

## **Child safety barriers and preventing low-speed vehicle run-overs around the home**

Consultation paper

**September 2016**

**Submissions and comments close on 21 October 2016**

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## **Introduction**

On average, each year in Australia 6 children under 5 years old are killed and a further 43 seriously injured by being struck by a vehicle around the home<sup>1</sup>. These accidents are often referred to as low-speed vehicle run-overs. In some cases, a run-over is a result of a child gaining unsupervised access to a driveway or parking area from the home.

The ACT Government is considering whether changes to building standards should be made to help reduce the risk of small children sustaining an injury from being struck by a moving vehicle.

Small children are particularly vulnerable to serious injury from vehicle collisions and are less likely to be visible to a driver if they are in a vehicle movement area. There is a higher fatality rate associated with children under two years old in low-speed vehicle run-overs as a vehicle is more likely to go over a small child. Older children do sustain injuries but they are generally less severe with increasing age.

## **Proposed new standard**

The ACT Government is seeking feedback on introducing a requirement for internal doors between a residential part of a class 1a building its car parking area to be designed and constructed to restrict access to the garage by young children. Class 1a buildings include detached houses, townhouses and duplexes<sup>2</sup>.

This could be met by installing a barrier similar to that required to restrict access to a swimming pool. Acceptable practices include installing a door that:

- does not open towards the garage,
- is self-closing and self-latching, and
- has a release for the latch at least 1500mm above the finished floor level.

The standard is particularly aimed at restricting access for small children who are not capable of opening a child resistant door from entering car parking areas without assistance or when they are not being supervised.

The standard is proposed for internal doors because they generally fewer and less effective locking mechanisms than external doors. In addition, a door-set that restricts access requires that security mechanisms such as deadbolts are not

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<sup>1</sup> Bureau of Infrastructure, Transport and Regional Economics' Child pedestrian safety: 'driveway deaths' and 'low-speed vehicle run-overs', Australia, 2001–10

<sup>2</sup> A class 1a building is a building designed, constructed or adapted to be used as—

a single dwelling being—a detached house; or

one of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit.

installed as they can prevent to door from self-latching, which can affect the security of the house.

The new standard would apply only to new building work, which includes new class 1a buildings and alterations and additions to the relevant part of the building. It would also apply if the building is substantially altered, for example the floor area increases by over 50%, and is required to meet the current code. In all other cases, it would not be required retrofit barriers in existing houses.

A draft standard, in the form of an amendment to the ACT Appendix to the Building Code of Australia is at Appendix A.

### **Alternative options**

Alternative options to making this law include:

- Broader legislative changes for child safety around homes, including further design standards.
- Changes to vehicle safety standards and/or incentives for registering safer vehicles.
- Education measures.

Broader design options were not included for reasons of cost and inconsistency with accessibility and security objectives.

Vehicle safety standards are national, and not within the jurisdiction of the ACT Government to amend. Safer vehicles may also have limited visibility for very small children and do not prevent the child moving into the path of the vehicle even after safety checks have been made.

Although research into low-speed vehicle run-overs indicates that design measures by themselves are less effective<sup>3</sup>, education on supervision is also limited in effectiveness. In many cases where a child has been struck by a vehicle in a driveway area, the child was considered to be under supervision. Voluntary upgrades to doors may not be made after education for a variety of reasons, including costs of alterations, convenience or accessibility.

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<sup>3</sup> BITRE

## **Regulatory impacts**

### **Benefits and costs**

There is no database or system for separating and recording household driveway run-overs separately from pedestrian or on-road accidents. As such, there is limited available information on the incidence of motor vehicle accidents in residential driveways in the ACT. However, although deaths and serious injuries to children from this cause are not common in the Territory, they are possible and likely to occur sporadically.

National statistics derived from the Bureau of Infrastructure, Transport and Regional Economics' *Child pedestrian safety: 'driveway deaths' and 'low-speed vehicle run-overs', Australia, 2001–10* indicate that 60 pedestrians aged 0–4 and six aged 5–14 were killed in the ten years 2001–10 due to being hit by a four-wheeled motor vehicle moving around a home. Of the 66 cases of deaths in children 0-14 years old, 54 deaths occurred in a driveway, another 12 elsewhere around a home.

