

- Skyline Drive directly to Great Road;
- Hazelnut Street and Acorn Park Drive to Great Road; and
- Palmer Lane and Acorn Park Drive to Great Road.

As this project was reviewed during public hearings, the residents of Acorn Park were vocal in objecting to accessing the project from Hazelnut Street and Palmer Lane. This objection was largely based on the increased through traffic that would need to navigate the narrow winding streets of Acorn Park. This culminated in a concern for the safety of residents and increased traffic flow. This is in direct opposition to the American Planning Association's planning for street connectivity which advocates for cross-connection between neighborhoods in an effort to enhance the flexibility for emergency access and evacuation.

OBSERVATIONS

During our field visit and based on a review of documentation, we have made the following observations:

Within the external environment, various groups have differing perspectives and opinions. This includes:

- The residents of Acorn Park, who are concerned about traffic and safety;
- The developer of the Residences at Quail Ridge, who has proposed two open access drives into Acorn Park through Palmer Lane and Hazelnut Street;
- The Planning Board, through the Acton Zoning Bylaws and subdivision rules and regulations that requires emergency access in this type of development that is suitable in the opinion of the Board;
- The Fire Department, which has advocated for gated emergency access for this development; and

- The Highway Department, which does not appear to have the manpower and resources to maintain or plow alternative emergency access points.

Emergency personnel response times into either development currently exceed national standards. The Town has recognized this service level deficit and is considering the construction of a more optimally located fire station to this site. The use of either of the two alternative access points can be expected to add between two (2) and four (4) minutes to any emergency response.

The access point on Palmer Lane is not advantageous based upon the configuration of roadways in Acorn Park and proximate to the main roadway proposed for the Residences at Quail Ridge. If an electronically-controlled access gate is utilized, it will need to be carefully configured to meet the operational needs of first responders. Consider power failures and inclement weather conditions.

The Residences at Quail Ridge is proposed to be an age-limited community; therefore, based upon demographics, a higher than average emergency response volume should be expected.

DEMOGRAPHICS

The Residences at Quail Ridge is a 174 unit proposed age-restricted community with an expected occupancy of 1 to 2 occupants per unit, or a total of 325 residents. The minimum age of persons to be considered for this community is 55.

Acorn Park is an 80 unit single family home sub-division consisting of three or four bedroom units with an estimated population of 320. Typically Acorn Park differs from the Residences at Quail Ridge in that occupancy here is younger families with children. The Residences at Quail Ridge can be expected to generate many more emergency medical calls than has been experienced at Acorn Park.

STUDY FINDINGS & PROJECTIONS

I. ASSESS THE ADEQUACY AND RELIABILITY OF GATED EMERGENCY ACCESS AS THE SOLE EMERGENCY ACCESS FOR THE RESIDENCES AT QUAIL RIDGE

Based upon our observations, it is appropriate to have a single gated emergency access point at Hazelnut Street. The reasoning for this recommendation considers that although Hazelnut Street is one-tenth of a mile greater in travel distance than the proposed access at Palmer Lane, it is superior in terms of a wider roadway configuration and a more direct approach. This provides access to the most remote portion of either subdivision, which is a desirable feature of an emergency access point.

This already is a maintained gated access point by the Town of Concord Water Department and as such, offers the opportunity to enter into a reliable maintenance partnership between the two municipalities. This would relieve the Acton Highway Department from the need to maintain this emergency access point.

The Palmer Lane access is not desirable due to narrow, windy access. We observed parked cars on the streets and had a basketball and its owner just miss us as we approached Palmer Lane in our automobile.

Full street access between the Residences at Quail Ridge and Acorn Park is not appropriate for reasons of public safety. Acorn Park was not designed for additional vehicular traffic. Roads are narrower and are curved, and many children live and play in or near the streets. The pedestrian/vehicle conflict would be sure to occur. Acorn Park's streets are too narrow the further one goes into the development and they lack good point-to-point observation by sight.

In an effort to insure reliability, this access point should be an electronically-controlled gate system with the following features:

1. "Opticom" emergency access gate controllers located on either side of the gate.
2. Keycode access pads located on either side of the gate to provide activation from either side of the gate.
3. Electronic "Supra key" over-ride switches are to be located with access keypads.
4. Single arm pivoting gate which should be of the "break-away" type should be utilized.

5. The gate arm should be designed appropriately to function in snow and ice storms and not be subject to freezing in place during these events.
6. All components shall be "UL" listed.
7. A battery-back up system should be provided to operate the gate during a power failure (unless emergency power can be provided by the Town of Concord's water pumping station).
8. In the event of a complete system failure due to normal power loss (and failure of the emergency system to activate), the gate shall be manually raised by hand without the use of any mechanical assistance (or in the alternative, it shall default to an open position).

Roadway maintenance is to be accomplished either through an agreement with the Town of Concord Water Department or a private contract with the Residences at Quail Ridge. Further, the Fire Chief should "order" the maintenance contract in writing in such a manner that it can be enforced through the State's Fire Code.

A complete lack of secondary access is NOT acceptable as it poses an undue public safety risk to both subdivisions and is prohibited by the Planning Board's regulation 8.1.9.



Figure 2 Hazelnut Street Gated Access Point

II. RISK ANALYSIS/ASSESSMENT FOR A SINGLE STREET ACCESS AS OPPOSED TO MULTIPLE STREET ACCESS ALTERNATIVES

A complete lack of secondary access is NOT acceptable as it poses an undue public safety risk to both sub-divisions and is prohibited by the Planning Board rules and regulations section 8.1.9.

Any weather event (snow, ice, rain, wind) could block access to either development on a single access roadway, as could a man-made event, such as a motor vehicle accident or environmental emergency (fuel spill).

Any of the above events could preclude an immediate emergency response by the Town into the developments and prevent the travel or evacuation of residents out of the complex. Given the population estimates in either sub-division, this is an unacceptable public safety risk.

Evacuation of residents could be managed either through the distribution of a unique keycode or by public safety personnel stationed at the emergency gate. However, the distribution of a unique public access code to residents invites abuse outside of emergency events.

If RQR and Acorn Park had been developed together at this time, both entities would be linked in several locations. However, Acorn Park's streets would be wider, straighter, and contain fewer hazards to public safety than we observed.

III. QUANTIFY RISK ANALYSIS/ASSESSMENT

Our proposed recommendations are driven by the following standards: the Town of Acton's Zoning By-law pursuant to section 9B and the Special Permit Rules and Regulations 8.1.9 dictate emergency access in this type of development. The International Fire Code section 14.05 5500, Appendix H, quantifies emergency access gates and barriers design. We also researched other western Fire Department regulations that considered gates and barriers for emergency access points.

The federal OSHA Two In/Two Out standard for firefighter safety on incident scenes and the NFPA 1710 standard to assemble 13-15 firefighters on scene of an incident in 8 minutes, 90% of the time also impact a single access roadway. The Commission on the Accreditation of Ambulance Services (CAAS) standard dictates a 9 minute arrival time for ambulance calls, and research into room and content fires in "normal" residences suggests that in as little as six (6) minutes, a fire could reach "flashover" or total room involvement.

Our recommendations consider the experience of other municipalities discovered through our research efforts.

Based upon the population and incident volume within Acton presently, we project the Residences at Quail Ridge could expect between 30-55 emergencies annually and Acorn Park another 10-20 events. Total volume projection annually could be 40-75 which speaks to the need for immediate emergency access into either subdivision.



Figure 3 Closest Fire Station



Figure 4 Response map detailing fire station location in relation to Acorn Park

Location	Distance	Time
Fire Station to Skyline Drive Entrance	1.4 Miles	5 Minutes
Fire Station to Acorn Park Entrance	2.3 Miles	7 Minutes
Fire Station to Palmer Lane	3.2 Miles	9 Minutes
Fire Station to Hazelnut Street	3.1 Miles	9 Minutes

Note: This includes time for the processing of the alarm and turnout of apparatus.

The response times indicated above clearly indicate a risk associated with the service level that can be provided in the absence of the construction of a fire station located in a better proximity to these two developments.

Example standards and policies are contained within Appendix A.

IV. ALTERNATIVES FOR GATED AND UNGATED EMERGENCY ACCESS

As detailed in previous sections, ungated and unrestricted access would create a public safety issue within Acorn Park and would threaten pedestrian safety there. The roadway design and widths are inadequate to support additional automobile traffic.

On street parking in Acorn Park further diminishes the clear widths of travel distance and creates dangerous situations where children dart into the streets through the voids created by parked cars. Streets also are too curved with not enough straight line of sight sections for safety.

Several alternative designs for gated emergency access exist (siren access, keypad, chain and lock, manual open, below ground security type, signage only, and security guard). However, we feel that we have identified the optimal configuration of a gated access system as defined below, based upon expected natural and man-made events likely to impact the operation of any gated emergency access system:

1. "Opticom" emergency gate controllers located on either side of the gate.
2. Keycode access pads located on either side of the gate to provide activation from either side of the gate.
3. Electronic "Supra key" over-ride switches are to be located with access keypads.
4. Single arm pivoting gate which should be of the "break-away" type should be utilized.

5. The gate arm should be designed appropriately to function in snow and ice storms and not be subject to freezing in place during these events.
6. All components shall be "UL" listed.
7. A battery-back up system should be provided to operate the gate during a power failure (unless emergency power can be provided by the Town of Concord's water pumping station).
8. In the event of a complete system failure due to normal power loss (and failure of the emergency system to activate), the gate shall be manually raised by hand without the use of any mechanical assistance (or in the alternative, it shall default to an open position).

Additional information on gated entry systems is contained in Appendix B.

V. METHODS TO ENSURE LONG-TERM, FULL-TIME RELIABILITY OF THE EMERGENCY ACCESS WAYS



Figure 5 Hazelnut Street Access Point

We propose that either the Town of Concord's Water Department or the Residences at Quail Ridge permanently maintain the access roadway system, as the Acton Highway Department could not guarantee such.

The Residences at Quail Ridge should be required to provide to the Acton Fire Department written documentation of inspection and mechanical maintenance semi-annually.

Honestly, the key to reliability lies within design and fail-safe specification of the gate system. As an example, many systems used in the south and west would be rendered dysfunctional by snow and ice.

The gated access roadway should be available both for access by emergency personnel and for the managed evacuation of residents from either development. Such an evacuation maybe triggered by a man-made event, such as a hazardous materials release, a motor vehicle accident, or other emergency requiring residents to evacuate the area.

The Fire Chief should "order" compliance with the maintenance portion of the gated access system in such a manner that it can be enforced through the state's Fire Code.

The points we recommended in Sections I and IV and in Appendices A and B should be referred to for more information.

VI. SOLUTIONS AND POTENTIAL PROBLEMS WITH GATED EMERGENCY ACCESS

The major issues resulting from gated emergency access include:

1. Lack of roadway or gate system maintenance.
2. Lack of adequate knowledge of the gate system by emergency responders.
3. Lack of adequate fail-safe design for the gate system.
4. Inappropriate distribution of access codes.
5. Inability to breach the gate system while in a failure mode.
6. Unauthorized parking on the emergency access roadway preventing response by emergency personnel.

