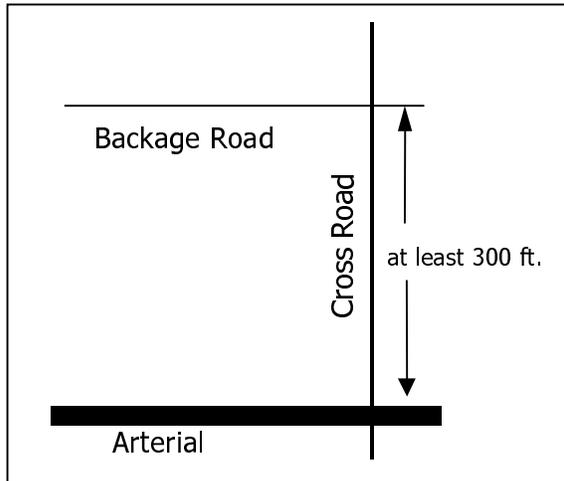
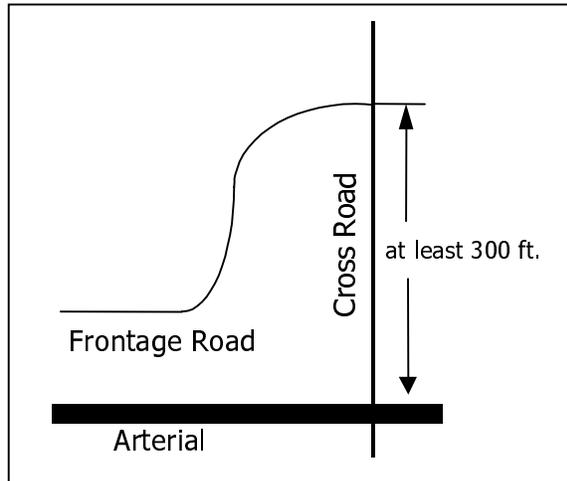


Frontage and Backage Roads

Frontage and backage roads run parallel the mainline route and provide alternative access to property (see figures below). Property access is provided along the frontage or backage road, which accesses the arterial via a cross road (with a traffic signal if necessary). This reduces the number and density of conflict points associated with strip development. These roads are generally applicable to commercial development.



A *backage road* provides access to the rear side of commercial properties located between the backage road and the arterial. It also provides access to properties located on the opposite side of the backage road from the arterial, thus increasing land values and reducing infrastructure costs to individual properties.



A *frontage road* provides access to the front side of commercial properties located along the arterial. Care must be taken to ensure adequate separation between the arterial and the intersection of the frontage and cross roads.

Why are frontage and backage roads important?

Frontage and backage roads reduce conflict points between through traffic and turning traffic associated with strip development and direct property access to the arterial. Conflict points are associated with reduced levels of roadway safety and operations. Studies have shown that when driveway access to arterial roadways is granted to too many property owners without considering future traffic volumes and roadway classifications, the additional driveways increase the rate of accidents and decrease the efficiency of the roadway. NCHRP Report 3-52 shows that accident rates increase dramatically as the number of driveways per mile increases along urban arterial roadways.

When are frontage and backage roads most effective?

Frontage and backage roads are most effective on relatively heavily traveled, higher speed arterials. Opportunities to construct access roads are generally restricted to locations where there is substantial spacing between intersecting roads, little if any existing development, and a development plan. Retrofit may be possible where setbacks for developed properties or the availability of land behind developed properties is sufficiently large.

What are some design considerations of frontage and backage roads?

Frontage roads near arterials may cause more problems than they solve if they are not set far enough back from an arterial. If frontage road outlets are set back only one or a few car lengths from the arterial, cars exiting the frontage road enter the functional area of the arterial intersection, creating conflict points with other vehicles. This situation can worsen as further development occurs along the frontage road. The Transportation Research Board recommends a separation of at least 300 feet between frontage road outlets and intersections between cross streets and arterials. This should be considered a bare minimum and should be higher if possible (see FAQ #4, “Intersection Spacing and Traffic Signal Spacing”). In rural areas, higher operating speeds dictate longer separations.

Backage roads with development along both sides are preferable to frontage roads because they allow for greater distance between the connection to the cross street and the intersection with the arterial.

How else do backage roads compare with frontage roads?

In comparison to frontage roads, backage roads provide access to a greater number of individual properties (assuming development along both sides of the road). This increases the value of the land and reduces road construction costs for individual properties. Backage roads are increasingly becoming more common.



Frontage roads along Douglas Avenue in Urbandale, Iowa. The frontage road system is visible on both sides of the main roadway.