This includes deaths and serious injuries in Queensland, which has a significantly higher rate of death and injury from residential low-speed vehicle run-overs. A 2002 report from The Centre for Accident Research and Road Safety Queensland shows that each year in that jurisdiction an average of 4 children under 5 years old die and 81 present at hospital with injuries, with 60% (49) requiring admission. It is understood that over the past decade an average of three children die per year in Queensland from driveway accidents.

The available statistics:

- Include accidents that were not caused by a child gaining *unsupervised* access to a vehicle area through a garage door, for example, the child may have already been playing in the front yard and moved to the vehicle area, the child may have gained access through another door (a roller door or front or back door of a house), or another person gave them access.
- Do not necessarily indicate how the child gained access to the vehicle area and whether that could have been prevented by one of the regulatory changes suggested – for example, if the door was opened by an older child or propped open, the measure proposed would not necessarily prevent this occurring again.

ACT-specific statistics on serious injuries from driveway run-overs are not readily available. However, using the national statistics including jurisdictions with high and low estimated incidences provides a basis for assessing the statistical likelihood of incidences in the ACT.

The statistics include all causes in all areas of the country. Effectiveness rates for individual mitigation measures are not available. Therefore, certain assumptions have been made based on available research and information. These assumptions are detailed in Appendix 2.

### ***Economic impacts***

Analysis indicates that the statistical likelihood of a death or serious injury in the ACT caused by a vehicle run-over where the child gained unsupervised access to the vehicle area through an internal door is very low – between 0.013 and 0.02 deaths per year over a twenty year period and 0.095 to 0.125 serious injuries per year over the same period.

Assuming these accidents occur across all new and existing dwellings, the proportion of these expected to be prevented by the standards is initially 3.2% (the initial proportion of the housing stock covered by the new standard) rising to 29.0% after twenty years with the increase in dwellings covered by the standard. The resultant monetised savings from costs of death and injury are between approximately \$6,000 in the first year and \$60,000 in the twentieth year.

Construction costs for child barriers in new and renovated buildings are estimated at \$150,000 in the first year increasing to \$200,000 in the twentieth year.

There will also be additional construction costs for people who wish to make their dwellings accessible for people with disabilities as well as comply with the child safety standard at initial construction and at renovation. In addition, costs of upgrading buildings that comply with safety standards by raising the height of door handles and latches, to make them accessible will increase. This cost can be reduced by exempting people who undertake modifications to a door separate to other building work from requiring a building approval, which would save an estimated \$500.

If the incidence of death and injury in the ACT matches the projections, economic costs are unlikely to outweigh the economic benefits, even if additional costs of lifelong care for serious disabilities are assumed.

### ***Social impacts***

Some costs to society are assumed in economic analysis, however the full social impacts of preventing injuries to small children are difficult to quantify. They can be expected to include reduction in emotional distress and psychological problems arising for the child, parents, driver and community.

In making internal access to vehicle parking areas more difficult for small children, there may be a reduction in the general accessibility to, and adaptability of, buildings for people with disabilities, including mobility problems.

Like safety standards, adaptable, accessible or universal design principles are intended to benefit visitors to, and future owners and occupants of, premises as well as the initial owners. The simplest and lowest-cost way to comply with the safety standard will include raising door handles and latches to a minimum height of 1500 mm above the floor. Adaptable and accessible housing standards include providing a continuous accessible path of travel from the street frontage and/or vehicle parking areas to the residential part of the dwelling. This includes that door levers and handles can be operated by people in wheelchairs or other mobility devices, which

can be satisfied by providing compliant door lever handles and hardware not less than 900 mm or more than 1100 mm above the plane of the finished floor.

The most common way of providing a continuous accessible path where only one accessible path is required is through the car-parking area. This is because it is often simpler and less costly given that the car-parking surface already needs to be flat, and an internal access door is a standard feature in new housing. The cost of lowering a door handle at construction stage, if required, is negligible.

There are options that meet both disability access standards and act as an effective child barrier. These include manually operated mechanical or electronic controlled locking mechanisms. The cost of purchase and installation is expected to be at least \$150 per device.

It is also possible that some buildings will be re-designed to remove connecting doors to car parking areas. However, this could reduce accessibility if the path from the garage to the house is not accessible.

