

NEIGHBORHOOD DESIGN STRATEGY

PREPARED FOR THE CITY OF FRISCO
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NEWMAN VILLAGE | Frisco, Texas

ACKNOWLEDGEMENTS

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- Jeff Cheney, Vice Chair
- Chad Brubaker
- Rob Cox
- Sean Merrell
- Bobby Roberti
- Will Russell

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INTRODUCTION

The City of Frisco is one of the fastest growing cities in the nation owing to its quality of life, high development standards, exceptional school district and strategic location. The City of Frisco recognizes the rapid growth in residential development and intends to stay ahead of the curve in innovative residential planning and design.

How can the City of Frisco institute and refine its policies to develop innovative neighborhood design strategies that are economically viable, safe, cohesive, high quality and achieve the community's vision?

The City Council appointed local community members to serve on the Neighborhood Design Strategy Advisory Group (NDSAG). The NDSAG identified neighborhood design issues to be considered for this study. The purpose of this document is to highlight the NDSAG's requests, discuss the pros and cons of those requests and provide recommendations for alternative solutions based on national best practices and case studies.

PROJECT OVERVIEW

PURPOSE

The purpose of the Neighborhood Design Strategy is to provide support for the City of Frisco to revise policies for future residential development in a way that reflects the 2015 Comprehensive Plan Update and embraces tenets of sustainability and livability in a rapidly growing environment.

CRITICAL SUCCESS FACTORS

The strategies proposed in the Neighborhood Design Strategy should:

- » Be economically viable;
- » Create neighborhoods that reflect the local community character;
- » Focus on curb appeal, walkability and connectivity;
- » Design streets that discourage speeding but do not compromise emergency response times;
- » Provide multimodal transportation for pedestrians, bicyclists and drivers, safe streets;
- » Incorporate green engineering where possible;
- » Provide aesthetics with pedestrian-oriented elements;
- » Activate private open spaces for social activities;
- » Design with the environment and incorporate features that add to sustaining property values,
- » Separate the City of Frisco from neighborhoods in adjacent communities;
- » Maintain property values; and
- » Incorporate elements from the 2015 Comprehensive Plan.

NEIGHBORHOOD DESIGN STRATEGY ADVISORY GROUP (NDSAG)

City Council appointed local community members to serve on the NDSAG. At the first meeting, the NDSAG identified neighborhood design issues to be considered for this study. These issues cover a variety of scales, from the overall neighborhood layout to utility locations. **The following is a list of requests identified by the NDSAG. While this report is organized by each issue, it is important to remember these issues are often interrelated and must all be considered together in order to create a successful neighborhood.**

The NDSAG members include:

- Bob Allen, Chair
- Jeff Cheney, Vice Chair
- Chad Brubaker
- Rob Cox
- Sean Merrell
- Bobby Roberti
- Will Russell

NDSAG REQUESTS IDENTIFIED

STREETS

- » Roundabouts - *encouraging developers to use more roundabouts*
- » Access between neighborhoods and retail - *establishing connections to commercial/shopping destinations*
- » Street trees - *impacts to utilities and sidewalk maintenance*
- » Cul-de-sacs - *design and quantity of cul-de-sacs*
- » Curvilinear neighborhood layout - *street design for aesthetics and speed control and circulation*
- » Zipper streets - *evaluation of their traffic calming and safety*
- » Residential collector - *Street width, traffic calming vs. parking needs*
- » Entry street termination - *can view be terminated by something besides homes*
- » Residential sidewalk width - *maintenance and use of wider sidewalks*
- » Boulevard entry streets - *neighborhood entry experience*
- » “Gifts to the street” - *ways to enhance social interaction and “dress up” public and private realm*
- » Utilization of topography - *opportunities to preserve existing topography*

PARKS AND OPEN SPACE

- » Lots adjacent to major creeks - *reevaluate percent of lots fronting creek*
- » Parks and open space visibility - *safety and security of spaces*
- » Walking distance to parks and open space - *maximum walking distance to access parks and open space*
- » Trail system adjacent to lots - *evaluate trail system in regards to orientation, width, and use*
- » Interspersed parks and open space - *size and location of parks and open spaces*
- » Design of parks and open space - *quality and programming of open spaces*

DESIGN

- » Front entry - *lot widths and design of front entry homes*
- » Rear entry - *alley standards and lot widths*
- » Lot size diversity - *acceptable ranges of lot sizes*
- » Fences on corner lots - *fence opacity and fence setback rules*
- » Utilities on front entry - *location and screening of utilities*

MANAGEMENT

- » Management of design standards between departments - *how the City addresses the process of changing standards*

NEIGHBORHOOD DESIGN STRATEGY

The following document presents strategies for the issues identified above. The first chapter is a summary of concluded recommendations and a summary matrix. The subsequent chapters present case studies and proposed strategies for each issue.



RECOMMENDATIONS

NEIGHBORHOOD DESIGN STRATEGY ADVISORY GROUP

NEIGHBORHOOD DESIGN STRATEGY KICK-OFF MEETING

MAY 18, 2016

At the project kick-off meeting, members of the Neighborhood Design Strategy Advisory Group (NDSAG) met to elect the chairperson and vice chairperson, and to present the primary topics for the Neighborhood Design Strategy to study and address. Bob Allen, Jeff Cheney, Will Russell, Sean Merrell, Bobby Roberti and Chad Brubaker were present. Rob Cox was absent.

NDSAG MEETING | MEETING #1

OCTOBER 12, 2016

At the first NDSAG meeting, the NDSAG discussed the proposed strategies for the Streets section of the Neighborhood Design Strategy on October 12, 2016. NDSAG members Bob Allen, Jeff Cheney, Rob Cox, Sean Merrell, Bobby Roberti and Chad Brubaker were present. Will Russell was absent.

The meeting included a brief review of the case studies featured in the report and the Frisco Fire Department gave a presentation on cul-de-sac safety and site constraints.

NDSAG MEETING | MEETING #2

NOVEMBER 15, 2016

The NDSAG next convened on November 15, 2016. The same members met to discuss the proposed strategies for Parks and Open Space and Design section of the Neighborhood Design Strategy document. Bob Allen, Jeff Cheney, Rob Cox, Sean Merrell, Bobby Roberti and Will Russell were present. Chad Brubaker was absent.

NDSAG MEETING | MEETING #3

JANUARY 25, 2017

The final NDSAG meeting was on January 25, 2017. The purpose of the meeting was to discuss the and finalize the recommendations of the Neighborhood Design Strategy. Bob Allen, Jeff Cheney, Sean Merrell, Bobby Roberti, Chad Brubaker, Rob Cox and Will Russell were present.

RECOMMENDATIONS

The following pages present a summary of the topics discussed and ordinance change recommendations based on the feedback from the NDSAG. For more detailed information about the strategies that were presented, please reference subsequent chapters.

Based on further discussion, city staff and NDSAG determined access between neighborhoods and retail, street trees and residential sidewalk width and lots adjacent to parks and open space were issues already addressed by present ordinance. In addition, entry street termination and boulevard entry streets were combined into one issue. Finally, it was concluded that many of the recommendations in the Park and Open Space section applied to private open space only.

ROUNDAOBOUTS

PREFERRED STRATEGY

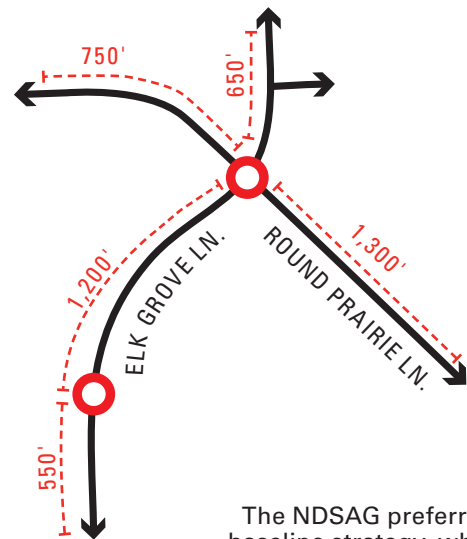
Of the three potential strategies identified, the NDSAG preferred the baseline strategy which encourages developers to install roundabouts by allowing longer residential street lengths. The City of Frisco standards currently require residential streets to change direction at least every 1,200 feet, but streets with roundabouts may extend to 1,800 feet. In addition, a roundabout can count as a “change in direction” so a 1,200-foot street can be followed by another 1,200-foot street in a slightly different alignment. In addition, the NDSAG favors requiring roundabouts at certain neighborhood entrances (as long as the roundabout is located a minimum distance from a major thoroughfare).

The following ordinance changes are recommended:

1. Modify the code to expound upon the benefits and flexibility provided by roundabouts in the design of neighborhood street layouts.
2. Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard entry or a curvilinear street.
3. Set a minimum distance that an entry roundabout must be from the major thoroughfare.

PLAN OF ACTION

City of Frisco staff will develop the entrance street requirements and modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.



The NDSAG preferred the baseline strategy, whereby roundabout installation permits residential streets to extend beyond the typical maximum length.

CUL-DE-SACS

PREFERRED STRATEGY

The NDSAG would like to encourage developers to include more cul-de-sacs in residential neighborhood design. Some proposed that allowing smaller cul-de-sacs would encourage more of them to be built, with the understanding that cul-de-sacs must continue to accommodate fire apparatus and sanitation trucks. Others described how cul-de-sacs disrupt the developer's lot pattern regardless of their size.

Cul-de-sacs present firefighting challenges to the Fire Department, which can be exacerbated when they are smaller. Cul-de-sacs are a priority for the NDSAG, but not at the expense of safety. No consensus was reached in the November 2016 meeting and the NDSAG asked for more information about cul-de-sac size (including the effect on the City's Insurance Service Office (ISO) rating and a visual comparison of different sizes of cul-de-sacs). An alternative requested by some members of the NDSAG would reduce the cul-de-sac pavement radius to 40 feet.

After researching the issues, staff determined that a cul-de-sac radius of 40 feet would require each house to have a residential fire sprinkler system and the spacing between the houses would be increased from 10 feet to 20 feet. Sanitation trucks would also have more difficulty collecting trash in a cul-de-sac of that size unless the lots were alley-served. A presentation by the Fire Department addressing these issues is attached to this document. A table is also attached that shows more cul-de-sacs have been built in the City of Frisco under the 50-foot size requirement than under the previous smaller size requirement. In addition, other exhibits are attached showing various lot layouts for cul-de-sacs as well as the operation of sanitation trucks in different sized cul-de-sacs.

In the January meeting, the Fire Department recommended that the existing standard remain unchanged (which requires each cul-de-sac to have a pavement radius of 50 feet with no center island allowed). The Planning Division provided data that shows developers are building more cul-de-sacs than they had been previously (with 2016 being a record high year). Planning and Engineering Staff are encouraging cul-de-sacs and the 50-foot standard has not prevented developers from including them in new projects. To address any remaining developer resistance to cul-de-sacs, staff have developed a way that back-to-back cul-de-sacs could be used and still provide the same number of lots that a continuous street would have (though this layout would not be required). As a result, a consensus was reached to maintain the current radius requirement.