Solutions that address items 1, 3, and 5 previously have been identified.

Provide a laminated instruction sheet for gate system operation on each piece of fire apparatus and all police cruisers, as well as conduct mandatory training on the operation of the gate system for all emergency personnel.

Access codes for the residents to be used only in the event of an emergency are a possibility, but if abuse occurs, the codes can be changed and not distributed to residents. In that event, emergency personnel would be required to manage any evacuation.

A combination of signage on or near the gate, striping on the roadway, and enforcement by police should solve the unauthorized parking issue.

VII. ACORN PARK RISK ANALYSIS/ASSESSMENT

The Acorn Park development was constructed in three sections between 1993 and 2000. In addition to the main roadway, a somewhat overgrown emergency access point exists via Walnut Street. During our site visit the alternative access roadway was not readily apparent. This secondary access was only later revealed in subsequent discussions and review of plans.

Although we believe an emergency access point with a mechanical gated access as describe in previous sections of this document can work, it must be properly maintained. Specifically, this points to two limitations of emergency access:

1. They often fail to be properly maintained; and
2. They often are forgotten during emergency situations as they are not utilized on a regular basis.

Through this report we recommend that maintenance be ordered by the Fire Chief and to meet this order RQR provide the Chief with maintenance records and agreements. In addition to maintaining the physical and mechanical aspects of the emergency access point, emergency responders must review the roadway system and periodically exercise the emergency access point.

Acorn Park has a roadway system containing 80 single family homes and approximately 320 residents, including children, and produces an estimated 10-20 emergency incidents annually.

At the time of initial construction, Acorn Park was not required to provide more than a single main access point into the development and a remote secondary access point that it not well maintained. Streets built further into the development are narrower, more curved, and on-street parking is allowed. Several public safety deficiencies are created due to these design parameters. If the complex was constructed today, a single access roadway system would not be allowed.

As a single roadway entrance system, it is subject to the same issues previously discussed in Section II. Creation of an emergency access roadway system into the Residences at Quail Ridge will serve a dual purpose of providing a needed capacity for another access to Acorn Park by emergency personnel. As a result, this restricted emergency access is mutually beneficial both to the existing and proposed developments.



Figure 6 - Child retrieving basketball that rolled in front of our vehicle



Figure 7 - Access Point from Palmer Lane



Figure 8 - Entrance to Acorn Park

VIII. FIRE, EMERGENCY SERVICE STANDARDS, GUIDELINES AND RECOMMENDATIONS

The Federal OSHA Two In/Two Out standard dictates that 4 firefighters must be on-scene to initiate emergency operations (unless there is an imminent rescue observed). This standard is to insure a certain element of firefighter safety on incident scenes.

The NFPA 1710 standard addresses the minimum assembly of 13-15 firefighters on scene of a fire or emergency incident in 8 minutes 90% of the time. This standard quantifies the number of fire service personnel required to perform fire attack, ventilation of fire gases from a structure, search and rescue of civilians, water supply for fire attack, a firefighter rescue team, and a commander coordinating the emergency forces on scene.

The Commission on the Accreditation of Ambulance Services (CAAS) standard dictates a 9 minute arrival time for ambulance calls.

The International Fire Code section 14.05 5500, Appendix H, addresses the design and operation of gated access systems.

Example standards and policies reflecting the experiences of other fire service agencies with respect to gated access systems are contained within Appendices A and B.

APPENDIX A

EXAMPLE STANDARDS, RULES, AND POLICIES

APPENDIX A-1





RESPONDING BEHIND CLOSED GATES

Hilton Head Island, S.C., is an internationally known vacation and resort destination that has more than 70% of its land mass "behind gates" in private communities known as plantations or planned unit developments. The Hilton Head Island Fire and Rescue Department responds to just over 6,000 calls for service annually and provides all fire, medical and transport services for the island.

Gated communities, while designed to provide safety and security to the occupants, slow response times for fire trucks, police and ambulances. These delays are critical and in some cases can be life-threatening.

In addition, where there are gated or restricted-access communities, there are generally fewer cross-street connections and therefore no ability to adequately respond to a location from multiple directions. There's also the problem of lost or malfunctioning remotes or keys, changes in community gate codes and simply no means of access for responding units. Having to call dispatch to get a gate code or contact a resident further delays response time and ties up radio frequencies.

The sheer number and size of the island's gated communities presented the department with a major challenge because most of these developments have just one gated access point. Depending on the location of the call for help, the closest fire station may not be the quickest to be able to arrive at the address, adding precious minutes to the responding-unit arrival time.

To address this problem, we met with plantation developers and property managers to explain the risk of delays caused by single-access gating. In a growing number of cases, the result has been an agreement with individual communities to create



one or more "emergency unit-only" access roads with gates around the perimeter of the development. In one case, we were able to coordinate with two adjacent communities on the creation of a single new emergency access point that connects one development with the other and greatly reduces response times for both.

With the adoption of a national standard for response times for fire and medical calls, fire departments are struggling to comply in the face of increasing requests for additional security, such as gates and fences. As fire service leaders plan future service delivery models for their community, they have a choice: either attempt to increase access by eliminating fences and gates or find a reasonable alternative to carrying a bundle of keys, garage door openers or bolt cutters.

When the department first learned about Click2Enter and what it could do, we felt that we had found a way to possibly eliminate some of these bottlenecks. We like that it maintains a printable record of all access attempts by frequency and time for documen-

tation purposes. The C2E unit attaches to any access-control system (gates, bollards, sally ports or roll-up doors) and uses our radios frequencies to gain access.

With the assigned and closely controlled emergency frequencies of a public safety agency programmed into the electronic unit, it takes only a single or double click of the responder's radio to open the gate. The unit will respond only to frequencies programmed into its database. In addition, the system can be programmed to set latch-back times that will leave gates open for a specified time after the passage of the first responder, enabling backup units to pass through even more rapidly.

Moving to an electronic system allows the department access and reduces response times. The island's residents have been tremendously supportive of departmental growth and modernization over the past two decades, and it is a natural step on our part.

— Chief Tom Fieldstead
Hilton Head Island Fire & Rescue

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FIRE-52-RB



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APPENDIX A-2



**THE 2006 EDITION OF THE INTERNATIONAL FIRE CODE AS DEVELOPED BY
THE INTERNATIONAL CODE COUNCIL, FORMERLY BOCA**

**SECTION 14.05.5500 APPENDIX H - EMERGENCY ACCESS GATES AND
BARRIERS.**

Chapter 14.05 INTERNATIONAL FIRE CODE

Section 14.05.5500 APPENDIX H - Emergency access gates and barriers.

The 2006 Edition of the International Fire Code is amended to read as follows:

APPENDIX H - EMERGENCY ACCESS GATES AND BARRIERS

(See IFC Section 503.5)

SECTION 1 - SCOPE

Where a new gate or barrier is installed on a fire access roadway, it shall be authorized by the Chief and meet the minimum requirements of Appendix H. Private driveways on lightly traveled streets as determined by the Chief and Community Development Director serving one single-family residence may be exempt from the scope of this document.

SECTION 2 -DEFINITIONS

For the purpose of APPENDIX H, certain terms are defined as follows:

GATES AND BARRIERS - shall mean a gate, crossbar, door or other obstructive device which is utilized for the purpose of restricting, controlling or obstructing entry or exit by motor vehicles or pedestrians to or from a private roadway and which is not manned on a twenty-four hour, seven day per week basis by a person

capable of providing immediate access to a police or fire safety vehicle or person;

PRIVATE STREET OR ROADWAY - shall mean any roadway (not dedicated as public right-of-way) that is owned and maintained by abutting property owners, or association of property owners that is utilized for the purpose of providing vehicular or pedestrian access to a subdivision, apartment complex, condominiums or other residential development or wild land, excluding off-street parking areas, driveways, and driveways to off-street parking areas.

PRIVATE DRIVEWAY - a private way for vehicular travel that provides access from an off-street parking area to a public or private drive.

SECTION 3 - PERMIT

A permit issued by the fire authority having jurisdiction to design and install any secured access gate system shall be obtained and approved in writing prior to installation.

SECTION 4 - SUBMITTALS

A minimum of 3 complete sets of information shall be submitted to the Building Department.

4.1 A site plan of the property and site detail of each gate location, drawn to scale (1"=10', 1"=20', or 1"=40'), indicating or showing:

4.2 Product specifications shall be provided that include:

- a. Method of operation
- b. UL listing numbers of equipment used and;
- c. Manufactures specification sheets for electrical gate controller.

4.3 Maintenance. Emergency access gates and barriers shall be maintained and may include:

- a. batteries required for operation of the system during power failure;
- b. Lubrication of moving parts and hinges per manufacturers specifications and;
- c. Any subsequent attention required to maintain the original list of frequencies for emergency operation of the gate in the controller.

4.4 Plan review and inspection fees will be assessed at the Building Department as approved by the Fire Chief.

SECTION 5 - MINIMUM REQUIREMENTS

5.1 Vehicle Gates - See Attached Layouts

5.1.1 Access

- a. All gates shall be UL 325 compliant and all wiring shall be in permanent weather-proof conduit.
- b. Gates shall not be installed within a required turning radius of a fire access roadway.

- c. Access for single direction traffic shall be unobstructed 16 feet wide and 14 feet high.
- d. Access for bi-directional traffic shall be unobstructed 20 feet wide and 14 feet high.
- e. Swinging gates for single direction traffic shall swing in the direction of vehicle travel.
- f. Swinging gates for bi-directional traffic shall swing into the property being entered.
- g. Locations of gates shall be as approved by the Chief and Sparks Engineering Department, on a case-by-case basis.
- h. All gates shall be accessible from the driving lane nearest the edge of the street by turning radii of at least 80' inside and 93' outside.
- i. Private driveways serving one single-family residence on moderate and heavily traveled streets shall:
 - 1. Meet the setback requirements of this appendix. If existing conditions prevent gate installation with 40' of clearance to the face of the gate, a letter documenting an acceptable alternative that would facilitate emergency ingress without endangering emergency response personnel and apparatus will be required for review and approved by the Chief;
 - 2. Meet the operational requirements of electrically operated gates.

5.1.2 Operation of Gates

- a. All gates shall be electrically operated for entry and exit by an approved fire department method:
 - 1. Radio operated controller (Click2Enter or other approved equipment.)

Exception: Radio controlled exit may be waived by installation of a "free exit" loop.
- b. Wiring for electrical gates shall be provided by AC current, underground installation.

c. Electrically operated gates shall fail to the open position when the power is off. They shall remain open until power is restored.

5.1.2.1 Manual gates or barriers may be approved on a case-by-case basis for nighttime security of business property or access to wild lands.

a. They shall be constructed in a manner that reflects good construction practices acceptable to the Chief and Community Development Director.

b. They shall be accessible by means of an approved fire department padlock (Knox[®]) or by the installation of an approved key box (Knox[®]).

c. Approved manual gates or barriers across emergency access roadways shall be provided with an 18-gauge metal sign in the center of an on both sides of the gate that shall read, "FIRE LANE - NO PARKING". Letters shall be red on a white background and be a minimum of 3" high with a 1/2" stroke.

d. Gates to close off a fire lane behind strip malls/stores in order to minimize dumping and vandalism shall be approved with (Knox[®]) padlock access.