Alternatives that require a person remembering codes or operating intricate devices may also be unsuitable for people with some disabilities. Adaptable housing standards also suggest that all lockable external doors in a housing unit should be keyed alike, including any garage doors, to make access and egress simpler, including in an emergency. Door closers with a high level of force may be unsuitable for operation by some people.

The proposed standard includes exemptions for buildings that rely on the internal door to provide an accessible pathway and that meet minimum adaptable housing standards outlined in accordance with Australian Standard AS4299 – *Adaptable Housing*. This could include new public housing or houses required to meet adaptable housing standards under the Territory Plan or the Commonwealth *Disability Discrimination Act 1992*.

However, it is expected that people who would otherwise have voluntarily, or inadvertently, met the requirements for an accessible path will choose not to bear the additional cost of making the door or building meet accessibility standards as well as the new safety standard.

Any new standard must be consistent with the *Discrimination Act 1991* and *Human Rights Act 2004*. It is important to consider how the proposed requirements may affect access to residential premises for people with certain disabilities, and how this is best mitigated, for example by providing exemptions for dwellings that voluntarily or mandatorily meet prescribed accessibility standards.

The Human Rights Act gives protections to the rights of children as well as to rights for people to not to have their home interfered with arbitrarily, subject to reasonable limits.

***Environmental impacts***

The proposed standard is not expected to have specific impacts on the natural environment.

***Costs and benefits of other options***

The impacts of broader legislative changes, such as requiring all driveways to be fenced, and all external doors to provide a child resistant barrier have not been assessed at this stage.

An education campaign alone would need to run continuously to be most effective but would not necessarily result in preventing small children gaining unsupervised access to garages.

Feedback is welcome on other options and their costs and benefits.

## **Appendix 1 Draft building standard – child barriers to garages**

Building standards in the ACT are performance-based, rather than mandatory prescriptive technical requirements.

A standard states how it can be complied with—by complying with its performance provisions, including those in the ACT appendices to the Building Code of Australia. A performance requirement can be met by:

- compliance with the respective “deemed-to-satisfy” BCA provisions, which are deemed to meet the performance requirement, or
- by formulating a performance solution, or
- a combination of both a performance solution and a deemed to satisfy solution.

The determination includes the mandatory performance requirement that must be met in order to comply with the barrier requirement, and also includes optional prescriptive solutions, which if complied with are deemed-to-satisfy the mandatory performance requirement.

It is proposed the new standard would be included in the ACT Appendix to the Building Code of Australia, which applies only in the ACT and Jervis Bay Territory.

The first main clause of schedule 1 relates to BCA volume 2, part 2.5, which is about safe movement and access. It inserts into the ACT appendix to that volume of the BCA the following new provisions:

- ACT O2.5(d); and
- ACT F2.5.3 (Vehicle movement area and access); and
- ACT P2.5.5 (Vehicle movement area and access).

The second clause of the schedule relates to BCA volume 2, section 3, which is about acceptable construction. Section 3 provides the BCA’s non-mandatory technical solutions that are deemed-to-satisfy the respective mandatory performance provisions of the BCA. It inserts into the ACT appendix to that volume of the BCA the following new provisions:

- Part ACT 3.9.5 (Vehicle movement area barrier); including
- ACT 3.9.3.0.



## **Amendments to the ACT Appendix to the BCA**

The italicised notes in the standard are provided for information and will not appear in any final standard.

### **Volume 2, Part 2.5 Safe movement and access**

*Insert*

#### **OBJECTIVE O2.5**

##### **ACT O2.5(d)**

(d) safeguard young children from death or injury by moving motor vehicle impact in or near a building.

#### **Application**

**ACT O2.5(d)** commences on *TBC* and applies only to a class 1a building that provides immediate internal access to a garage.