PLAN OF ACTION

Maintain the Fire Department recommendation of a 50-foot cul-de-sac radius with no center islands.



CURVILINEAR NEIGHBORHOOD LAYOUT

PREFERRED STRATEGY

The NDSAG would like to limit residential development of monotonous gridded neighborhoods and instead encourage a more interesting, organic curvilinear grid. The NDSAG is interested in limiting the number of turns necessary to reach each home in the neighborhood. The NDSAG expressed support for components of each of the proposed strategies but acknowledged it is difficult to define the required amount of curve that should be applied to all situations. A tighter curve radius will be more effective at slowing traffic, but typically does not create the organic grid that can be achieved with a wider curve.

The following ordinance changes are recommended:

1. Require a percentage of curvilinear residential streets in a development (depending on the size and shape of the development).
2. Create definitions for a range of curvilinear street options that starts with not being able to see down the entire length of the street and extends up to streets with a required large center line radius.
3. Complement the existing topography with horizontal curvilinear street design in a way that naturally. Vertical curvature can also create the desired effect (reference Topography section).
4. Create curvilinear street requirements that produce a street layout similar to that of the Hunters Creek neighborhood in Frisco.
5. The maximum number of turns allowed in a development to reach a home should be four. Turning off of the arterial into the neighborhood is not included in this number.
6. Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard entry or a curvilinear street.



PLAN OF ACTION

City of Frisco staff will develop the minimum curvilinear definition, develop methods of calculating curvilinear street requirements in a development, and modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.

ZIPPER STREETS

PREFERRED STRATEGY

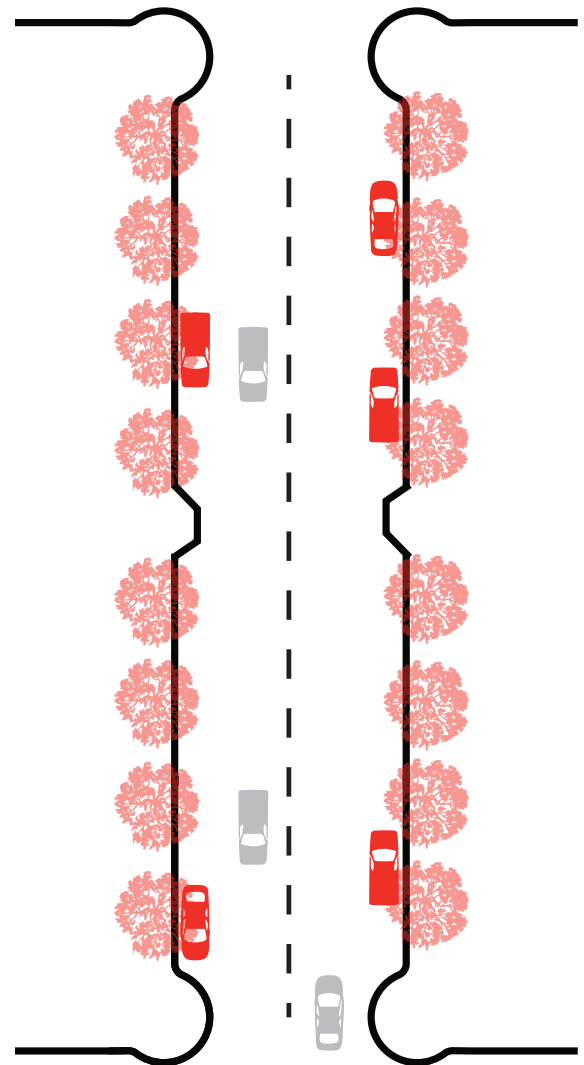
The NDSAG acknowledged the traffic calming benefits of zipper streets, but expressed concerns about potential pedestrian and vehicular safety issues. The NDSAG feared that zipper streets may limit the motorist's field of vision, especially when trees are located in the bulb-outs.

The following ordinance changes are recommended:

1. Zipper streets should no longer be used as an option on single-family residential streets.
2. Where traffic calming is needed, strategic bulb-outs can be placed at intersections or mid-block locations (but will not be spaced in a way that creates a "zipper street").
3. Trees should not be located in any bulb-outs.

PLAN OF ACTION

City of Frisco staff will modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.



In locations where traffic calming is needed, the NDSAG recommends Strategies 2 and 3.

RESIDENTIAL COLLECTOR

PREFERRED STRATEGY

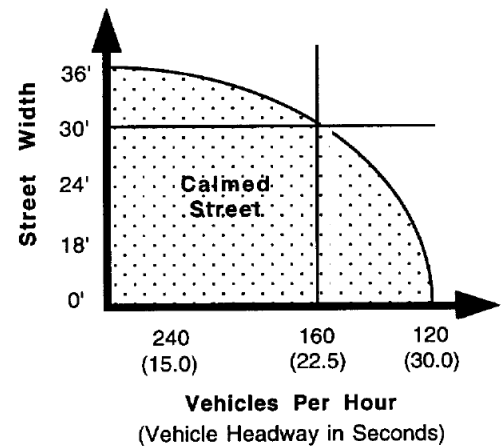
The NDSAG prefers the baseline strategy of not requiring residential collector streets to be wider than regular residential streets unless they serve schools or parks. Narrower road widths calm traffic which minimizes complaints from adjacent residents, reduces the likelihood of vehicle crashes and results in less pavement costs for the developer. The NDSAG does not want to widen residential collectors to provide bike lanes to nowhere. Any bike lanes should be part of a planned system with linked destinations.

The following ordinance changes are recommended:

1. No changes are necessary. City ordinances were already changed in 2012 to allow narrower residential collectors.
2. Coordinate the design of future residential collectors with any bike routes identified in the upcoming revision to the Hike & Bike Master Plan.

PLAN OF ACTION

No new actions are necessary. The Parks Department and Traffic Engineering are currently revising the Hike & Bike Master Plan.



Reducing collector street width from 36 feet to less than 30 feet contributes to calmer, more inviting streets.

RESIDENTIAL ENTRY STREET

PREFERRED STRATEGY

A residential entry street is a visitor's first impression of a community in the City of Frisco. Many existing entry streets are too short and terminate at the front of houses. The NDSAG would like to see higher quality development standards for these streets.

The following ordinance changes are recommended:

1. Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard or a curvilinear street.
2. Allow houses to front onto residential boulevards.
3. The boulevard entry median is limited to a maximum width of 20 feet only at the intersection with an arterial roadway (for traffic and pedestrian safety reasons). The median can widen out as it gets deeper into the development to create a unique space. The length of median that will be limited to a width of 20 feet will be defined during the ordinance writing phase.
4. The primary entry street should have a minimum length of two residential lot depths.
5. Primary entry streets should be prohibited from terminating at a "T" intersection unless it terminates on open space, an amenity center, or the sides of lots with proper screening.

PLAN OF ACTION

City of Frisco staff will modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.



Newman Village in Frisco serves as a local case study of strong entry boulevard principles, including street tree planting and pavement variety.

GIFTS TO THE STREET

PREFERRED STRATEGY

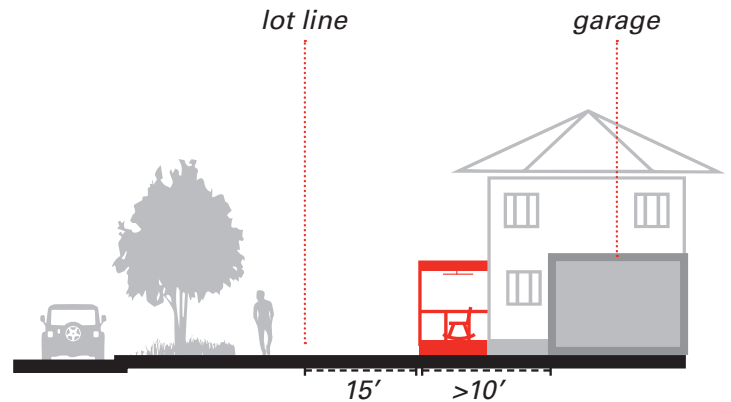
The front area of a house can provide additional amenities along the street that increase curb appeal, create unique neighborhoods and provide aesthetic or pedestrian-oriented elements. The NDSAG supports encouraging front porches and setting the garage back behind the front wall of a house. The NDSAG expressed a collective aversion to “snout houses,” in which the garage protrudes from the front of the house and occupies the bulk of the street frontage. Instead, the NDSAG recommends homes with front porches that face the street and garages that are setback behind the front wall of the home.

The following ordinance changes are recommended:

1. Reduce building setback requirements from 20 feet to 15 feet for development that meets both of the following conditions:
 - a. a front porch is provided, and
 - b. garage is setback at least 10 feet from the front of the porch.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



The NDSAG recommends encouraging front porches by reducing the front setback standards to 15 feet if both a front porch is provided, and the garage is set back at least 10 feet from the front of the porch.

UTILIZATION OF TOPOGRAPHY

PREFERRED STRATEGY

The NDSAG prefers strategies that preserve natural amenities like Frisco's gently rolling topography and existing tree coverage. The NDSAG recognizes that this topography can naturally create the curvilinear street layout they desire (either horizontally or vertically). They would like to see more standards that discourage tree removal and flattening of the site, while also taking into account the necessary constraints of proper drainage design and operation of emergency service vehicles.

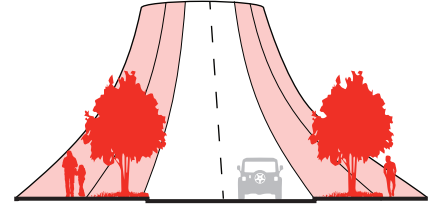
The following ordinance changes are recommended:

1. Every effort shall be made to preserve existing features which would add both aesthetic and economic value to residential development or to the city as a whole, such as trees, watercourses and wetlands, rock outcroppings and similar irreplaceable assets. The ordinance should restrict grubbing, clearing, grading or similar such activity on affected land until approval of the preliminary plat.
2. Horizontal curvilinear street design should be created in a way that naturally complements the existing topography.
3. Vertical curvature of streets should naturally complement the existing topography, where possible.
4. For streets with no houses, amenity centers, or other structures fronting on them, increase the allowed vertical slope from 6% to 10%.*

PLAN OF ACTION

City of Frisco staff will modify the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.

**Streets that have homes fronting on them must be limited to 6% for fire protection, ADA, and drainage reasons. Streets that do not have homes fronting on them (such as entry streets, internal residential collectors, or streets with homes siding to them) will be allowed to have increased grades. This gives flexibility by allowing steeper streets that can connect different parts of the neighborhood that are at different elevations. Steeper entry streets also allow the neighborhood to be disconnected from the elevation or grade of the adjacent arterial roadway.*



The NDSAG recommends curvilinear road layouts that respond to the site's vertical (top) and horizontal (bottom) topography.