5.1.3 Prohibitions

a. No gate shall be installed where access requires the use of a proximity reader or card, unless a "turn-out" is provided for its use.

b. Direction-limiting devices, such as fixed tire spikes, are prohibited.

c. The total number of vehicle access control devices or systems, through which emergency vehicles must pass to reach any address shall not exceed one.

d. No commercial property owner shall install fences and gates where more than one gate must be opened in order to reach within 150 feet of the rear portion of any building.

5.2 Pedestrian Gates

All vehicle gates obstructing pedestrian access to a public way (street) shall have an approved pedestrian gate installed within 10 feet of the vehicle gate.

- a. Gates shall be handicap accessible and comply with exit door requirements of the International Building Code.**
- b. An approved key box (Knox[®]) shall be installed at least 48" above grade on the outside of the gate. It shall be provided with a key to open the pedestrian gate.**
- c. No pedestrian gate shall be located in the median between two vehicle gates.**

Exception: Private driveways serving one single-family residence are exempt from this requirement.

SECTION 6 - INSTALLATION APPROVAL

The fire authority having jurisdiction shall inspect all gates for proper installation and operation prior to activation or use.

SECTION 7 - ADDITIONAL REQUIREMENTS

Because of delays caused by vehicle access control devices or systems, additional fire protection requirements may be applied based on other access limitations, such as narrow or winding streets, or dead-end streets without an approved turnaround available for fire apparatus.

Other than the obstruction and the reduced width controlled within this standard, no other requirement of the fire authority having jurisdiction shall be adversely affected by the placement of any vehicle access control device or system in any required fire apparatus access road.

Fire department approval does not waive any requirement by other authorities having jurisdiction.

References:

1. **Knox[®] Company**

Information and order forms are available at www.Knoxbox.com.

Information for Click2Enter Gate Control Systems is available at www.click2enter.net.

APPENDIX A-3



APPENDIX VII

EMERGENCY ACCESS GATES AND BARRIERS

(See UFC Section 902.2.4.2)

SECTION 1 - SCOPE

Where a new gate or barrier is installed on a fire access roadway, it shall be authorized by the Chief and meet the minimum requirements of Appendix VII. Private driveways on lightly traveled streets as determined by the Sacramento County, Department of Transportation or the appropriate public works agency having jurisdiction, serving one single-family residence may be exempt from the scope of this document. Approval of automated gates or barriers is subject to the owner accepting responsibility for any future programming requirements by the authority having jurisdiction.

SECTION 2 - DEFINITIONS

For the purposes of APPENDIX VII, certain terms are defined as follows:

100% CONCURRENCE OF PROPERTY OWNERS will consist of a signed, notarized copy of Appendix VII - Form A, Emergency Access Gates and Barriers, by each property owner served by the gate;

AUTHORITY HAVING JURISDICTION is any agency having statutory authority to enforce federal, state, county, city, or district laws, ordinances or standards;

GATES AND BARRIERS – shall mean a gate, crossbar, door or other obstructive device which is utilized for the purpose of restricting, controlling or obstructing entry or exit by motor vehicles or pedestrians to or from a private roadway and which is not manned on a twenty-four hour, seven day per week basis by a person capable of providing immediate access to a police or fire safety vehicle or person;

PRIVATE STREET OR ROADWAY – shall mean any roadway (not dedicated as public right-of-way) that is owned and maintained by abutting property owners, or association of property owners that is utilized for the purpose of providing vehicular or pedestrian access to a subdivision, apartment complex, condominiums or other residential development or wild land, excluding off-street parking areas, driveways, and driveways to off-street parking areas.

PRIVATE DRIVEWAY -- A private way for vehicular travel that provides access from an off-street parking area to a public or private drive.

ULTIMATE EDGE OF RIGHT-OF-WAY is the line furthest from the centerline of the street that has been approved by the County and recorded on the parcel map for existing or future street improvements.

SECTION 3 - PERMIT

A permit issued by the fire authority having jurisdiction to design and install any secured access gate system shall be obtained and approved in writing prior to installation. The gate permit may be revoked and the gate locked in the open position for any cause determined by the authority having jurisdiction to be in the interest of public safety.

SECTION 4 - REQUIRED SUBMITTAL LOCATIONS

4.1 Unincorporated areas of the county. Approvals are required from the six (6) agencies having jurisdiction over the installation of gates & barriers. A total of nine (9) sets of information will be required to be submitted at the 1st office. All copies returned to the applicant shall have the approval stamp and signature of the plan review officer prior to taking them to the next office. Following the agency signatures, copies shall be provided as noted in section 4.1.7. Each office will retain one copy for their records. Submittals for applications to install gates or barriers shall be in the following order:

4.1.1 1st Office: Department of Transportation, Sacramento County, 906 G Street, Sacramento, CA 95814; (916) 874-5374.

4.1.2 2nd Office: Planning Department, Sacramento County, 827 7th Street, Room 101, Sacramento, CA 95814; (916) 874-6141. Zoning, (916) 874-6221

4.1.3 3rd Office: County Sanitation District 1, 10545 Armstrong Ave., Suite 101, Mather, CA 95655; (916) 876-6094.

4.1.4 4th Office: Sheriff's Department, Sacramento County, Community Development Assistant Planner, Community Oriented Policing Strategies Division, 1000 Riverwalk Way, Carmichael, CA 95608. Please call (916) 876-7599 for an appointment to submit plans.

4.1.5 5th Office: The Fire Prevention Bureau of the fire district/department having jurisdiction:

- a. Areas under the jurisdiction of the City of Sacramento outside the incorporated city shall be submitted to the City of Sacramento, Fire Prevention Office, 5770 Freeport Blvd., #200, Sacramento, CA 95822 (916) 433-1300.
- b. Courtland Fire District; (916) 775-1210
- c. Delta Fire District; (707) 374-2233
- d. Elk Grove unincorporated areas: Elk Grove Fire Dept., 8820 Elk Grove Blvd., No. 2, Elk Grove, CA 95624
- e. Galt Fire District, Fire Prevention, 208 A St., Galt, CA 95632; (209) 745-1001
- f. Herald Fire District; (209) 748-2322
- g. Isleton Fire Protection District, 100 Second Street, Isleton, CA 95641; (916) 777-7776

- h. Sacramento Metro Fire District, 3012 Gold Canal Drive, Rancho Cordova, CA 95670; (916) 942-3300.
- i. Walnut Grove Fire District; (916) 776-1090
- j. Wilton Fire District; (916) 687-6920

4.1.6 6th Office: The Sacramento County Building Dept., 4101 Branch Center Road, Sacramento, CA 95827; (916) 875-5400 – A Miscellaneous Electrical Permit is required for all electrical gate installations.

4.1.7 Provide copies to:

- a. The property owner or Association (1 Copy)
- b. The electrical contractor (1 Copy)
- c. The gate contractor (1 Copy)

4.2 Incorporated areas of the county (Cities) – Applications for gates within incorporated areas shall be submitted to the city locations listed below or as directed by their information services. Do not begin the process at the County Transportation Office.

4.2.1 Citrus Heights. Plans for the City of Citrus Heights shall be submitted to the Sacramento Metro Fire District, 3012 Gold Canal Drive, Rancho Cordova, CA 95670 (916) 942-3300.

4.2.2 Elk Grove. Plans for the City of Elk Grove shall be submitted to Elk Grove Fire Dept., 8820 Elk Grove Blvd., No. 2, Elk Grove, CA 95624 (916) 685-9502

4.2.3 Galt. Plans for the City of Galt shall be submitted to Galt Fire District, Fire Prevention, 208 A St., Galt, CA 95632; (209) 745-1001

4.2.4 Folsom. Plans for the City of Folsom shall be submitted to the City of Folsom, Community Development Dept., 50 Natoma St., Folsom, CA 95630; (916) 355-7222

4.2.5 Rancho Cordova. Plans for the City of Rancho Cordova shall be submitted to the Sacramento Metro Fire District, 3012 Gold Canal Drive, Rancho Cordova, CA 95670; (916) 942-3300

4.2.6 Sacramento. Plans for the City of Sacramento shall be submitted to the City of Sacramento, Fire Prevention Office, 5770 Freeport Blvd., #200, Sacramento, CA 95822; (916) 433-1300

SECTION 5 - SUBMITTALS

A minimum of nine (9) complete sets of information shall be submitted to the Department of Transportation or the appropriate public works agency having jurisdiction and shall include the following:

5.1 Approved verification of 100% Concurrence of Property Owners. The applicant shall provide, with the gate application, verification that all existing property owners served by gate installation agree to its installation and operation. Each

property owner shall provide a signed copy of the agreement noted as Appendix VII, Form A – Emergency Access Gates and Barriers (at the end of this document). In addition, the applicant shall provide a copy of the amended “Road Maintenance Agreement” identifying the addition of the gates and operating systems. Where there is only one property owner, Appendix VII, Form A – Emergency Access Gates and Barriers must be signed by the property owner and the gate contractor. The completed form original shall be retained by the fire department.

5.2 A site plan of the property and a site detail of each gate location, drawn to scale (1”=10’, 1”=20’, or 1”=40’), indicating or showing:

- a. C-10 electrical contractors stamp on the plans for the electrical installation;
- b. C-13 fence contractors stamp on the plans for the installation of the gate;
- c. Plans for gates over 6 feet in height shall bear the stamp of a structural engineer and must be accompanied by a Sacramento County Building Permit Number.
- d. Contractors company name, address, phone number and contact person.
- e. Exact locations of the entry to the property (i.e. On the east side of Fulton Ave, 620 feet north of the center of Marconi Ave. in the Sacramento area);
- f. Assessors Parcel Number (located on the property owners tax bill);
- g. Property Lines;
- h. Fire Hydrants, fire department connections;
- i. Location of the “ultimate back of right-of-way”;
- j. Location of the existing edge of pavement or gutter line;
- k. Building footprints, including doors, walkways and fire control room doors; parking spaces and landscape affected;
- l. Proposed fence, pedestrian gates, vehicle gates;
- m. Existing vehicular access;
- n. Proposed location of Knox® key switch / Knox® box(s);
- o. Physical address and;

5.3 Product specifications shall be provided that include:

- a. Method of operation;
- b. Manufacturers specification sheets including UL listing number for electrical gate controller.

5.4 Maintenance. Emergency access gates and barriers shall be maintained and may include:

- a. Batteries required for operation of the system during power failure;
- b. Lubrication of moving parts and hinges per manufacturers specifications and;

- c. Any subsequent attention required to maintain the original list of frequencies for emergency operation of the gate in the controller.