*Note: ACT O2.5(d) provides a new BCA objective—to safeguard young children from death or injury by moving motor vehicle impact in or near a building. BCA objectives are non-mandatory explanatory information to assist BCA users to understand the objectives of the BCA’s mandatory provisions. ACT O2.5(d) describes the objective of new BCA clause ACT P2.5.5 (Vehicle movement area and access).*

*ACT O2.5(d) also includes a provision about its application, which provides that it applies only to a class 1a building that provides immediate internal access to a garage. The term “class 1a building” is explained in the BCA, and generally applies to detached or attached houses that are private residences.*

*A delayed commencement is proposed to give industry and the community sufficient time to adjust to the new requirements.*

### **Functional statements f2.5.1**

#### **ACT F2.5.3 Vehicle movement area access**

*A class 1a building that provides immediate internal access to a garage must be provided with a means to restrict access to the garage from the class 1a building by young children.*

#### **Application:**

**ACT F2.5.3** commences on *TBC*, and only applies to a class 1a building that provides immediate internal access to a garage.

*Note: The term “garage” has its normal meaning in the context of a building in which vehicles are garaged or parked.*

*ACT F2.5.3 provides a new BCA functional statement for class 1a buildings that provide immediate internal access to a garage—the building must be provided with a means to restrict access to the garage from the class 1a building by young children.*

*BCA functional statements are non-mandatory explanatory information to assist BCA users to understand the functions of the BCA’s mandatory provisions. ACT F2.5.3 describes the function of new BCA clause ACT P2.5.5 (Vehicle movement area and access).*

## Performance requirements

### ACT P2.5.5 Vehicle movement area access

A barrier must be provided to class 1a building and must—

- (a) be continuous for the full extent that the class 1a building provides immediate internal access to a garage; and
- (b) be of a strength and rigidity to withstand the foreseeable impact of people; and
- (c) restrict the immediate access of young children to a garage from inside the class 1a building; and
- (d) have any doors fitted with latching devices not readily operated by young children, and constructed to automatically close and latch.

*Notes: ACT P2.5.5 prescribes a new performance requirement for the BCA. To comply with the BCA, the performance requirement must be satisfied, which can include a “deemed to be satisfy” method.*

*ACT P2.5.5(a) requires that a barrier must be provided to class 1a building and must be continuous for the full extent that the class 1a building provides immediate internal access to a garage. This means that all internal access methods between the class 1a building and the garage must be provided with the barrier. That includes all internal openings such as doorways, or windows. The barrier is not required on external doors, walls, windows, and other openings of the class 1a building or of the garage. It is only required on internal access ways that are inside the building or garage providing immediate access from the class 1a building to the garage.*

*ACT P2.5.5(b)—means the barrier should not be able to be breached or rendered inoperable by people pushing or pulling on it or falling on it, in normal circumstances.*

*ACT P2.5.5(c)—means that the barrier should not be readily climbable or openable or otherwise be able to be breached by a young child, such as a child under five years old. The wording of ACT P2.5.5 is comparable to the BCA’s wording about child safety barriers to swimming pools.*

## Application:

**ACT P2.5.5** commences on TBC, and only applies to a class 1a building that provides immediate internal access to a garage.

A class 1a building is exempt from compliance with a relevant aspect of **ACT P2.5.5** if one or more of (a) - (c) applies, and **ACT P2.5.5** is otherwise complied with to the greatest extent possible:

- (a) if the building may be used for a home business, and complies with provisions of the ‘Disability (Access to Premises - Buildings) Standards 2010’ related to the business, including “deemed-to-satisfy” methods, under the Commonwealth *Disability Discrimination Act 1992*, and the compliance relies on non-compliance with an aspect of **ACT P2.5.5**; or
- (b) if the building complies with at least the “C” class of the Australian Standard ‘AS 4299–1995 Adaptable housing’, including any prescribed methods, and compliance with that standard relies on non-compliance with an aspect of **ACT P2.5.5**; or

- (c) without conflicting with another law in force in the ACT, excluding where the other law allows the design of the relevant building to be altered to achieve the greatest extent of compliance with **ACT P2.5.5**.

**Explanatory information:**

Building work done before the commencement need not comply with **ACT P2.5.5** in order to comply with the code. Building work done under a building approval issued under the Building Act 2004 that is issued before the commencement need not comply with **ACT P2.5.5** in order to comply with the code.