LOTS ADJACENT TO MAJOR CREEKS

PREFERRED STRATEGY

The NDSAG agrees that a combination of strategies that locate creek-oriented greenways in the rear (proposed Strategy 1) and front (proposed Strategy 2) will balance residents preference for recreational amenities with developer imperative for developable acreage. The current ordinance allows up to 40 percent of lots in a subdivision to back up to a major creek. The NDSAG would also like to encourage a variety of lot sizes.

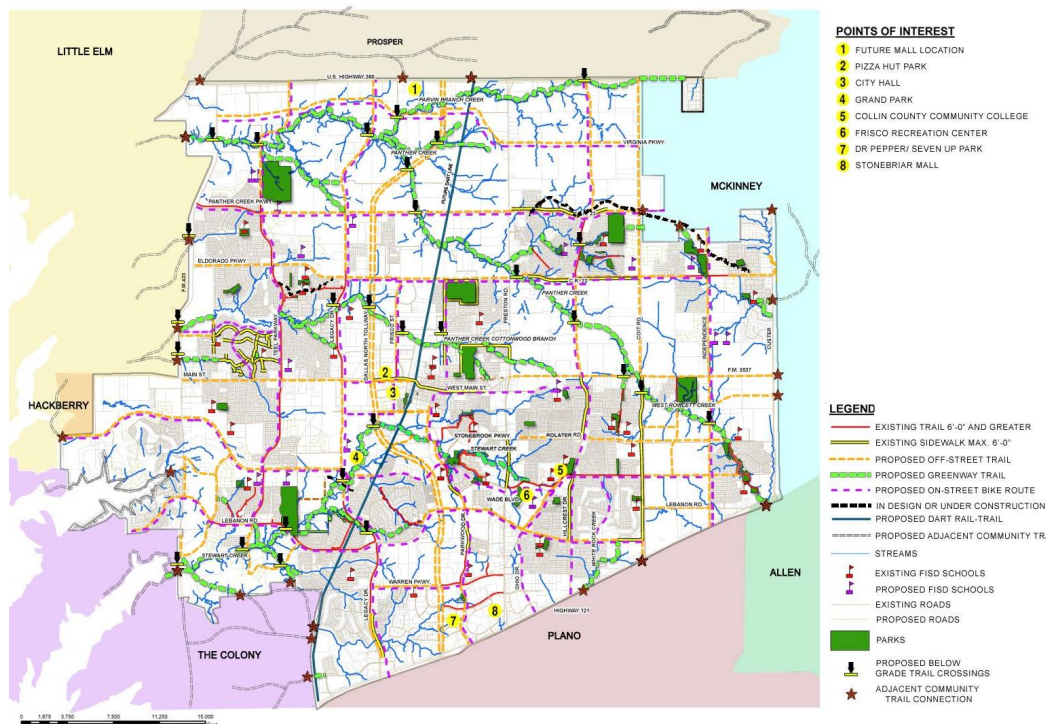
Additionally, in order to promote both safe residential development patterns and walkability in neighborhoods with major creeks, the NDSAG recommends establishing minimum distances between the creek's floodplain and the residential fence line, as well as between the home and the neighboring trail.

The following ordinance changes are recommended:

1. For lots less than ½ acre: up to 20% can back onto major creeks and trails if not separated by a street, and 80% or more must front onto major creeks and trails.
2. For lots between ½ acre and one acre: up to 40% may back onto major creeks and trails if the creek and lots are not separated by a street.
3. For lots one acre or larger: 50% must back onto major creeks and trails if not separated by a street, and 50% must front onto major creeks and trails.
4. Locate the edges of trails a minimum of 100 feet from the floodway line.
5. Locate the edges of trails a minimum of 50 feet from property lines. During the ordinance writing stage, staff should investigate how this recommendation overlaps or impacts the erosion hazard setback.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



The 2016 Hike and Bike Master Plan (an appendix to the 2016 Open Space Master Plan) identifies the major creeks.

OPEN SPACE SAFETY AND VISIBILITY

PREFERRED STRATEGY

Promoting variety in open space options is the NDSAG's preferred strategy for promoting safety and visibility among parks and open space. They recommend establishing standards for the number of open spaces to the number of residential lots within a five minute walk of a given point in Frisco. Those standards should vary depending on the type of open space and should be further studied and incorporated into the subdivision ordinance.

The following ordinance changes are recommended:

1. Establish park-to-residence proximity standards for private neighborhood open space and private community open space for that follow the park to residence ratios already established in the Parks and Open Space Master Plan.
2. The minimum size of a private neighborhood open space should be .1 acres.
3. For sites greater than 15 acres, the required amount of private open space shall be distributed throughout the neighborhood as multiple smaller open spaces.

PLAN OF ACTION

City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.



The NDSAG suggests that establishing a diverse portfolio of open space, from pocket open spaces (above) to larger, more expansive green spaces (below).

WALKING DISTANCE TO OPEN SPACE

PREFERRED STRATEGY

While they do not advise establishing a blanket maximum distance between lots and multi-use trails, the NDSAG does support tying open space proximity to residential density for new residential development.

The following ordinance changes are recommended:

1. Dwelling units within SF-16, SF-12.5, SF-10 and SF 8.5 districts should be within 1/2 mile walking distance of open space.
2. Dwelling units within SF-7 districts should be within 1/4 mile walking distance of open space.
3. Dwelling units within PH, 2F or TH districts should be within 1/8 mile walking distance of open space.

PLAN OF ACTION

City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.



Establishing park proximity as a function of residential density helps ensure that a neighborhood's parks are appropriately scaled for the neighborhood context.

TRAIL SYSTEM ADJACENT TO LOTS

PREFERRED STRATEGY

According to the NDSAG, locating trails in a greenway buffer with residential frontage on two sides facilitates a safe, active neighborhood trail system. Establishing optimal width for such a buffer requires responding to development context, so that the greenway area is wider next to existing neighborhoods and narrower in more naturalized areas.

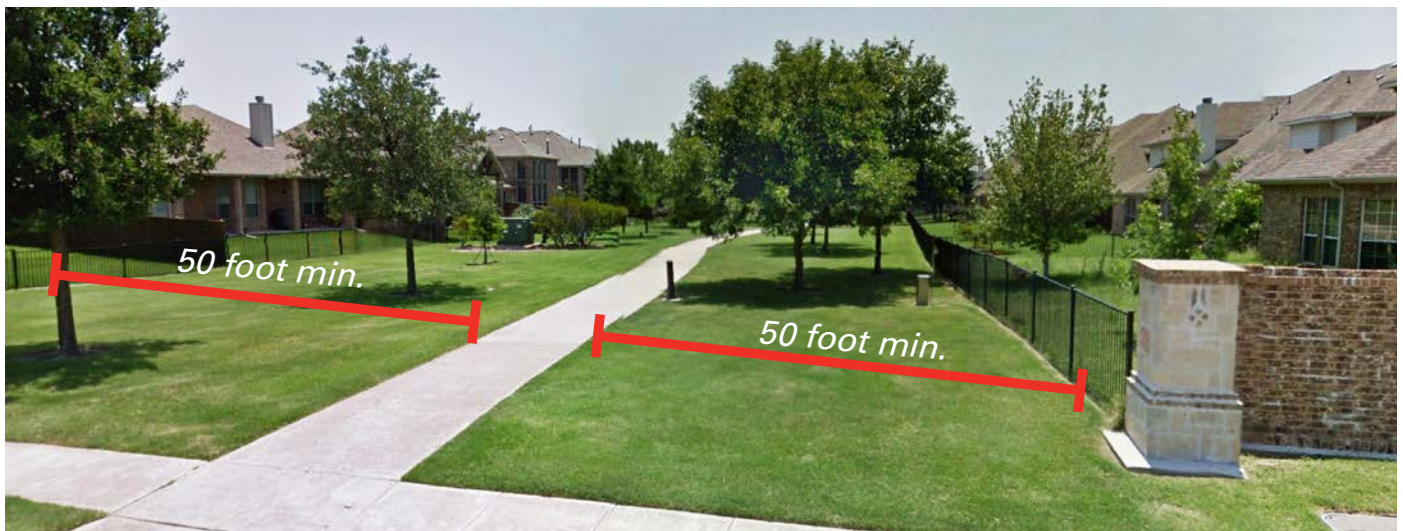
Additionally, the NDSAG recommends that surrounding development context be responsive to the greenway condition. For example, residential fencing that faces a greenway should promote visibility and not be opaque for trail users.

The following ordinance changes are recommended:

1. Locate the edges of trails a minimum of 50 feet from property lines.
2. Fences bordering trail systems adjacent to lots should be greater than 50% opacity.

PLAN OF ACTION

City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department and the Parks and Recreation Department will collaborate on the effort.



The NDSAG sees 50-foot greenway buffers between the edges of trails and property lines as the minimum distance needed for a safe and active trail network.

INTERSPERSED OPEN SPACE

PREFERRED STRATEGY

The NDSAG is comfortable allotting open space in either a hub-and-spoke alignment or an intermittently distributed alignment. Depending on a neighborhood's overall layout and environmental constraints, both options can be appropriate in Frisco.

The following ordinance changes are recommended:

1. The layout of parks and open space within a neighborhood should follow either a radial or "hub and spoke" alignment, or a decentralized and distributed one. Open space should be distributed throughout the development to ensure that all homes have adequate access to open space.
2. For sites greater than 15 acres, the required amount of civic or open space shall be distributed throughout the neighborhood as multiple smaller civic spaces.

PLAN OF ACTION

City of Frisco staff will propose updates to the Subdivision Ordinance. The Parks and Recreation Department will lead the effort.

STRATEGY 1: HUB-AND-SPOKE



STRATEGY 2: DISTRIBUTED



Both of the Neighborhood Design Strategies related to park distribution are appropriate in Frisco.

DESIGN OF OPEN SPACE

PREFERRED STRATEGY

The NDSAG recommends enhancing the quality of design and variety of programming in neighborhood open space.

The following ordinance changes are recommended:

1. Require open space to be designed by a licensed professional landscape architect to ensure an appropriate balance of landscape and programming.
2. Meet or exceed the design guidelines in the Parks and Recreation Open Space Master Plan.
3. Encourage variety in open space programming. Open space should be designed differently with amenities that distinguish one open space from another. Limit active program elements duplicated within a 1/2 mile distance of a proposed open space area.

PLAN OF ACTION

City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.



Intensity and sophistication of park programming should vary depending on park size and level of use.

FRONT ENTRY

PREFERRED STRATEGY

The NDSAG approves of both strategies proposed in this document; limiting the width of driveways while increasing the amount of dual driveways (proposed Strategy 1) and combining side-entry driveways with higher requirements for front lawn vegetation (proposed Strategy 2).

While further study is needed to determine the feasibility of reducing the size of dual driveways, the following ordinance changes are recommended:

1. Single entry residential driveways shall be of a width between 10-22 feet.
2. Investigate during the ordinance writing phase if it is possible to reduce the size of a driveway if it is a dual driveway.
3. Side-entry residential driveways should have a minimum vegetated area of 50 percent of the front yard. Areas covered with turf grass do not count towards this requirement. Hardscaped areas should include permeable pavers on driveway and sidewalk path as a way to meet 50% vegetated areas.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



Side-entry driveways with enhanced planting coverage can offset the visual and physical detriments of excessive front-entry driveways.