5.5 Plan review and inspection fees will be collected as required by each agency.

SECTION 6 - MINIMUM REQUIREMENTS

6.1 Vehicle Gates – See Attached Layouts

6.1.1 Access

- a. All gates governed by this standard shall be UL 325 compliant.
- b. Gates shall not be installed within a required turning radius of a fire access roadway.
- c. Access for single direction traffic shall be unobstructed 16 feet wide and 13', 6" high.
- d. Access for bi-directional traffic shall be unobstructed 20' wide and 13', 6" inches high.
- e. Swinging gates for single direction traffic shall swing in the direction of vehicle travel.
- f. Swinging gates for bi-directional traffic shall swing into the property being entered.
- g. Locations of gates shall be as approved by the Sacramento County, Department of Transportation or the appropriate public works agency having jurisdiction, on a case-by-case basis. To find out where the ultimate edge of right-of-way is, contact Sacramento County, Land Division & Site Improvement Review, 827 7th Street, Room 102-105, Sacramento, CA 95814, (916) 874-6591 or the public works agency having jurisdiction.
- h. All gates shall be accessible from the driving lane nearest the edge of the street by turning radii of at least 38' inside and 58' outside.
- i. After passing through a gate, the nearest curb of any cross street shall be no less than 40 feet.
- j. Gates on **private driveways** serving one single-family residence on moderate and heavily traveled streets as determined by the County Office of Transportation shall:
 - 1. Meet the set-back requirements of this appendix. If existing conditions prevent gate installation with 40' of clearance to the face of the gate, a letter documenting an acceptable alternative that would facilitate emergency ingress without endangering emergency response personnel and apparatus will be required for review and approval by the Chief;
 - 2. Meet the operational requirements of electrically operated gates.

6.1.2 Operation of Gates

- a. All gates shall be electrically operated for entry and exit by an approved fire department method:

1. Key override switch (Knox®) and
2. Radio operated controller (Click2Enter© or other approved equipment).

Exception: Radio controlled exit may be waived by installation of a “free exit” loop.

NOTE: Incorporated Cities may have additional requirements.

- b. Gates requiring radio-controlled access shall be provided with an approved 2 inch by 2 inch, blue, reflective marker visible to approaching traffic. It shall be located in the center of the exit gate.
- c. Wiring for electrical gates shall be provided by AC current, underground installation. A miscellaneous electrical permit is required by the Sacramento County Building Department.
- d. Electrically operated gates shall fail to the open position when the power is off. They shall remain open until power is restored.
- e. Knox® Company authorization forms are required for orders of key switches, boxes and padlocks. The forms may be obtained by calling the fire authority having jurisdiction or the Sacramento County Sheriff's Office.

6.1.2.1 Manual gates or barriers may be approved on a case-by-case basis for nighttime security of business property or access to wild lands.

- a. They shall be constructed in a manner that reflects good construction practices acceptable to the fire authority having jurisdiction.
- b. They shall be accessible by means of an approved fire department padlock (Knox®) or by the installation of an approved key box (Knox®). The padlock or box shall be installed on the outside of the gate.
- c. Approved manual gates or barriers across emergency access roadways shall be provided with an 18-gauge metal sign in the center of and on both sides of the gate that shall read, “FIRE LANE- NO PARKING”. Letters shall be red on a white background and be a minimum of 3” high with a ½” stroke.
- d. Gates to close off a fire lane behind strip malls/stores in order to minimize dumping and vandalism shall be provided with (Knox®) padlock access.

6.1.3 Prohibitions

- a. No gate shall be installed where access requires the use of a proximity reader or card, unless a “turn-out” is provided for its use.
- b. Direction-limiting devices, such as fixed tire spikes, are prohibited.
- c. The total number of vehicle access control devices or systems, through which emergency vehicles must pass to reach any address shall **not** exceed one.
- d. No commercial property owner shall install fences and gates where more than one gate must be opened in order to reach within 150 feet of the rear portion of any building.

6.2 Pedestrian Gates

All vehicle gates obstructing pedestrian access to a public way (street) shall have an approved pedestrian gate installed within 10 feet of the vehicle gate.

- a. Gates shall be handicap accessible and comply with exit door requirements of the Uniform Building Code.
- b. An approved key box (Knox®) shall be installed at least 48" above grade on the outside of the gate. It shall be provided with a key to open the pedestrian gate. (This is required in order to provide emergency access to the vehicle gate controller during a power outage or battery back-up failure.)
- c. No pedestrian gate shall be located in the median between two vehicle gates.

Exception: Private driveways serving one single-family residence are exempt from this requirement.

SECTION 7 - INSTALLATION APPROVAL

The fire authority having jurisdiction shall inspect all gates for proper installation and operation prior to activation or use.

SECTION 8 - ADDITIONAL REQUIREMENTS

Because of the delays caused by vehicle access control devices or systems, additional fire protection requirements may be applied based on other access limitations, such as narrow or winding streets.

Other than the obstruction and the reduced width controlled within this standard, no other requirement of the fire authority having jurisdiction shall be adversely affected by the placement of any vehicle access control device or system in any required fire apparatus access road.

Fire department approval does not waive any requirement by other authorities having jurisdiction.

APPENDIX VII

FORM A - EMERGENCY ACCESS GATES AND BARRIERS

UNDERSTANDING AND AGREEMENT

I/we understand and agree with the conditions of Appendix VII, Form A – Emergency Access Gates and Barriers to install and maintain controlled access to the private street/roadway shown on the attached plans including the parcel number listed below. I/we understand that FAILURE TO COMPLY with any condition herein shall constitute a violation of 2001 edition, U.F.C. Section 902.2.4.2, and is grounds for immediate revocation of this permit to have a security gate or barrier. I also understand that once the gate system is approved and activated, it shall not be tampered with, without the written approval of the fire department and sheriff's office except by authorized maintenance personnel.

I/WE HAVE READ, UNDERSTAND AND AGREE TO COMPLY WITH ALL CONDITIONS HEREIN.

Gate Contractor: _____ Date: _____
Signature Printed

Property Owner: _____ Date: _____
Signature Printed

Parcel Number: _____

Final Inspection
Approval By: _____ Date: _____
Signature Printed

Agency: _____

(A signed fire department inspection card may verify final approval.)

References:

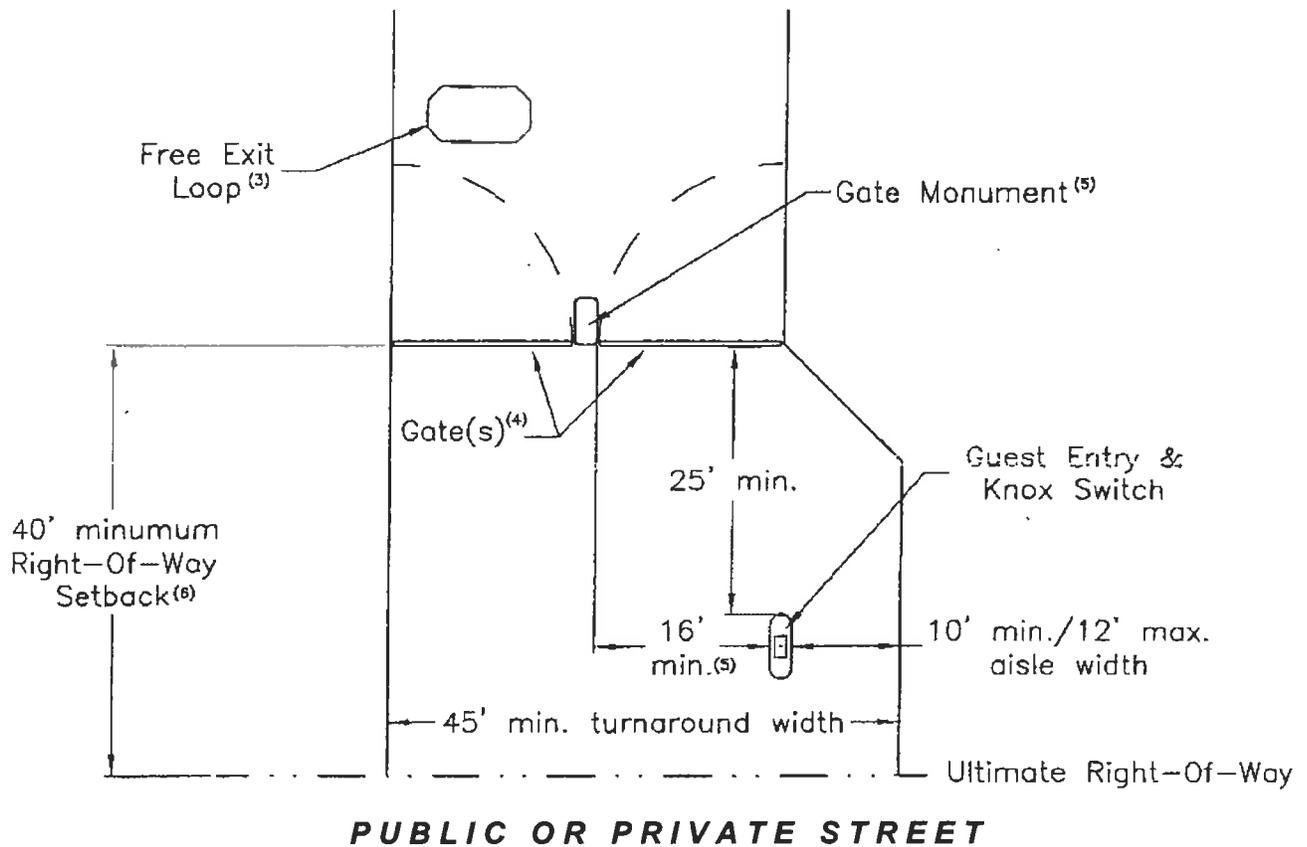
1. Click2Enter® Distributors:

- A. Encon Electronics, 28310 Industrial Blvd., Suite 1, Hayward, CA 94545, (800) 782-5598
- B. Alarms Unlimited of Sacramento, P.O. Box 3630, Citrus Heights, CA 95611, Phone (916) 338-5122 Fax (916) 338-4567 Email dave@alarmsun.com, Dave Bernard

2. Knox®

Information and order forms are available at the Fire Prevention Office or at the Sacramento County Sheriff's Office as noted in the above document Items 4.1.4 and 4.1.5.