**Examples**

1. If a development approval under the *Planning and Development Act 2007* requires the door mentioned in **ACT P2.5.5** to have a door handle at a height of less than 1.5 m above the surface below, and does not permit the development approval to be amended to allow the handle to be at a height of 1.5 m or more, then the lower handle is exempt from compliance with any implied height requirements of **ACT P2.5.5**. However, the building must still comply with the requirement to provide a barrier and the barrier must meet all other relevant performance requirements of **ACT P2.5.5**.
2. If, for compliance with the *Disability (Access to Premises - Buildings) Standards 2010*, the door mentioned in **ACT P2.5.5** is relied on to have a door handle at a height of less than 1.5 m above the surface below, then the lower handle is exempt from compliance with any implied height requirements of **ACT P2.5.5**. However, the building must still comply with the ACT P2.5.5 to the fullest extent possible, including to provide a barrier that meets all other relevant performance requirements of **ACT P2.5.5**.
3. If, for adaptable housing compliance at class C, the door mentioned in **ACT P2.5.5** will have a door handle at a height of less than 1.5 m above the surface below, then the lower handle is exempt from compliance with any implied height requirements of **ACT P2.5.5**, provided the class 1a building complies with class C. However, in achieving class C compliance, the building does not rely on any other aspect that requires non-compliance with **ACT P2.5.5**. Therefore, the building must still comply with the requirement to provide a barrier and the barrier must meet all other performance requirements of **ACT P2.5.5**.

*Note: The intention of the exemptions is to resolve the conflicts that might otherwise arise between a requirement of another law and the standard. For example the Territory Plan, made under the Planning and Development Act 2007, requires new multi-unit developments that contain ten or more dwellings, including townhouse developments, have at least one in ten dwellings that meet the Australian Standard 'AS 4299-1995 Adaptable housing' on multi unit housing sites. In that case, a basic method of door compliance is to have a door latch positioned about 1 m above the finished surface below, so it is reachable by people in a wheelchair. That also makes it reachable by young children, whereas positioning the handle at least 1.5 m high is deemed by the BCA to be sufficiently high to restrict access by young children. The exemption to ACT P2.5.5 allows the lower handle height in that case, provided all of the requirements of the exemption are satisfied. While that may make the door less safe for children, the exemption helps balance disability access requirements with requirements to protect the safety of children.*

*Similarly, there is an exemption for disability access to class 1a buildings that may be used for a home business, so that people with disabilities wishing to work in the home business, or customers of the business, can readily access*

*the premises in a wheelchair, via the door mentioned in P2.5.5. For example, the exemption permits the lower door handle in that case if the door is relied on for disability access compliance. That is because often the most cost-effective and convenient path of disability access to a new dwelling is directly from a covered car-park area, which is usually a garage.*

*This exemption is not predicated on the Commonwealth Disability Discrimination Act 1992 necessarily applying to the class 1a building—the exemption can apply, for example, where the person operating the business wishes to make access to the business more suitable for people with a disability. In addition, if a person voluntarily meets at least the class C requirements of the adaptable housing standard they are permitted certain exemptions.*

## **Volume 2, Section 3 Acceptable construction**

### *Insert*

#### **Part ACT 3.9.5 Vehicle movement area barrier**

##### **Appropriate Performance Requirements:**

(a) Where an alternative vehicle movement area barrier is proposed as a *Performance Solution* to that described in **ACT Part 3.9.5**, that proposal must comply with—

- (i) Performance Requirement **ACT P2.5.5**; and
- (ii) the relevant Performance Requirements determined in accordance with **1.0.7**.

##### **Acceptable construction manuals**

#### **ACT 3.9.3.0**

Performance Requirement **ACT P2.5.5** is satisfied for a class 1a building with an internal opening providing access to a garage, if the opening has safety barriers installed in accordance with AS 1926 Parts 1 and 2, as though the garage was the immediate surrounds of an indoor swimming pool, and any access is by a doorset complying with those parts.

##### **Explanatory information:**

A doorset complying with AS 1926, parts 1 and 2, includes a door that, amongst other things:

- Does not open towards the pool,
- Is self-closing and self-latching, and
- Has a release for the latch at least 1500mm above the finished floor level.

Building work done before the commencement need not comply with **ACT P2.5.5** in order to comply with the code. Building work done under a building approval issued before commencement need not comply with **ACT P2.5.5** in order to comply with the code.