REAR ENTRY

PREFERRED STRATEGY

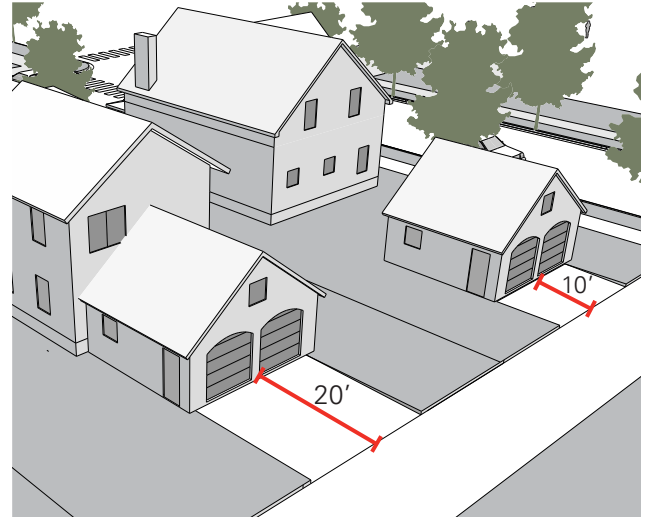
The NDSAG is in favor of shortening the total length of rear entry driveways. However, they emphasized that this size reduction should not come at the expense of the overall lot size.

The following ordinance changes are recommended:

1. The minimum length of rear driveways with parking in front shall be 20 feet. For rear driveways without parking in front, the minimum length shall be 10 feet. These recommendations cannot apply to alleys where the sole source of access for fire suppression is from the alley.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



Shorter driveways for rear-entry garages allow full use of the lot depth, provided that driveway length reductions do not come at the expense of overall lot size.

LOT SIZE DIVERSITY

PREFERRED STRATEGY

The NDSAG supports using a market-driven approach to promoting lot size diversity in new neighborhoods.

In certain circumstances, such as development near environmentally sensitive areas, this market-driven approach can be paired with regulations to protect natural resources and achieve architectural variety, while still allowing developers the flexibility to integrate new trends into neighborhoods. For example, implementing the recommendations regarding lots adjacent to major creeks will promote safety and conservation in residential development, while also encouraging diversity in creek-side lot sizes.

The following ordinance changes are recommended:

1. For lots less than ½ acre: up to 20% can back onto major creeks and trails if not separated by a street, and 80% or more must front onto major creeks and trails.
2. For lots between ½ acre and one acre: up to 40% may back onto major creeks and trails if the creek and lots are not separated by a street.
3. For lots one acre or larger: 50% must back onto major creeks and trails if not separated by a street, and 50% must front onto major creeks and trails.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



Market-based strategies can be combined with environmentally friendly regulations to promote lot size diversity and achieve conservation goals.

FENCES ON CORNER LOTS

PREFERRED STRATEGY

Instead of one or two key preferred strategies regarding corner lot fencing, the NDSAG recommends providing developers with a menu of options to pursue to promote aesthetic quality while providing residence with the feeling of privacy at their home. These options would material considerations, corner setbacks, and opacity controls for corner fences.

The following ordinance changes are recommended:

1. Fences on corner lots must achieve at least one of the following criteria:
 - a. be made of ornamental metal, such as wrought iron,
 - b. have at least 50% opacity, or
 - c. be located 10 feet behind either the setback line or the front wall of the house, whichever is greater.

RESPONSIBLE PARTY

City of Frisco staff will propose updates to the Zoning Ordinance or Fence Ordinance. The Development Services Department will lead the effort.

STRATEGY 1:



STRATEGY 2:



Developers benefit from having a range of options, such as increased fence opacity (Strategy 1) and larger fence setbacks ((Strategy 1), to promote visibility and the aesthetic appeal of corner lots.

UTILITIES ON FRONT ENTRY

PREFERRED STRATEGY

The NDSAG recommends using vegetation to screen front entry utilities from view, mitigating their visual impact. This will require locating utilities in vegetated areas.

The following ordinance change are recommended:

1. Locate gas and electrical utilities in vegetated areas, and screen from view with ornamental shrubs and grasses.

PLAN OF ACTION

City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.



The visual impact of front entry utilities can be mitigated by screening them with planting.

MATRIX

NEIGHBORHOOD DESIGN STRATEGIES SUMMARY | STREETS

ISSUES	<p>Roundabouts – The NDSAG desires to increase the number of roundabouts in residential subdivisions. Roundabouts are already allowed by current City of Frisco standards and are listed as a potential solution to designs which propose over length streets.</p>	<p>Cul-de-sacs – The NDSAG would like to encourage developers to include more cul-de-sacs in residential neighborhood design.</p>	<p>Curvilinear Neighborhood Layout – The NDSAG would like to limit residential development of monotonous gridded neighborhoods and instead encourage a more interesting, organic curvilinear grid.</p>	<p>Zipper Streets – The NDSAG acknowledged the traffic calming benefits of zipper streets, but expressed concerns about potential pedestrian and vehicular safety issues.</p>
RECOMMENDATION	<ul style="list-style-type: none"> » Modify the code to expound upon the benefits and flexibility provided by roundabouts in the design of neighborhood street layouts. » Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard entry or a curvilinear street. » Set a minimum distance that an entry roundabout must be from the major thoroughfare. 	<ul style="list-style-type: none"> » After researching the issue, the Fire Department recommends that the existing standard remain unchanged (which requires each cul-de-sac to have a pavement radius of 50 feet with no center island allowed). The Planning Department proposed some lot layout options that would maintain the same number of lots for developers if two 50-foot cul-de-sacs were implemented end to end in place of one long street. 	<ul style="list-style-type: none"> » Require a percentage of curvilinear residential streets in a development (depending on the size and shape of the development). » Create definitions for a range of curvilinear street options that starts with not being able to see down the entire length of the street and extends up to streets with a required large center line radius. » Complement the existing topography with horizontal curvilinear street design in a way that naturally. Vertical curvature can also create the desired effect (reference Topography section). » Create curvilinear street requirements that produce a street layout similar to that of the Hunters Creek neighborhood in Frisco. » The maximum number of turns allowed in a development to reach a home should be four. Turning off of the arterial into the neighborhood is not included in this number. » Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard entry or a curvilinear street. 	<ul style="list-style-type: none"> » Zipper streets should no longer be used as an option on single-family residential streets. » Where traffic calming is needed, strategic bulb-outs can be placed at intersections or mid-block locations (but will not be spaced in a way that creates a “zipper street”). » Trees should not be located in any bulb-outs.
PLAN OF ACTION	<p>City of Frisco staff will develop the entrance street requirements and modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.</p>	<p>Maintain the Fire Department recommendation of a 50-foot cul-de-sac radius with no center islands.</p>	<p>City of Frisco staff will develop the minimum curvilinear definition, develop methods of calculating curvilinear street requirements in a development, and modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.</p>	<p>City of Frisco staff will modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.</p>

Residential Collector – The NDSAG requested the evaluation of collector street widths where no lots are fronting. These streets carry residential traffic from the arterial roads into the community and must balance traffic calming with parking needs.	Residential Entry Street – A residential entry street is a visitor’s first impression of a neighborhood in Frisco. The NDSAG requested the review of strategies for boulevard entry design and termination	Utilization of Topography – The NDSAG expressed a desire to preserve existing topography in new residential communities. Members would like to avoid completely flattening out neighborhoods, and preserve the City of Frisco’s natural small hills and valleys.	Gifts to the Street – The front area of a house can provide additional amenities along the street that increase curb appeal, create unique neighborhoods and provide aesthetic or pedestrian-oriented elements. The NDSAG expressed a desire to increase porches and setback garages fronting the street.
<ul style="list-style-type: none"> » No changes are necessary. City ordinances were already changed in 2012 to allow narrower residential collectors. » Coordinate the design of future residential collectors with any bike routes identified in the upcoming revision to the Hike & Bike Master Plan. 	<ul style="list-style-type: none"> » Require an enhanced primary entrance street for all developments. Provide the developer with options to meet this requirement with either an entry roundabout, a boulevard or a curvilinear street. » Allow houses to front onto residential boulevards. » The boulevard entry median is limited to a maximum width of 20 feet only at the intersection with an arterial roadway (for traffic and pedestrian safety reasons). The median can widen out as it gets deeper into the development to create a unique space. The length of median that will be limited to a width of 20 feet will be defined during the ordinance writing phase. » The primary entry street should have a minimum length of two residential lot depths. » Primary entry streets should be prohibited from terminating at a “T” intersection unless it terminates on open space, an amenity center, or the sides of lots with proper screening. 	<ul style="list-style-type: none"> » Every effort shall be made to preserve existing features which would add both aesthetic and economic value to residential development or to the city as a whole, such as trees, watercourses and wetlands, rock outcroppings and similar irreplaceable assets. The ordinance should restrict grubbing, clearing, grading or similar such activity on affected land until approval of the preliminary plat. » Horizontal curvilinear street design should be created in a way that naturally complements the existing topography. » Vertical curvature of streets should naturally complement the existing topography, where possible. » For streets with no houses, amenity centers, or other structures fronting on them, increase the allowed vertical slope from 6% to 10%. 	<ul style="list-style-type: none"> » Reduce building setback requirements from 20 feet to 15 feet for development that meets both of the following conditions: <ul style="list-style-type: none"> » a front porch is provided, and » garage is setback at least 10 feet from the front of the porch.
No new actions are necessary. The Parks Department and Traffic Engineering are currently revising the Hike & Bike Master Plan.	City of Frisco staff will modify Section 2 of the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.	City of Frisco staff will modify the Engineering Standards (an appendix to the Subdivision Ordinance). Joel Fitts, Senior Traffic Engineer, will lead this effort.	City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.