Entry Gate Layout For New Developments

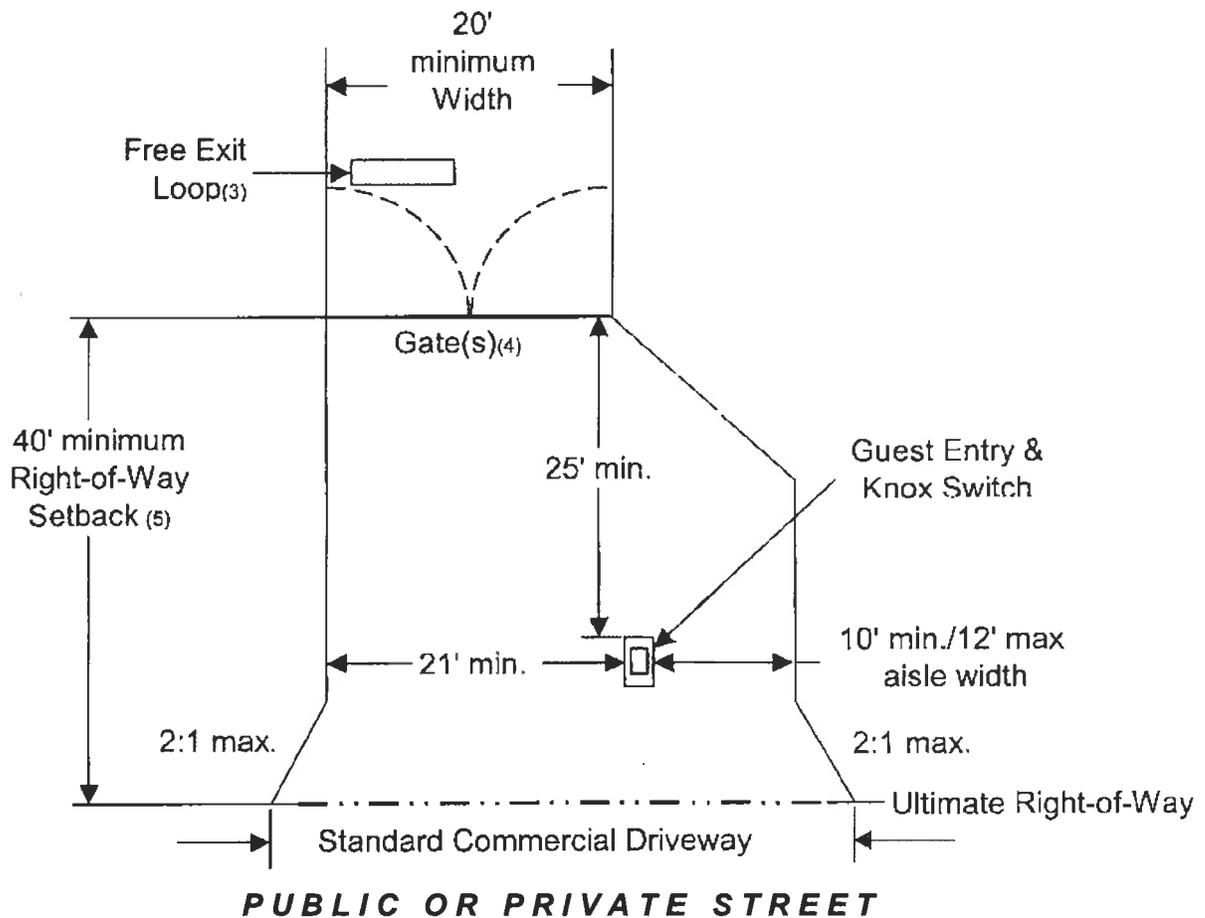


SCALE: NTS DRAWN BY: PK
DATE: 5/2002 CHECKED BY: KRH

NOTES:

1. The dimensional criteria shown on this layout meet the requirements of the Sacramento County Sheriff, the Sacramento County Department of Transportation and the Fire Districts of Sacramento County. Additional requirements are included in the County's Uniform Fire Code. Alternate designs that adhere to the Code and the criteria above may be approved pending review by the above agencies.
2. A Free Exit Loop may be approved in lieu of an approved radio-activated exit device.
3. A 36-inch wide pedestrian gate shall be provided within 10-feet of the vehicle gate.
4. The gate layout shall consist of one 20-foot min. opening or two separate 16-foot min. openings.
5. An optional gate monument may be approved. However, depending on the design a wider turnaround area may be required. If the monument protrudes in front of the gates, the right-of-way setback shall be measured from the monument instead of the gates.
6. The actual gate setback requirement will be based on a queuing analysis performed by the Department of Transportation.

Entry Gate Layout for Existing Developments (Retrofit)



SCALE: NTS DRAWN BY: PK
DATE: 5/2002 CHECKED BY: KRH

NOTES:

1. The dimensional criteria shown on this layout meet the requirements of the Sacramento County Sheriff, the Sacramento County Department of Transportation and the Fire Districts of Sacramento County. Additional requirements are included in the County's Uniform Fire Code. Alternate designs that adhere to the Code and the criteria above may be approved pending review by the above agencies.
2. A 36-inch wide pedestrian gate shall be provided within 10-feet of the vehicle gate.
3. A Free Exit Loop may be approved in lieu of an approved radio-activated exit device.
4. The gate layout shall consist of one 20-foot min. opening or two separate 16-foot minimum openings.
5. The actual gate setback requirement will be based on a queuing analysis performed by the Department of Transportation.

APPENDIX A-4



Municipal
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GUIDELINES

Guideline C.01 - Emergency Fire Access: Roadways, Fire Lanes, Gates and Barriers

C.01.1 PURPOSE

The purpose of this guideline is to provide information necessary to ensure that the design of emergency fire access roadways, gates and barriers meet the applicable regulations and standards. These provisions allow the emergency resources to respond to an incident in a safe and effective manner. The Newport Beach Fire Department, local law enforcement and property owners are responsible for enforcing these requirements from the California Fire Code (CFC), California Vehicle Code (CVC), and the Newport Beach Municipal Code.

C.01.2 SCOPE

For the purpose of this guideline, the terms “street”, “roadway” and “road” apply to all roads, streets, ways, lanes, alleys, avenues, fire lanes, etc. These outlined procedures are applicable to all emergency access roadways, whether public or private. It includes the requirements for emergency access roadway design, signage, striping and alternative surfaces, plus requirements and provisions for enforcement.

C.01.3 PROCEDURE

FIRE APPARATUS ACCESS ROADS AND FIRE LANES

1. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus road shall comply with the requirements of this guideline and shall extend to within 150 feet of all of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.
 - More than one road may be required when it is determined that access by a single road may be impaired by vehicle congestion, condition or terrain, weather conditions which could result in dangerous situations or other factors that could limit access.
 - When required by the Fire Code Official, approved signage or other approved notices shall be provided and maintained for emergency access roads to identify such roads and prohibit obstruction thereof or both. Signs or notices shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.



GUIDELINES

2. Widths are to be measured from top of the face of the curb on streets with curb and gutter, from flowline to flowline on streets with rolled curbs. Flowline is the lowest continuous elevation of a rolled street curb defined by the path traced by a particle in a moving body of water at the bottom of the rolled curb.

These dimensions are for straight roadways only; apparatus turning radius requirements must also be met.

- Minimum width of a fire access roadway shall be 20 feet, no vehicle parking allowed. The width shall be increased to 26 feet within 30 feet of a hydrant, no vehicle parking allowed.
 - Parking on one side is permitted on 28 foot wide streets. Parking on two sides permitted on 36 foot wide streets.
 - No parking is permitted on streets narrower than 28 feet in width.
 - Access roads shall have an unobstructed vertical clearance of not less than 13'6".
3. Roads must be constructed of a material that provides an all weather driving surface and capable of supporting 72,000 pounds imposed load for fire apparatus and truck outrigger loads of 75 pounds per square inch over a two foot area. Calculations stamped and signed by a registered professional engineer (RPE) shall certify that the proposed surface meets the criteria of an all weather driving surface and is capable of withstanding the weight of 72,000 pounds.
 4. The gradient for access roads shall not exceed 10%.
 5. Speed bumps are prohibited
 6. Any obstruction in required fire access roadways such as speed humps or other traffic calming measures, when approved by the fire code official, shall be in accordance with the Newport Beach Public Works Department's Neighborhood Traffic Management Guidelines
 7. The inside turning radius for an access road shall be 20' or greater. The outside turning radius shall be a minimum of 40'. Cul-de-sacs with center obstruction (islands) will require a larger turning radius as approved by the fire code official.
 8. Dead end fire apparatus access roads in excess of 150' in length shall be provided with an approved cul-de-sac for turning around fire apparatus without backing up. Turnarounds shall meet the turning radius requirements identified above as well as local standards for cul-de-sac design. The minimum cul-de-sac radius is 40' without parking.



GUIDELINES

9. Approach to fire access roads shall be constructed in accordance with the city of Newport Beach *Design Criteria for Public Works Construction* manual. A rolled curb approach shall have a 9:12 batter.

ENGINEERED ALTERNATIVE SURFACE FIRE ACCESS ROADS

Alternatives to paved surface fire roads may only be used when approved by the Fire Code Official. The following standards shall apply to the use of engineered alternatives to paved fire access roads.

1. Calculations and a statement stamped and signed by a registered civil engineer shall certify that the proposed alternative surface and its substrate meet the criteria for an all weather driving surface as specified by the product manufacturer. The engineer shall also certify that the alternative surface is capable of withstanding the weight requirements as specified in section "*FIRE APPARATUS ACCESS ROADS AND FIRE LANES, # 3*", above, under all weather conditions.
2. The manufacturer's specification for the product must indicate that the product is approved for the application or consistent with the manufacturer's recommendations. Manufacturer's specifications, including details for the required substrate must be included with the plan.
3. Alternative surface fire access roads may not exceed one hundred and fifty feet (150') in length, from beginning to end, unless approved by the Fire Code Official. The road shall conform to the width requirements described in section "*FIRE APPARATUS ACCESS ROADS AND FIRE LANES, #2*" above.
4. Alternative surfaces shall only be installed on slopes of one degree (1.75% grade) or less unless specified for steeper grade by the manufacturer and approved by the Fire Code Official.
5. The design shall incorporate a curb cut or rolled curb at both the entrance and exit points that delineates entry onto the alternative surface. The curb cut or rolled curb must be indicated on the plan.
6. A minimum four inch wide concrete strip shall delineate the alternative surface on both sides of the lane. Alternatives to concrete must be approved by the Fire Chief. Strip delineations shall be indicated on the plans.
7. The following sentence shall be placed on the plan: "Final approval is subject to actual field acceptance testing utilizing fire department apparatus."



GUIDELINES

8. A clause requiring permanence, maintenance and upkeep of the alternative surface shall be included in the properties CC&Rs, deed and or similar documents. The document shall be submitted with the plans.

FIRE APPARATUS ACCESS GATES AND BARRIERS

1. Vehicle access gates or barriers installed across streets shall be in accordance with the Newport Beach Fire Department Guidelines. Three site plans are required for gate/barrier plan review and approval. Plans shall indicate measurements, location, type of gate/barrier, and type of locking device, approved opening devices, and gate swing direction.
2. The minimum width of any gate or opening necessary for required as a point of access shall not be less than 14 feet unobstructed width. The minimum width may be increased depending on the length of the approach.
3. All emergency vehicle access gates, private gated communities, chains across fire lanes, and gates that provide access to the beach and/or wild land areas, shall have a lock approved by the Newport Beach Fire Department. Where gates are electrically operated, an approved key switch and an approved remote opening device shall be installed and maintained operational at all times or locked in the open position until operational.

FIRE LANES

1. Fire lanes shall be required for every building when any portion of an exterior wall of the first story is located more than 150 feet from fire department vehicle access. Fire lanes are normally dedicated roads that are provided for the fire apparatus to gain access to the sides and rear of buildings. Fire lanes shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities in accordance with all other provisions of this guideline.

APPENDIX A-5



Municipal
Resources
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FAIRFIELD FIRE DEPARTMENT

STANDARD 95-44

ACCESS GATES

AUTHORITY: Chapter 8, Section 8.1 City Ordinance, California Fire Code (C.F.C.), and Section 101.4.

PERMIT REQUIRED: To design and install any secured access gate system.