*Note: ACT 3.9.5(a) provides that where an alternative vehicle movement area barrier is proposed as a Performance Solution to that described in ACT Part 3.9.5, that proposal must comply with both ACT P2.5.5 and with the relevant*

*Performance Requirements determined in accordance with 1.0.7 of the BCA. Section 1.0.7 gives general guidance on how to meet performance requirements.*

*ACT 3.9.3.0 provides an optional way to meet the standard that applies AS 1926 Parts 1 and 2 to the garage as though it was not a garage, but instead was an indoor swimming pool. The expectation is that a child safety barrier to an indoor swimming pool will be equally effective at preventing access by young children to an indoor pool as it will be to a garage and other vehicle movement areas accessible via the garage.*

## **Appendix 2**

### Assumptions for regulatory impact analysis

- The ACT initially has equal share of incidences based on population (1.5% of the national population). The ACT population grows by 1.4% per year.
- The ACT is predominantly metropolitan and inner regional. The rate of run-overs per capita in these areas (44% of total run-overs) is significantly lower than on outer regional, rural and remote areas (46% of all run-overs). Therefore, likelihood of an incidence in the ACT is assumed to be 60% of the total for ACT by population.
- All incidences occur in relation to a class 1a building.
- Of the total, 50% of accidents are the result of a child gaining unsupervised access to a driveway or vehicle area from the house, as opposed to an outside play area.<sup>4</sup>
- Of that 50%, half gain access through an internal door to a garage<sup>5</sup>.
- The general effectiveness of providing a child resistant door is 60%. Measures do not stop an older child or adult opening a door for a child or propping to door open.<sup>6</sup>
- The mix of vehicles (proportion of 4WDs, sedans etc) in the ACT is the same as other jurisdictions.
- Approximately 1000 new class 1a dwellings will be built each year. 10% of these will be built to minimum accessibility requirements (either voluntarily, for example public or community housing, or under a law).
- Approximately 900 existing dwellings will be altered or added to in such a way that would require compliance with the standard. Of these, a third will require a replacement door.
- Other than those required to by law, houses will not include either permanant or temporary child resistant barriers.
- The economic cost of the death of a child is \$5 million and the cost of a hospitalisation is \$150,000<sup>7</sup> indexed for CPI each year.

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<sup>4</sup> Access through an internal door is only one of many possible circumstances leading to a run-over. Other prevention measures are not proposed (e.g. fenced driveways and play areas, roller door cut-off switches, secure gates between front and backyards, clear spaces at front fence line to see children, reversing mirrors in garages and driveways).

<sup>5</sup> Houses are likely to have at least two other doors that provide access to a vehicle parking area (a front door, back door, side door or garage roller door). External doors are likely to have greater security, therefore where a child has gained unsupervised access through a door a 50% chance of access through the internal garage door specifically is assumed.

<sup>6</sup> PriceWaterhouseCoopers (PWC), unreleased regulatory impact analysis on swimming pool safety assumes a maximum 75% effectiveness of pool fencing adjusted down as pools are generally structurally isolated from a building.

<sup>7</sup> PWC, 2012 analysis of swimming pool safety, fatality cost figures adjusted for 2016 and rounded up. Hospitalisation costs adjusted and doubled to allow for immediate after care for serious injuries.

- Government administration and private certification costs of a new standard are assumed to be incorporated in existing costs.
- Construction costs are:
- \$40 for compliance with the standard for a door in a new building or part of a building.
- A minimum of \$150 for compliance with both accessibility and child barrier requirements, for a new door.
- \$300 for a replacement door in an existing building.
- \$450 for a replacement door meeting both accessibility and child barrier standards.
- Indexed for CPI each year.
- CPI is assumed at 1.5% per annum.

The following are not assessed in the analysis:

- Differences in the mix of vehicles (proportion of 4WDs, sedans etc) in the ACT compared to other jurisdictions.
- Improvements in vehicle safety standards, such as proximity sensors.
- Lifelong disability home-care costs of required. There are no reliable estimates of long-term injury or associated costs.
- Design and redesign costs and costs from loss of space in smaller residential buildings from preventing a sliding or bi-fold door.
- Other design features that have been shown to increase the risk of accidents such as length of driveway, shared driveways, curved driveways or those placed along one side boundary, and extra parking on the property.