MATRIX

NEIGHBORHOOD DESIGN STRATEGIES SUMMARY | PARKS

ISSUES	<p>Lots Adjacent to Major Creeks – The NDSAG would like to evaluate the current ordinance which allows 40 percent of lots in a subdivision to back up to a major creek. Backing onto a major creek creates challenges for cleanup, patrol, maintenance and trail access. Development that encroaches on sensitive slopes can also lead to erosion and safety issues.</p>	<p>Open Space Safety and Visibility – The NDSAG would like to encourage open space with high visibility so homeowners feel safe. Open spaces provide a sense of community within the development, inviting residents out of their private outdoor areas and into the communal public spaces that they share with their neighbors.</p>	<p>Walking Distance to Open Space – The NDSAG believes residents are more likely to visit parks and open space when they are easily accessible by foot.</p>
RECOMMENDATION	<ul style="list-style-type: none"> » For lots less than ½ acre: up to 20% can back onto major creeks and trails if not separated by a street, and 80% or more must front onto major creeks and trails. » For lots between ½ acre and one acre: up to 40% may back onto major creeks and trails if the creek and lots are not separated by a street. » For lots one acre or larger: 50% must back onto major creeks and trails if not separated by a street, and 50% must front onto major creeks and trails. » Locate the edges of trails a minimum of 100 feet from the floodway line. » Locate the edges of trails a minimum of 50 feet from property lines. During the ordinance writing stage, staff should investigate how this recommendation overlaps or impacts the erosion hazard setback. 	<ul style="list-style-type: none"> » Establish park-to-residence proximity standards for private neighborhood open space and private community open space for that follow the park to residence ratios already established in the Parks and Open Space Master Plan. » The minimum size of a private neighborhood open space should be .1 acres. » For sites greater than 15 acres, the required amount of private open space shall be distributed throughout the neighborhood as multiple smaller open spaces. 	<ul style="list-style-type: none"> » Dwelling units within SF-16, SF-12.5, SF-10 and SF 8.5 districts should be within 1/2 mile walking distance of open space. » Dwelling units within SF-7 districts should be within 1/4 mile walking distance of open space. » Dwelling units within PH, 2F or TH districts should be within 1/8 mile walking distance of open space.
PLAN OF ACTION	<p>City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.</p>

Trail System Adjacent to Lots – The NDSAG supports trail amenities that are readily visible and accessible increase usability and safety.	Interspersed Open Space – The NDSAG believes open spaces can be both designed and allocated to promote convenient neighborhood access by offering a diverse portfolio of open spaces with a range of sizes and types.	Design of Open Space – The NDSAG recommends enhancing the quality of design and variety of programming in neighborhood open space.
<ul style="list-style-type: none"> » Locate the edges of trails a minimum of 50 feet from property lines. » Fences bordering trail systems adjacent to lots should be greater than 50% opacity. 	<ul style="list-style-type: none"> » The layout of parks and open space within a neighborhood should follow either a radial or “hub and spoke” alignment, or a decentralized and distributed one. Open space should be distributed throughout the development to ensure that all homes have adequate access to open space. » For sites greater than 15 acres, the required amount of civic or open space shall be distributed throughout the neighborhood as multiple smaller civic spaces. 	<ul style="list-style-type: none"> » Require open space to be designed by a licensed professional landscape architect to ensure an appropriate balance of landscape and programming. » Meet or exceed the design guidelines in the Parks and Recreation Open Space Master Plan. » Encourage variety in open space programming. Open space should be designed differently with amenities that distinguish one open space from another. Limit active program elements duplicated within a 1/2 mile distance of a proposed open space area.
<p>City of Frisco staff will propose updates to the Subdivision Ordinance. The Parks and Recreation Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Subdivision Ordinance. The Parks and Recreation Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Subdivision Ordinance. The Development Services Department will lead the effort.</p>

MATRIX

NEIGHBORHOOD DESIGN STRATEGIES SUMMARY | DESIGN

ISSUES	<p>Front Entry – The NDSAG requested that the NDS consider alternative strategies for front entry design. The design, aesthetics, and functionality of front entry garages have an effect on walkability, street trees, mail delivery, utility location and curb appeal among other neighborhood design factors.</p>	<p>Rear Entry – Locating garages behind the home is an alternative approach to front entry that can result in a more appealing façade facing the street. The NDSAG requested that the NDS consider alternative strategies for rear entry design.</p>	<p>Lot Size Diversity – The NDSAG supports a market-driven approach to promoting lot size diversity in new neighborhoods.</p>
RECOMMENDATION	<ul style="list-style-type: none"> » Single entry residential driveways shall be of a width between 10-22 feet. » Investigate during the ordinance writing phase if it is possible to reduce the size of a driveway if it is a dual driveway. » Side-entry residential driveways should have a minimum vegetated area of 50 percent of the front yard. Areas covered with turf grass do not count towards this requirement. Hardscaped areas should include permeable pavers on driveway and sidewalk path as a way to meet 50% vegetated areas. 	<ul style="list-style-type: none"> » The minimum length of rear driveways with parking in front shall be 20 feet. For rear driveways without parking in front, the minimum length shall be 10 feet. These recommendations cannot apply to alleys where the sole source of access for fire suppression is from the alley. 	<ul style="list-style-type: none"> » For lots less than ½ acre: up to 20% can back onto major creeks and trails if not separated by a street, and 80% or more must front onto major creeks and trails. » For lots between ½ acre and one acre: up to 40% may back onto major creeks and trails if the creek and lots are not separated by a street. » For lots one acre or larger: 50% must back onto major creeks and trails if not separated by a street, and 50% must front onto major creeks and trails.
PLAN OF ACTION	<p>City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.</p>

<p>Fences on Corner Lots – The NDSAG supports trail amenities that are readily visible and accessible increase usability and safety.</p>	<p>Utilities on Front Entry – The NDSAG believes open spaces can be both designed and allocated to promote convenient neighborhood access by offering a diverse portfolio of open spaces with a range of sizes and types.</p>
<ul style="list-style-type: none"> » Fences on corner lots must achieve at least one of the following criteria: » be made of ornamental metal, such as wrought iron, » have at least 50% opacity, or » be located 10 feet behind either the setback line or the front wall of the house, whichever is greater. 	<ul style="list-style-type: none"> » Locate gas and electrical utilities in vegetated areas, and screen from view with ornamental shrubs and grasses.
<p>City of Frisco staff will propose updates to the Zoning Ordinance or Fence Ordinance. The Development Services Department will lead the effort.</p>	<p>City of Frisco staff will propose updates to the Zoning Ordinance. The Development Services Department will lead the effort.</p>



LOWRY EAST | Denver, Colorado

CASE STUDIES

Nine case study communities were analyzed to determine best practices for suburban neighborhood design. In some cases the case study communities are large, master-planned developments. Others are smaller, historical examples of well-known suburban communities. Although varying in acreage and context, all case study communities feature aspects which are well-designed and well-planned from a site design level to details such as utilities and fence design. Together these design elements enhance market desire and enhance amenity quality, and provide superior community quality for these case studies.

It is important to note that the design issues in the City of Frisco are unique, and none of the case study communities are identical to City of Frisco communities. Each issue analyzed in the City of Frisco does not exist in a vacuum; in many cases the issues overlap with one another. The case studies provide built examples and demonstrate how each design issue impacts others. For example, widths of sidewalks and street trees influence front setback widths and utility easement corridors. Street length and width influence traffic safety and emergency access. All the case studies do not meet/address all the NDSAG questions, and each design element has its pros and cons as stated later in this document. Ultimately, the case studies can assist the City of Frisco in demonstrating the pros and cons of potential strategies and successfully implements its 2015 Comprehensive Plan.

DAYBREAK, SOUTH JORDAN, UTAH

DESCRIPTION

Daybreak is a 4,000-acre master-planned community of 13,500 residential lots at build-out, with typical lot size between 1/3-1 acre. Initial sales price is \$160,000 to \$450,000. It is the largest master-planned community in the state's history. Over one-quarter of the open space is preserved, and 100% of the stormwater runoff is retained on site. All homes are Energy Star® certified.



WHY IT'S A CASE STUDY COMMUNITY

- Daybreak includes more than 22 miles of trails that link neighborhoods to schools, churches, community centers, a nearby lake and other destinations in the local context
- Every home is located within 1320 ft. (1-2 blocks) walking distance of a park
- 88% of Daybreak students walk to school, compared to 17% of students in surrounding, less walkable neighborhoods
- Since it's opening, it has consistently ranked as the top selling new home community in Utah and one of the top-selling in the United States. In 2016, it was the 18th highest-selling master-planned community¹

PROS

- Substantial amount of preserved open space serves as an amenity to residents
- Significant and holistic attention paid to environmental sustainability
- Lake functions as central community hub

REQUESTS REPRESENTED

- **Streets**
 - Roundabouts
 - Access between neighborhoods and retail
 - Residential collector
 - Entry street termination
 - Boulevard entry streets
- **Parks and Open Space**
 - Lots adjacent to parks and open space
 - Trail system adjacent to lots
 - Interspersed parks and open space
- **Lot Design**
 - Lot size diversity

CONS

- None

1. Robert Charles Lesser & Co., LLC. 2016 MPC Survey - Mid-Year Update. <http://www.rclco.com/advisory-mpc-survey-2016-midyear>

LOWRY, DENVER, COLORADO

DESCRIPTION

Lowry is a 1,800-acre master-plan sited on the former Lowry Air Force Base. It features 4,500 homes, 85 acres of commercial use, and 800 acres of open space. It is a national model for air force base reuse and mixed-use development.



WHY IT'S A CASE STUDY COMMUNITY

- Lowry features a mix of incomes. Of the 2,840 homes, 940 are affordable, while remaining homes can reach into the \$1,000,000s providing an extensive range of housing options
- From 1998 to 2003, Lowry home values increased 11.5% on average per year whereas Denver increased 9.5% and metro-wide increased 8.5%
- Lowry boasts over 800 acres of open space (20% of all the park acreage in Denver)

PROS

- A mix of institutional uses, including several education facilities
- Parks range from a golf course and a regional sports complex to a variety of neighborhood pocket parks integrated into the residential areas

REQUESTS REPRESENTED

- **Streets**
 - Zipper streets
 - Collector street width
 - Access between neighborhoods and retail
- **Parks and Open Space**
 - Parks and open space visibility
 - Walking distance to open space
 - Design of parks and open space
- **Design**
 - Lot size diversity

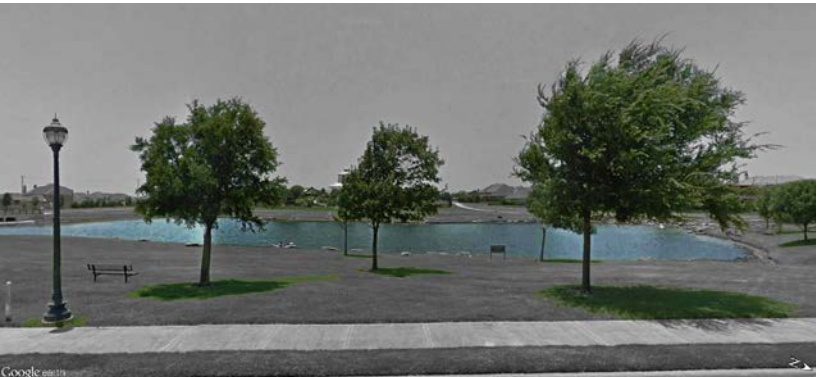
CONS

- Size of master plan development
- Higher density than the City of Frisco
- Redevelopment scheme was unable to retain a number of good-quality housing units from the site's previous use

LONE STAR RANCH, FRISCO, TEXAS

DESCRIPTION

Lone Star Ranch is 500-acre master-planned community which will be home to 3,000-resident, including 1,400 homes in eight distinct villages.