FEE: _____

PLAN SUBMITTALS:

Plans shall be submitted to the Prevention Bureau and shall include the following details:

1. A site plan, drawn to scale, indicating
 - a. Property lines
 - b. Building footprints
 - c. Proposed fence, pedestrian gates, vehicular gates
 - d. Proposed location of Knox key switch / Knox box
 - e. Physical address
 - f. California contractors license number, company name, address, and telephone number

2. Product specifications shall be provided which include:
 - a. Method of operation
 - b. Telephone operation sequence (if applicable)

DEFINITIONS:

APPROVED refers to approval by the fire chief as the result of investigation and tests conducted by the fire chief or by reason of accepted principles or tests by national authorities, or technical or scientific organizations.

AUTHORITY HAVING JURISDICTION is any state, county, city, town, district, or any other political subdivision adopting this code for use in its jurisdictional area.

PEDESTRIAN GATE is a gate used exclusively as pedestrian entry and egress.

SHALL indicates a mandatory requirement.

SHOULD indicates a recommendation that is advised but not required.

STANDARD means the rules and regulations contained in the Fairfield Fire Prevention Standards and are designed to provide specific guidelines to the California Fire Code.

VEHICULAR GATE is a gate intended for vehicle passage.

RESIDENTIAL PROPERTIES includes single and multi-family dwellings, such as apartment and condominiums.

GATED COMMUNITY DEVELOPMENT is a community that may consist of single or multi-family dwellings, or other accessory uses, that are enclosed within a geographical area by restrictive gates.

Sec. 902.2.4 Obstruction and Control of Fire Apparatus Access.

Sec.902.2.4.1 General. The required width of a fire apparatus access road shall not be obstructed in any manner, including parking of vehicles. Minimum required widths and clearances established under Section 902.2.2.1 shall be maintained at all times.

Entrances to roads, trails or other access ways that have been closed with gates and barriers in accordance with Section 902.2.4.2 shall not be obstructed by parked vehicles.

The following standard shall be used when installing gates that will obstruct the access of emergency vehicles or personnel into commercial or residential areas.

Sec.902.2.4.2 Closure of access ways. The chief is authorized to require the installation and maintenance of gates or other approved barricades across roads, trails or other access ways, not including public streets, alleys or highways.

When required, gates and barricades shall be secured in an approved manner. Roads, trails and other access ways that have been closed and obstructed in the manner prescribed by Section 902.2.4.2 shall not be trespassed upon or used unless authorized by the owner and the chief. The minimum width for any gate shall be 12' 0" and may be required to be of a greater width.

Exception: Public officers acting within their scope of duty.

Locks, gates, doors, barricades, chains, enclosures, signs, tags or seals which have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with or otherwise molested in any manner.

Exception: When authorized by the chief or performed by public officers acting within their scope of duty.

Prior to the installation of any gate or other device that will obstruct the access of emergency vehicles or emergency personnel, to commercial, residential areas, or open space/wildland areas, plans and specifications shall be submitted to the Fairfield Fire Department, Fairfield Planning Department, and the Fairfield Police Department for permit issuance and plan approval.

If gates are not guarded on a 24-hour basis, the following guidelines shall be followed:

Commercial Properties

1. All gates required to be opened electrically shall be key operated and shall be operated by a Knox key switch.
2. A lock box shall be installed to allow emergency personnel access through pedestrian gates. Emergency personnel must be able to access manual backup controls.
3. All gate(s) must be provided with an approved means to open it during power failures.
4. If gate is manual and secured with a chain and lock, specifications will be decided during plan review.
5. If there are two or more gates in any single development, all gates must be operated in the same fashion.

Gated Community Developments/Residential Properties

1. The Fairfield Fire Department Fire Prevention Bureau shall determine if gates are to be manual or electrical in operation. All electrical vehicular gates shall be provided with access control using a Radio Transceiver for public safety and authorized users. This transceiver will allow emergency vehicles to open the gate from a mobile or portable radio. The Fairfield Fire Department currently uses the “Click2Enter” company to provide this device.

2. Gate activation shall not be altered or placed out of service without prior notification to the Fire Department Prevention Bureau and Police Dispatch. Where prior approved phone activation gates become worn or inoperative, the approved radio transceiver shall replace them.
3. If there are two or more gates in any single development, all gates must be operated in the same fashion.
4. All electrical vehicular gates must be provided with a fail-open device to open it during power failures. These devices usually restore the gate(s) to the closed position after the power is restored. Any residential properties consisting of 15 or less dwelling units are not subject to this requirement.
5. A Knox dual key activating switch or padlock shall be installed to allow emergency personnel access through vehicular gates.
6. An approved Knox dual key lock box shall be installed to allow emergency personnel access through all pedestrian gates.
7. The maintenance and upkeep of all gates, including the power and phone utility to operate the gates, is the responsibility of the property owner, homeowners' association, or occupants of a gated community. All gates must be serviced on a bi-annual basis.

*

It is a violation of the California Fire Code and a citable offense if any tampering with fire-protection equipment and site barriers occurs.

NOTE: The above is a summary and may not include all the requirements for your occupancy.

APPENDIX A-6



Municipal
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SACRAMENTO COUNTY AMENDMENT TO THE 2000 UNIFORM FIRE CODE

APPENDIX VII

EMERGENCY ACCESS GATES AND BARRIERS

(See UFC Section 902.2.4.2)

SECTION 1 - SCOPE

Where a new gate or barrier is installed on a fire access roadway, it shall be authorized by the Chief and meet the minimum requirements of Appendix VII. Private driveways on lightly traveled streets as determined by the Sacramento County, Department of Transportation or the appropriate public works agency having jurisdiction, serving one single-family residence may be exempt from the scope of this document. Approval of automated gates or barriers is subject to the owner accepting responsibility for any future programming requirements by the authority having jurisdiction.

SECTION 2 - DEFINITIONS

For the purposes of APPENDIX VII, certain terms are defined as follows:

100% CONCURRENCE OF PROPERTY OWNERS will consist of a signed, notarized copy of Appendix VII - Form A, Emergency Access Gates and Barriers, by each property owner served by the gate;

AUTHORITY HAVING JURISDICTION is any agency having statutory authority to enforce federal, state, county, city, or district laws, ordinances or standards;

GATES AND BARRIERS – shall mean a gate, crossbar, door or other obstructive device which is utilized for the purpose of restricting, controlling or obstructing entry or exit by motor vehicles or pedestrians to or from a private roadway and which is not manned on a twenty-four hour, seven day per week basis by a person capable of providing immediate access to a police or fire safety vehicle or person;

PRIVATE STREET OR ROADWAY – shall mean any roadway (not dedicated as public right-of-way) that is owned and maintained by abutting property owners, or association of property owners that is utilized for the purpose of providing vehicular or pedestrian access to a subdivision, apartment complex, condominiums or other residential development or wild land, excluding off-street parking areas, driveways, and driveways to off-street parking areas.

PRIVATE DRIVEWAY -- A private way for vehicular travel that provides access from an off-street parking area to a public or private drive.

ULTIMATE EDGE OF RIGHT-OF-WAY is the line furthest from the centerline of the street that has been approved by the County and recorded on the parcel map for existing or future street improvements.

SECTION 3 - PERMIT

A permit issued by the fire authority having jurisdiction to design and install any secured access gate system shall be obtained and approved in writing prior to installation. The gate permit may be revoked and the gate locked in the open position for any cause determined by the authority having jurisdiction to be in the interest of public safety.

SECTION 4 - REQUIRED SUBMITTAL LOCATIONS

4.1 Unincorporated areas of the county. Approvals are required from the five (5) agencies having jurisdiction over the installation of gates & barriers. A total of eight (8) sets of information will be required to be submitted at the 1st office. All copies returned to the applicant shall have the approval stamp and signature of the plan review officer prior to taking them to the next office. Following the agencies, copies will be provided as noted. Each office will retain one copy for their records. Submittals for applications to install gates or barriers shall be in the following order:

4.1.1 1st Office: Department of Transportation, Sacramento County, 906 G Street, Sacramento, CA 95814; (916) 874-5374.

4.1.2 2nd Office: Planning Department, Sacramento County, 827 7th Street, Room 101, Sacramento, CA 95814; (916) 874-6141

4.1.3 3rd Office: Sheriff's Department, Sacramento County, Community Development Assistant Planner, Community Oriented Policing Strategies Division, 4221 North Freeway Blvd, Suite A-1, Sacramento, CA 95834; (916) 874-5986

4.1.4 4th Office: The Fire Prevention Bureau of the fire district having jurisdiction:

a. Courtland Fire District; (916) 775-1210

b. Delta Fire District; (707) 374-2233

c. Galt Fire District, Fire Prevention, 208 A St., Galt, CA 95632; (209) 745-1001

d. Herald Fire District; (209) 748-2322

e. Isleton Fire Protection District, 100 Second Street, Isleton, CA 95641; (916) 777-7776

f. Sacramento Metro Fire District, 3012 Gold Canal Drive, Rancho Cordova, CA 95670; (916) 942-3300.

g. Walnut Grove Fire District; (916) 776-1090

h. Wilton Fire District; (916) 687-6920

4.1.5 5th Office: The Sacramento County Building Dept., 4101 Branch Center Road, Sacramento, CA 95827; (916) 875-5400 – A Miscellaneous Electrical Permit is required for all electrical gate installations.

4.1.6 Provide copies to:

- a. The property owner or Association (1 Copy)
- b. The electrical contractor (1 Copy)
- c. The gate contractor (1 Copy)

4.2 Incorporated areas of the county (Cities) – Applications for gates within incorporated areas shall be submitted to the city locations listed below or as directed by their information services. Do not begin the process at the County Transportation Office.

4.2.1 Citrus Heights. Plans for the City of Citrus Heights shall be submitted to the Sacramento Metropolitan Fire District, 3012 Gold Canal Drive, Rancho Cordova, CA 95670 (916) 942-3300.

4.2.2 Elk Grove. Plans for the City of Elk Grove shall be submitted to Elk Grove Fire Dept., 8820 Elk Grove Blvd., No. 2, Elk Grove, CA 95624

4.2.3 Folsom. Plans for the City of Folsom shall be submitted to the City of Folsom, Planning, Inspections and Permitting Dept., 50 Natoma St., Folsom, CA 95630; (916) 355-7222

4.2.4 Sacramento. Plans for the City of Sacramento shall be submitted to the City of Sacramento, Fire Prevention Office, 1231 I Street, Suite 401, Sacramento, CA 95814; (916) 264-5260.

Helpful hint – the process can be quicker if the applicant will make an appointment with the plan review officer to look at the plan at the time of submittal. It does not mean that the plan will be approved “over the counter”, but any obvious missing items could be caught at that time.

SECTION 5 - SUBMITTALS

A minimum of eight (8) complete sets of information shall be submitted to the Department of Transportation and shall include the following:

5.1 Approved verification of 100% Concurrence of Property Owners. The applicant shall provide, with the gate application, verification that all existing property owners served by gate installation agree to its installation and operation. Each property owner shall provide a signed copy of the agreement noted as Appendix VII, Form A – Emergency Access Gates and Barriers (at the end of this document). In addition, the applicant shall provide a copy of the amended “Road Maintenance Agreement” identifying the addition of the gates and operating systems. Where there is only one property owner, Appendix VII, Form A – Emergency Access Gates and Barriers must be signed by the property owner and the gate contractor.