WHY IT'S A CASE STUDY COMMUNITY

- Existing City of Frisco example which includes several good examples of neighborhood design strategies addressed in this report

PROS

- Robust trail network knits together the neighborhood's residential areas
- Parks and open spaces double as aesthetic detention areas that manage on-site stormwater
- Includes community amenities such as a clubhouse, pool, and good connections to three linear trail systems
- Features curvilinear collector and local streets.
- Parks are generally open and highly visible near entrances to the community

REQUESTS REPRESENTED

- **Streets**
 - Curvilinear neighborhood layout
- **Parks and Open Space**
 - Parks and open space visibility
 - Trail system adjacent to lots
 - Interspersed parks and open space

CONS

- Lacks a strong sense of architectural identity
- Long curvilinear streets still lead to resident complaints about vehicular speeds
- Long trails behind homes with limited access points

MUELLER, AUSTIN, TEXAS

DESCRIPTION

A 700-acre site, redeveloped into a neighborhood when Austin’s airport relocated. At full build-out it will house 13,000 people in a mixed-use development. Home prices vary from low-to-mid \$100,000s through the \$1,000,000s.



WHY IT'S A CASE STUDY COMMUNITY

- Rear-facing garages with porches in the front and small lot setbacks create walkable sidewalks
- Ample greenways and access to high-quality open space
- An innovative and comprehensive approach has earned awards from the Urban Land Institute and the US Department of Housing and Urban Development marking its significance as a national example of neighborhood design

PROS

- Large residential roundabouts help terminate entry views and increase the amount of green space throughout the development
- Wide array of neighboring community amenities, including grocery stores and educational institutions
- Easily accessible trail network funnels users from residential areas into large park and open space areas away from homes

REQUESTS REPRESENTED

- **Streets**
 - Roundabouts
 - Access between neighborhoods and retail
 - Street trees
 - Entry street termination
 - Boulevard entry streets
 - Zipper streets
- **Parks and Open Space**
 - Parks and open space visibility
 - Trail system adjacent to lots
 - Design of parks and open space
 - Utilities on front entry
- **Lot Design**
 - Rear entry

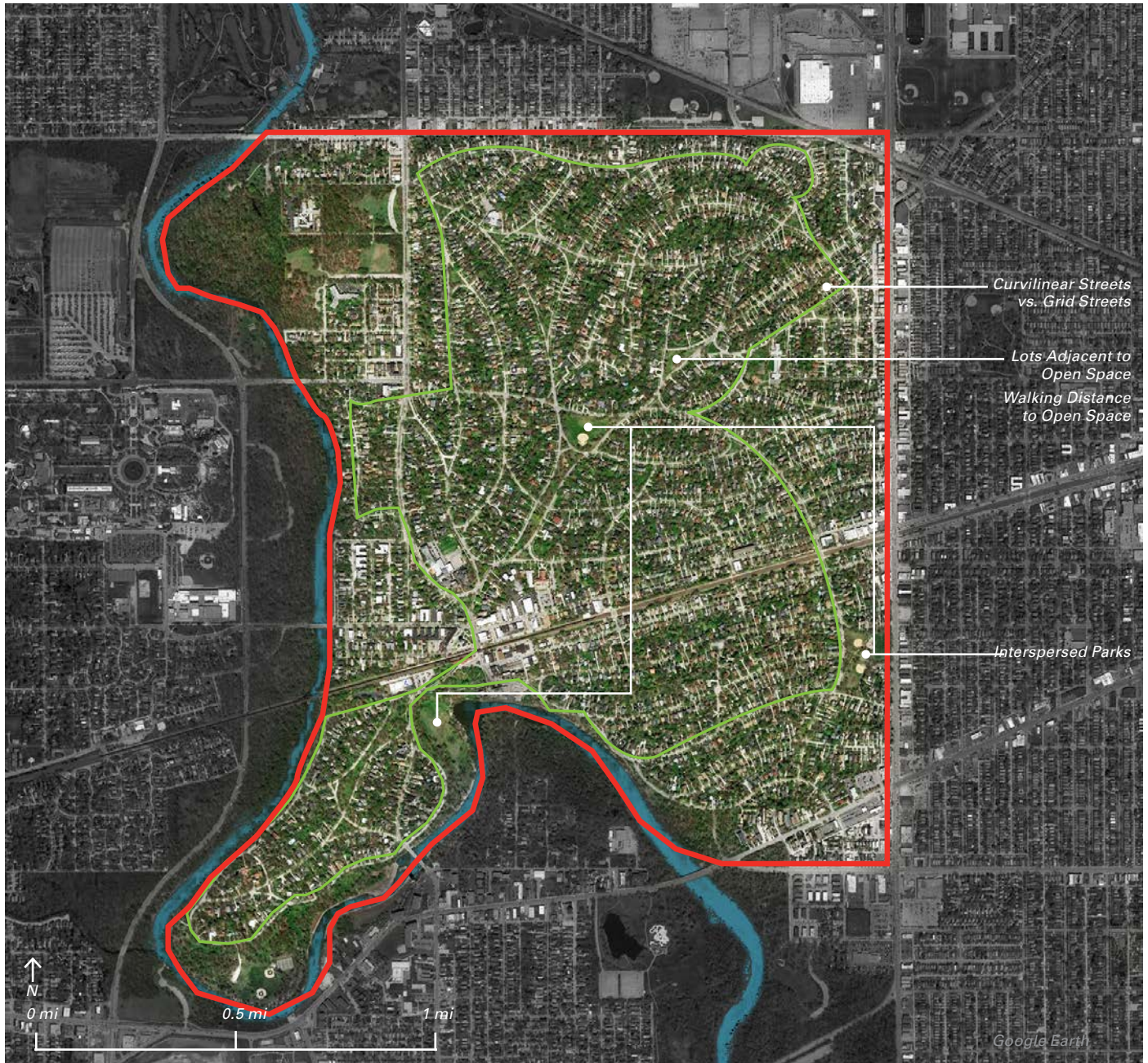
CONS

- Higher density than the City of Frisco
- Long residential streets with homes fronting on them which may cause speeding complaints

RIVERSIDE, ILLINOIS

DESCRIPTION

Riverside is a 1,200-acre suburban village nine miles outside of Chicago. It was developed in the 1860s prior to the commercialization of the automobile, and is considered the first planned community in the United States. The Central Business District has a grocery store, shops, cafes, banks and other office uses. Designed by Frederick Law Olmsted, Riverside utilized curved roads to enhance access to public space, scenic views and utilize sloped topography.



WHY IT'S A CASE STUDY COMMUNITY

- The carefully planned curvilinear street grid allows scenic views yet maintains connectivity within the neighborhood to minimize turns and travel time to homes
- The streets are designed to respect the topography of the land. This avoidance of right angles helped to create more public space and utilize moderately-sloped topography
- A series of biking and walking trails circulate through the open space and behind homes with enough separation to be safe and visible
- A mix of lot size and land-uses allows Riverside to be an inclusive neighborhood where residents can live, work, and play within their neighborhood.

PROS

- Diversity of architectural styles creates a varied portfolio of building aesthetics
- Lushly planted front yards add to the neighborhood's canopy and curb appeal without spilling into the right of way

REQUESTS REPRESENTED

- **Streets**
 - Curvilinear neighborhood layout
 - Utilization of topography
- **Parks and Open Space**
 - Lots adjacent to parks and open space
 - Walking distance to parks and open space
 - Interspersed parks and open space
- **Lot Design**
 - Front entry
 - Lot size diversity

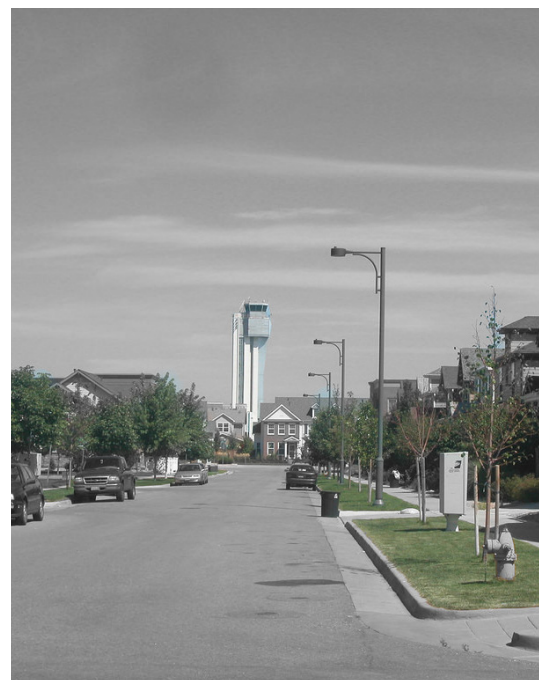
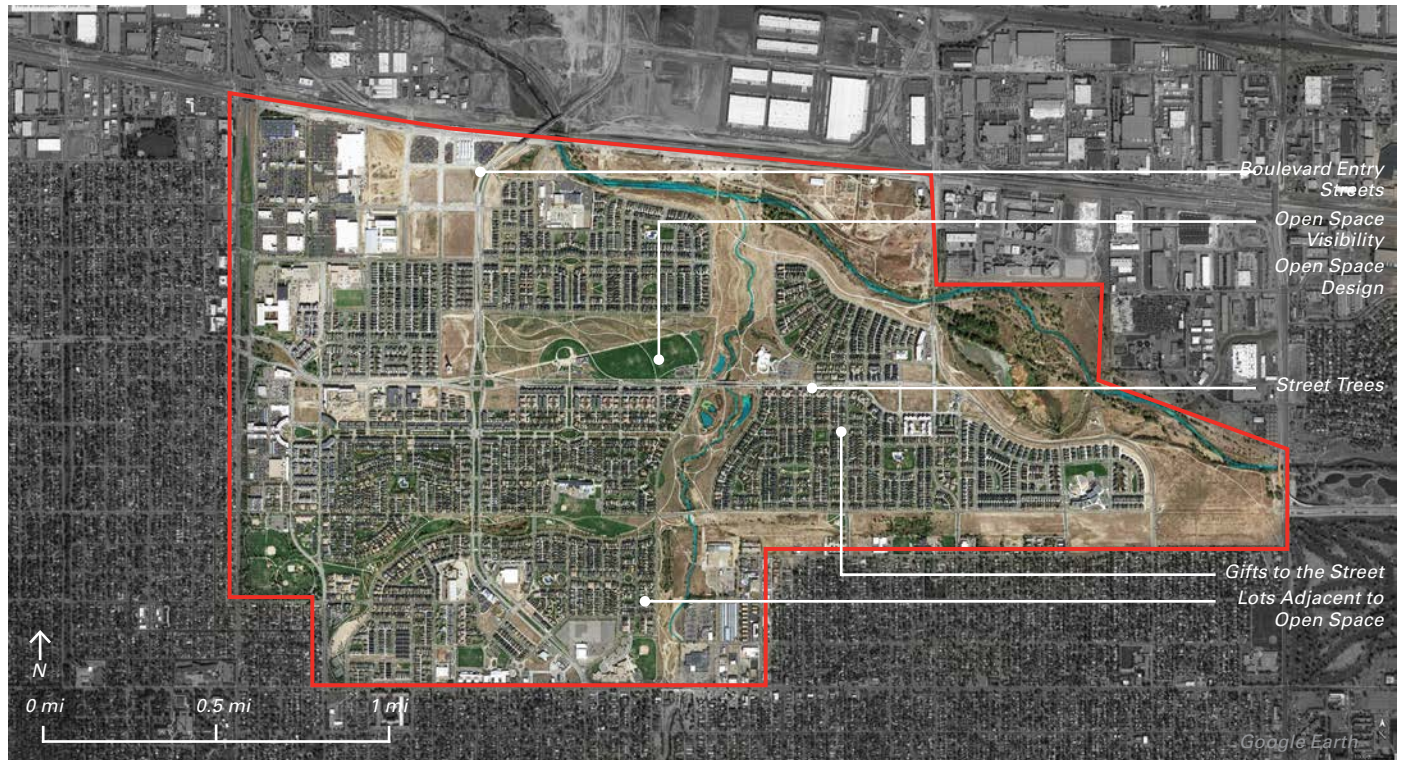
CONS

- Curvilinear road layout leads to confusing triangular intersections that could potentially function better as roundabouts
- Long streets, many of which connect all the way through the neighborhoods, have homes fronting them and have led to residents complaints about vehicular speeds and cut-through traffic. The village is currently conducting a traffic study of the entire neighborhood to address the traffic issues.

STAPLETON, DENVER, COLORADO

DESCRIPTION

Two decades after its initial construction, 4,700-acre Stapleton is a world-class model for suburban development. It is a 15-minute drive from Downtown Denver. Homes range from \$100,000 to over \$700,000. It includes over 50 restaurants, 100 stores, two community gardens, and six community pools. These amenities help draw residents from around the region.



WHY IT'S A CASE STUDY COMMUNITY

- Over 1,000 acres of planned parks and open space connect to all residential neighborhoods (25% of the entire Denver Park System)³
- Since it's opening, it has consistently ranked as one of the top selling new home community in the United States. In 2016, it was the 10th highest-selling master-planned community⁴ demonstrating its market appeal and design qualities

PROS

- Stormwater design guidelines emphasize low-impact design strategies that tie into the landscaped portions of the development's parks profile
- Boulevard entry streets accommodate multiple modes of transportation, while providing a sense of arrival into the neighborhood

REQUESTS REPRESENTED

- **Streets**
 - Street trees
 - Boulevard entry streets
 - "Gifts to the street"
- **Parks and Open Space**
 - Lots adjacent to parks and open space
 - Parks and open space visibility
 - Design of parks and open space
- **Lot Design**
 - Lot size diversity
 - Utilities on front entry

CONS

- Size of master plan development
- Higher density than the City of Frisco
- Prevalence of more monostylistic, contemporary architectural styles in northern areas of the development may be off-putting in some communities

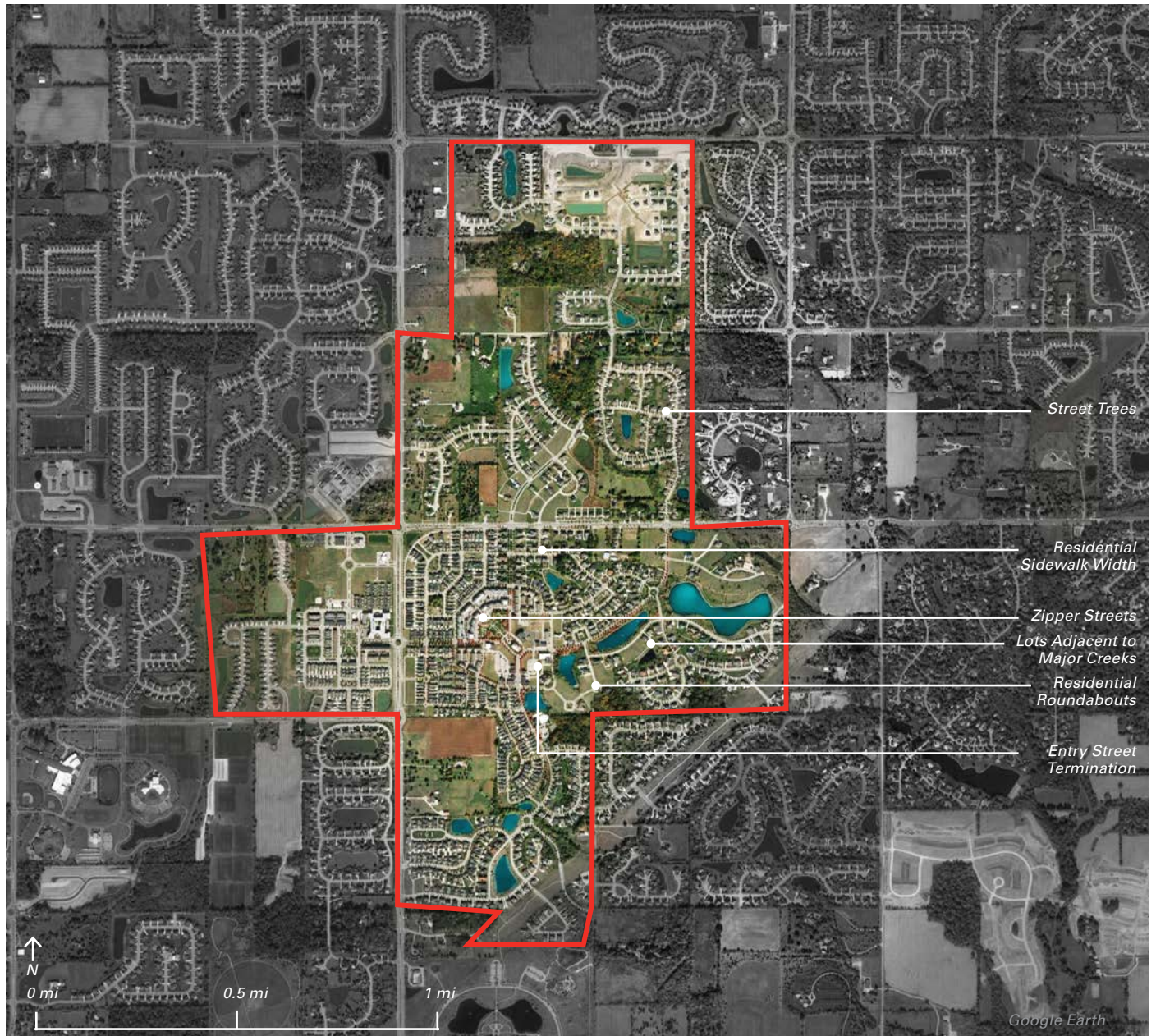
3. <http://www.stapletondenver.com/community/our-story/stapleton-numbers/>

4. Robert Charles Lesser & Co., LLC. 2016 MPC Survey - Mid-Year Update

THE VILLAGE OF WEST CLAY, INDIANA

DESCRIPTION

The Village of West Clay is a 686-acre Traditional Neighborhood Development (TND). The Village offers commercial and residential uses and single-family and multi-family homes. The town center offers residents shops and cafes and a community gathering area. The combination of gridded and curvilinear streets create unique home offerings. Interspersed lakes and trails help residents connect to the surrounding natural environment.



WHY IT'S A CASE STUDY COMMUNITY

- Gently sloped topography helps preserve open space and create curvilinear roadways. Residents are easily within walking distance to many outdoor amenities⁵
- Architectural styles blend to the region make the community both unique but fit the historical style of the area
- Roundabouts provide a unique case study in non-signalized traffic management

PROS

- Preservation of minor topographical features achieves variety in the landscape
- Mix of deciduous and evergreen street trees provides seasonal interest along the right of way
- Front entry driveways lead to side garages, enhancing curb appeal
- Significant number of lots adjacent to ponds and surrounding open space

REQUESTS REPRESENTED

- **Streets**
 - Roundabouts
 - Street trees
 - Zipper streets
 - Sidewalk width
 - Entry street termination
 - Utilization of topography
 - Curvilinear neighborhood layout
- **Parks and Open Space**
 - Lots adjacent to parks and open space
- **Lot Design**
 - Front entry
 - Rear entry
 - Lot size diversity
 - Fences on corner lots

CONS

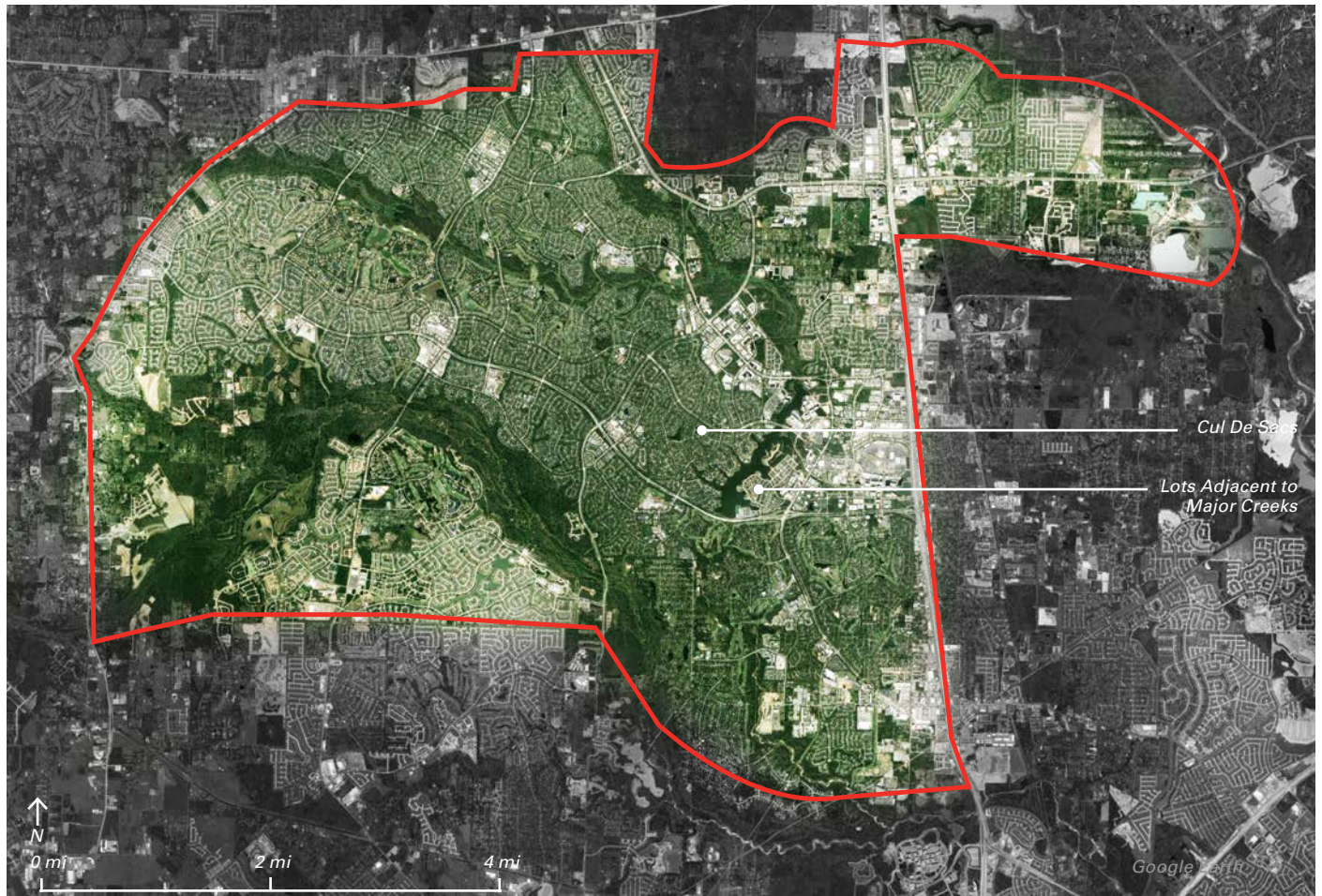
- Relative lack of walkable retail options

5. http://www.westclay.com/brenwick_traditional_development.aspx

THE WOODLANDS, TEXAS

DESCRIPTION

The Woodlands is a 28,000-acre master plan 25 miles outside of Houston's core. Although the largest development case study, The Woodlands is a superior example of suburban community planning and design. It is well-known for its careful consideration for preserving natural amenities. Helping to control its character are strict form-based codes and development standards which currently align with those in the City of Frisco. Ten villages each have their own shopping centers, community organizations, schools. Homes range from \$100,000 to \$1,000,000.