5.2 A site plan of the property and a site detail of each gate location, drawn to scale (1”=10’, 1”=20’, or 1”=40’), indicating or showing:

- a. Approval stamps from the Sacramento County Department of Transportation, the Sacramento County Planning Department and the Sacramento County Sheriff’s Office;
- b. C-10 electrical contractors stamp on the plans for the electrical installation;
- c. C-13 fence contractors stamp on the plans for the installation of the gate;
- d. Plans for gates over 6 feet in height shall bear the stamp of a structural engineer and must be accompanied by a Sacramento County Building Permit Number.

- e. Contractors company name, address, phone number and contact person.
- f. Exact locations of the entry to the property (i.e. On the east side of Fulton Ave, 620 feet north of the center of Marconi Ave. in the Sacramento area);
- g. Assessors Parcel Number (located on the property owners tax bill);
- h. Property Lines;
- i. Fire Hydrants, fire department connections;
- j. Location of the “ultimate back of right-of-way”;
- k. Location of the existing edge of pavement or gutter line;
- l. Building footprints, including doors, walkways and fire control room doors; parking spaces and landscape affected;
- m. Proposed fence, pedestrian gates, vehicle gates;
- n. Existing vehicular access;
- o. Proposed location of Knox® key switch / Knox® box(s);
- p. Physical address and;

5.3 Product specifications shall be provided that include:

- a. Method of operation;
- b. UL listing numbers of equipment used and;
- c. Manufacturers specification sheets for electrical gate controller.

5.4 Maintenance. Emergency access gates and barriers shall be maintained and may include:

- a. Batteries required for operation of the system during power failure;
- b. Lubrication of moving parts and hinges per manufacturers specifications and;
- c. Any subsequent attention required to maintain the original list of frequencies for emergency operation of the gate in the controller.

5.5 Plan review and inspection fees will be collected per each agency’s approved fee schedule.

SECTION 6 - MINIMUM REQUIREMENTS**6.1 Vehicle Gates – See Attached Layouts****6.1.1 Access**

- a. All gates shall be UL 325 compliant.
- b. Gates shall not be installed within a required turning radius of a fire access roadway.
- c. Access for single direction traffic shall be unobstructed 16 feet wide and 13’, 6” high.
- d. Access for bi-directional traffic shall be unobstructed 20’ wide and 13’, 6” inches high.
- e. Swinging gates for single direction traffic shall swing in the direction of vehicle travel.

- f. Swinging gates for bi-directional traffic shall swing into the property being entered.
- g. Locations of gates shall be as approved by the Sacramento County, Department of Transportation, on a case-by-case basis. To find out where the ultimate edge of right-of-way is, contact Sacramento County, Land Division & Site Improvement Review, 827 7th Street, Room 102-105, Sacramento, CA 95814, (916) 874-6591
- h. All gates shall be accessible from the driving lane nearest the edge of the street by turning radii of at least 38' inside and 58' outside.
- i. After passing through a gate, the nearest curb of any cross street shall be no less than 40 feet.
- j. **Private driveways** serving one single-family residence on moderate and heavily traveled streets shall:
 1. Meet the setback requirements of this appendix. If existing conditions prevent gate installation with 40' of clearance to the face of the gate, a letter documenting an acceptable alternative that would facilitate emergency ingress without endangering emergency response personnel and apparatus will be required for review and approval by the Chief;
 2. Meet the operational requirements of electrically operated gates.

6.1.2 Operation of Gates

- a. All gates shall be electrically operated for entry and exit by an approved fire department method:
 1. Key override switch (Knox®) and
 2. **Radio operated controller (Click2Enter® or other approved equipment).**

Exception: Radio controlled exit may be waived by installation of a "free exit" loop.
- b. Gates requiring radio-controlled exit shall be provided with an approved 2 inch by 2 inch, blue, reflective marker visible to the exiting traffic. It shall be located in the center of the exit gate.
- c. Wiring for electrical gates shall be provided by AC current, underground installation. A miscellaneous electrical permit is required by the Sacramento County Building Department.
- d. Electrically operated gates shall fail to the open position when the power is off. They shall remain open until power is restored.
- e. Knox® Company authorization forms are required for orders of key switches, boxes and padlocks. The forms may be obtained by calling the fire authority having jurisdiction or the Sheriff's Office.

6.1.2.1 Manual gates or barriers may be approved on a case-by-case basis for nighttime security of business property or access to wild lands.

- a. They shall be constructed in a manner that reflects good construction practices acceptable to the fire authority having jurisdiction.
- b. They shall be accessible by means of an approved fire department padlock (Knox®) or by the installation of an approved key box (Knox®).

- c. Approved manual gates or barriers across emergency access roadways shall be provided with an 18-gauge metal sign in the center of and on both sides of the gate that shall read, "FIRE LANE- NO PARKING". Letters shall be red on a white background and be a minimum of 3" high with a ½" stroke.
- d. Gates to close off a fire lane behind strip malls/stores in order to minimize dumping and vandalism shall be approved with (Knox®) padlock access.

6.1.3 Prohibitions

- a. No gate shall be installed where access requires the use of a proximity reader or card, unless a "turn-out" is provided for its use.
- b. Direction-limiting devices, such as fixed tire spikes, are prohibited.
- c. The total number of vehicle access control devices or systems, through which emergency vehicles must pass to reach any address shall **not** exceed one.
- d. No commercial property owner shall install fences and gates where more than one gate must be opened in order to reach within 150 feet of the rear portion of any building.

6.2 Pedestrian Gates

All vehicle gates obstructing pedestrian access to a public way (street) shall have an approved pedestrian gate installed within 10 feet of the vehicle gate.

- a. Gates shall be handicap accessible and comply with exit door requirements of the Uniform Building Code.
- b. An approved key box (Knox®) shall be installed at least 48" above grade on the outside of the gate. It shall be provided with a key to open the pedestrian gate.
- c. No pedestrian gate shall be located in the median between two vehicle gates.

Exception: Private driveways serving one single-family residence are exempt from this requirement.

SECTION 7 - INSTALLATION APPROVAL

The fire authority having jurisdiction shall inspect all gates for proper installation and operation prior to activation or use.

SECTION 8 - ADDITIONAL REQUIREMENTS

Because of the delays caused by vehicle access control devices or systems, additional fire protection requirements may be applied based on other access limitations, such as narrow or winding streets, or dead-end streets without an approved turnaround available for fire apparatus.

Other than the obstruction and the reduced width controlled within this standard, no other requirement of the fire authority having jurisdiction shall be adversely affected by the placement of any vehicle access control device or system in any required fire apparatus access road.

Fire department approval does not waive any requirement by other authorities having jurisdiction.

SACRAMENTO COUNTY AMENDMENT TO THE 2000 UNIFORM FIRE CODE

APPENDIX VII

FORM A - EMERGENCY ACCESS GATES AND BARRIERS

UNDERSTANDING AND AGREEMENT

I/we understand and agree with the conditions of Appendix VII, Form A – Emergency Access Gates and Barriers to install and maintain controlled access to the private street/roadway shown on the attached plans including the parcel number listed below. I/we understand that FAILURE TO COMPLY with any condition herein shall constitute a violation of U.F.C. Section 902.2.4.2 and is grounds for immediate revocation of this permit to have a security gate or barrier. I also understand that once the gate system is approved and activated, it shall not be tampered with, without the written approval of the fire department and sheriff's office except by authorized maintenance personnel.

I HAVE READ, UNDERSTAND AND AGREE TO COMPLY WITH ALL CONDITIONS HEREIN.

GATE CONTRACTOR: _____ DATE: _____

PROPERTY OWNER: _____ DATE: _____

Parcel Number: _____

FINAL INSPECTION APPROVAL BY _____ DATE: _____

AGENCY _____

(Final approval may be verified by a signed fire department inspection card.)

References:

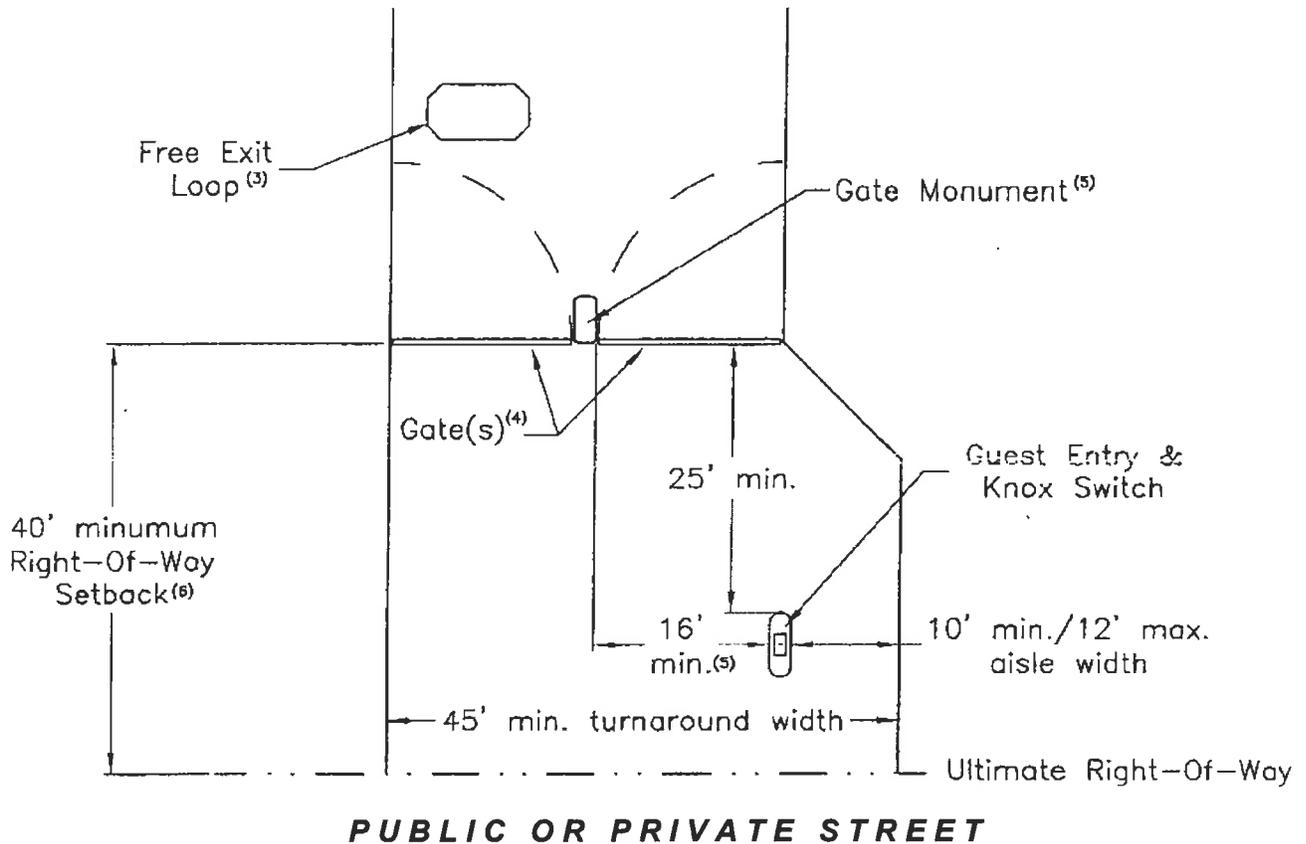
1. Click2Enter® Distributors:

- A. Encon Electronics, 28310 Industrial Blvd., Suite 1, Hayward, CA 94545, (800) 782-5598
- B. First Solutions, Inc., 4220A Roseville Road, North Highlands, CA 95660, (916) 338-5122
(916) 338-4567 FAX dave@alarmsun.com

2. Knox®

Information and order forms are available at the Fire Prevention Office or at the Sacramento County Sheriff's Office as noted in the above document Items 4.1.3 and 4.1.4.

Entry Gate Layout For New Developments



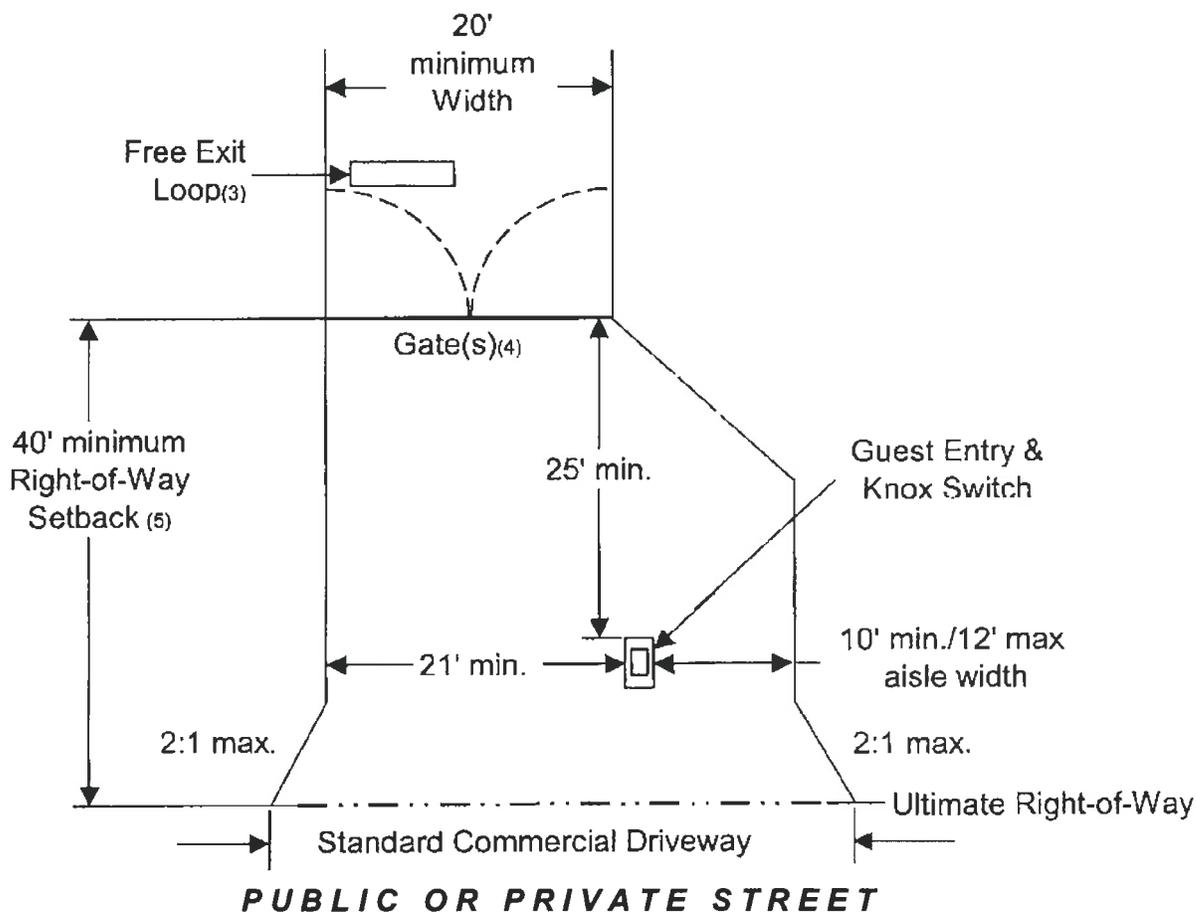
NOTES:

1. The dimensional criteria shown on this layout meet the requirements of the Sacramento County Sheriff, the Sacramento County Department of Transportation and the Fire Districts of Sacramento County. Additional requirements are included in the County's Uniform Fire Code. Alternate designs that adhere to the Code and the criteria above may be approved pending review by the above agencies.
2. A Free Exit Loop may be approved in lieu of an approved radio-activated exit device.
3. A 36-inch wide pedestrian gate shall be provided within 10-feet of the vehicle gate.
4. The gate layout shall consist of one 20-foot min. opening or two separate 16-foot min. openings.
5. An optional gate monument may be approved. However, depending on the design a wider turnaround area may be required. If the monument protrudes in front of the gates, the right-of-way setback shall be measured from the monument instead of the gates.

SCALE: NTS
DATE: 5/2002

DRAWN BY: KP
CHECKED BY: KRH

Entry Gate Layout for Existing Developments (Retrofit)



Notes:

1. The dimensional criteria shown on this layout meet the requirements of the Sacramento County Sheriff, the Sacramento County Department of Transportation and the Fire Districts of Sacramento County. Additional requirements are included in the County's Uniform Fire Code. Alternate designs that adhere to the Code and the criteria above may be approved pending review by the above agencies.
2. A 36-inch wide pedestrian gate shall be provided within 10-feet of the vehicle gate.
3. A Free Exit Loop may be approved in lieu of an approved radio-activated exit device.
4. The gate layout shall consist of one 20-foot min. opening or two separate 16-foot min. openings.
5. The actual gate setback requirement will be based on a queuing analysis performed by the Department of Transportation.

SCALE: NTS DRAWN BY: PK
 DATE: 5/2002 CHECKED BY: KRH

APPENDIX B

GATED ACCESS PRODUCT
RESEARCH

APPENDIX B-1



Municipal
Resources
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Access as Quick as



Click, Click...You're In! WITH CLICK2ENTER, YOUR MOBILE OR PORTABLE RADIO IS THE KEY

- Click2Enter taps the state-of-the-art electronics now designed into modern scanner radio technology to give public safety personnel (Law Enforcement, Fire, Ambulance/Rescue or any authorized user) a quick, safe, reliable and stealthy means to activate gates and security control mechanisms using their portable or mobile radios.
- Click2Enter does away with the cumbersome keys, remote control actuators and access control codes required by other systems because every emergency response vehicle already has the "key"—their radio transmitter (mobile or portable). No need to buy extra equipment or modify your radios.
- The technology is secure. Public safety agencies are issued FCC-assigned radio frequencies for restricted use only. Possession of transmitting devices by non-authorized personnel is tightly controlled and transmitting on those frequencies by outsiders is against the law (both Federal and State statutes).
- Click2Enter responds only to the frequencies and sub-audible private line codes currently programmed into its memory. Editing those frequencies can be done with any RS-232 keyboard interface and standard modem protocol software.
- You now have near-instant access to secure areas to deal with emergencies as they occur. To activate the Click2Enter, the operator must be proximate to the device. A single or double pulse of your radio transceiver is all that is required to initiate immediate entry.

Innovative Reliable Flexible Safe Quick

**ACCESS USING YOUR
TRANSMITTER RADIO
for PUBLIC SAFETY and
AUTHORIZED USERS**

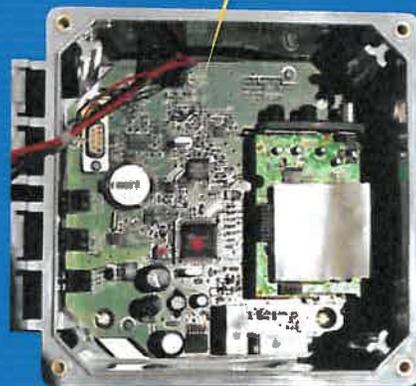


Click2Enter, Inc.

U.S. Patent #5,955,947 and #5,903,216
PO Box 1532 Sonoma, CA 95476
Tel 707 939-3800 Fax 707 996-3739
info@click2enter.net
www.click2enter.net
**Toll Free
877-939-3800**

Click2Enter-I SPECIFICATIONS

- Scanner/receiver radio.
- Variable activation range via programming.
- One or two radio transmission "clicks" for activation.
- 50 channel capacity.
- Mutual aid compatible.
- Independent relay control for roll-up doors.
- Bright activation LED and power LED.
- Time/day/agency memory recall.
- CTCSS, PL/DPL private line (PL) programming capability.
- Auto detect and load of private line codes.
- Compatible with analog or digital radio transmitters, using private line sub-audible transmissions.
- Will operate with carrier only for use with digital radio systems.
- Able to use talk around carriers (car to car) of trunk line radio systems. Also able to operate in on-trunk mode.
- Able to receive radio transmissions to include 900 MHz bands.
- Able to use aircraft AM band frequencies for airport access control operations.
- Latch open and close features.
- Enhanced user-programmable latch open feature lets you specify gate open periods from one minute to unlimited.
- Ability to handle high power mobile transmitters and lower power hand held portable transmitters.
- Proprietary programming software built into each unit.
- Field programmable using a Windows CE PDA or laptop computer.
- Programmable via RS-232 interface.
- User-selected PIN for security of programmed frequencies.
- Able to capture and exhibit activation data log, via software.
- Computer software programmable using standard terminal emulation software (Hyper-Terminal).
- Ability to adapt and use 12V to 24V DC. (Click2Enter-I power will be a regulated 12V DC).
- Lightning surge current protected (current/surge limiting circuit).
- Reflective logo for night identification.
- Unit enclosed in a NEMA Type 4 box, with security screws supplied.
- Relay or dry contact ready.
- Extra set of relay contacts to activate a multitude of devices.
- Separate device available to perform external test/operation of Click2Enter-I.
- Five year manganese dioxide lithium battery for memory backup.
- Retrofit kits available for operation beyond temperature range specifications (hot & cold).



Click2Enter adapts the technology inherent in most radio broadcast equipment to work as a radio control mechanism, but one with built-in security features.

Click2Enter will authorize access only after it verifies the FCC-assigned carrier frequency and agency assigned sub-audible communication (private line code) of the transmitter seeking entry. (It takes one or two separate radio pulses and verifications to complete the authorization sequence.)

Click2Enter can afford access to any public safety agency as long as their frequencies are programmed into its memory, thus solving the mutual aid problem which limits the effectiveness of competing devices.

Programming the Click2Enter is easy. All you need is an RS-232 keyboard interface and standard modem protocol software.



Click2Enter®

Click2Enter, Inc.

TOLL FREE

877-939-3800