WHY IT'S A CASE STUDY COMMUNITY

- Despite the lagging Houston economy from stagnant or dropping oil prices, home prices in The Woodlands rose 2% in 2016⁶
- The Woodlands Residential Development Standards represent many industry best practices for residential lot design
- In the past decade, the population of the lush, sprawling suburb has doubled, up from 56,000 in 2000 to 112,000 in 2011

REQUESTS REPRESENTED

- **Streets**
 - Cul-de-sacs
 - Utilization of topography
 - Curvilinear neighborhood layout
- **Parks and Open Space**
 - Lots adjacent to major creeks
- **Lot Design**
 - Fences on corner lots
 - Utilities on front entry
 - Lot size diversity

PROS

- Rigorous environmental pre-planning helps ensure that development is sensitive to the landscape's ecological limits
- Locally managed cul-de-sacs provide opportunities for civic stewardship and create a sense of place
- Open fencing on corner lots
- Curvilinear streets, most meet City of Frisco design standards

CONS

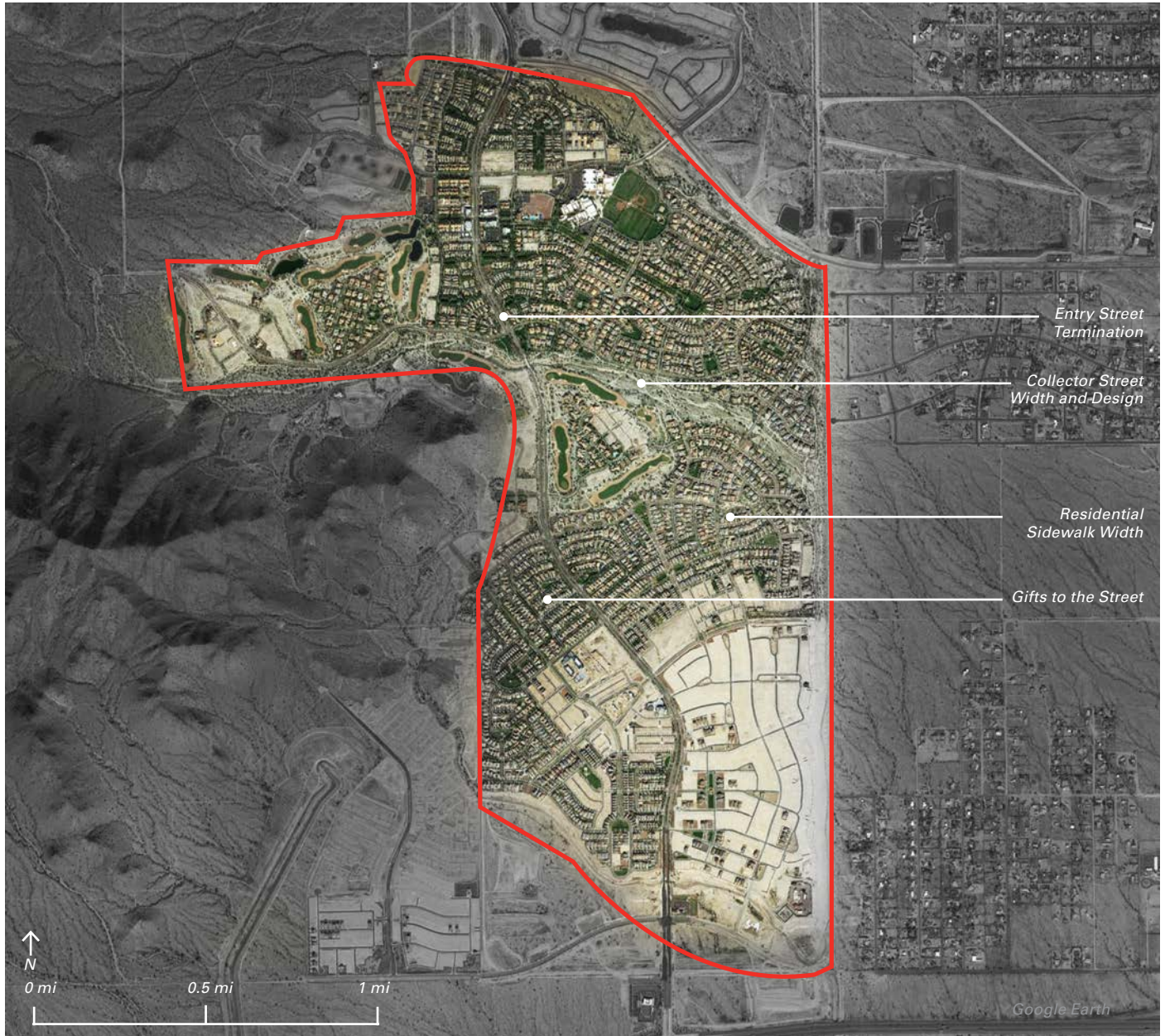
- Size of master plan development
- Regional growth has caused the neighborhood to swell to its 2016 population of over 100,000, leading to governance challenges
- Adoption of The Woodlands' environmentally sensitive measures would likely require the City of Frisco to change the major creek ordinance
- Does not maximize the value of open space by lots fronting and allowing people direct access to the creeks does not follow CPTED design principles

6. <http://www.yourhoustonnews.com>

VERRADO, BUCKEYE, ARIZONA

DESCRIPTION

Verrado is a 1,500-acre master-planned community in Buckeye, Arizona 25 miles from downtown Phoenix. It will contain 14,000 units at build-out. Featuring unique site geometry, townhouses and single-family homes radiate around the Main Street District. Many homes feature rear entry. Verrado features 11 different home designs carefully controlled by covenants, conditions, and restrictions (CCRs) and architectural guidelines.



WHY IT'S A CASE STUDY COMMUNITY

- Median home sales increased 7% in the past year⁷
- After the market crash, Verrado rebounded with 163 home sales during 2011, up more than 30 percent from 2010⁸ demonstrating its appeal to homebuyers even after market struggles. Other Phoenix-area subdivisions have not fared nearly as well
- Model homes generated more than 10,000 people each week. Home prices increased nearly \$100,000 during the initial sales cycle⁹

PROS

- Neighborhood layout promotes a strong visual connection to surrounding natural features
- Significant and holistic attention paid to environmental sustainability
- Lake functions as central community hub
- Curvilinear streets

REQUESTS REPRESENTED

- **Streets**
 - Residential collector
 - Entry street termination
 - Sidewalk width
 - "Gifts to the Street"
 - Curvilinear neighborhood layout
- **Lot Design**
 - Front entry
 - Rear entry
 - Fences on corner lots
 - Lot size diversity
 - Utilities on front entry

CONS

- Size of master plan development
- Higher density than the City of Frisco

7. <http://www.trulia.com>

8. <http://archive.azcentral.com>

9. <http://www.probuilder.com>



STREETS

In suburban housing communities, driving on streets is the predominant way people experience a neighborhood. Well-designed streets enhance pedestrian and vehicle safety, add to community character and aesthetics, and can enhance market value.

BENCHMARKS	DAYBREAK, SOUTH JORDAN, UTAH	LOWRY, DENVER, COLORADO	LONE STAR RANCH, FRISCO, TEXAS	MUELLER, AUSTIN, TEXAS	RIVERSIDE, ILLINOIS	STAPLETON, DENVER, COLORADO	THE VILLAGE OF WEST CLAY, INDIANA	THE WOODLANDS, TEXAS	VERRADO, BUCKEYE, ARIZONA
Roundabouts				●			●		
Access between neighborhoods and retail		●	●						
Street trees									
Cul-de-sacs			●						●
Curvilinear neighborhood layout		●				●			●
Zipper Streets									
Residential collector	●								
Entry termination				●				●	
Sidewalk width									
Boulevard entry	●	●				●			
"Gifts to the street"					●	●			●
Utilization of topography							●	●	

Case study communities employ a variety of strategies to provide quality street design in residential development.

● = featured as case study

■ = community addresses this issue

ROUNABOUTS



Roundabouts help traffic flow continuously

ISSUE

The NDSAG desires to increase the number of roundabouts in residential subdivisions. Roundabouts are already allowed by current City of Frisco standards and are listed as a potential solution to designs which propose over length streets.

There are currently 20 roundabouts in various City of Frisco neighborhoods with more under construction. There are currently no requirements to install a roundabout but City of Frisco staff often recommends them to developers.

The 2015 Comprehensive Plan details the City's desire to enhance aesthetics with pedestrian-oriented elements, create neighborhoods that reflect the local community character, and balance street designs that discourage speeding but do not compromise emergency response times. Roundabouts can help achieve these goals.

PROS OF RESIDENTIAL ROUNABOUTS

- Proven to reduce traffic congestion on certain road levels
- Reduces vehicle-vehicle crashes and are the safest type of intersection
- Already listed as potential solution in City of Frisco standards
- Reduces conflict points for pedestrians, bicycles, and vehicles
- Calms traffic
- Placemaking potential for neighborhood identity/art

CONS OF RESIDENTIAL ROUNABOUTS

- Proximity to schools could lead to traffic problems and perceived pedestrian issues
- May prioritize vehicle movement over pedestrian walkability, which is already a concern in the City
- Developer resistance to install roundabouts due to additional landscape and increased right-of-way requirements
- Limits orientation of houses (front entry) on the corner and where driveways can be located

REFERENCE TO CURRENT ORDINANCE

- Engineering Regulations
 - Engineering Standards Section 2.02. F. Roundabouts
 - Engineering Standards Section 2.02. I. Street Length (4) (c)

Roundabout should include pedestrian crosswalks and information

POTENTIAL STRATEGIES

The following strategies could be considered to increase the number of roundabouts in residential development.

BASELINE STRATEGY

Installing a roundabout can permit a residential street to extend up to 1,800 feet in length without a change in direction

Though residential streets are typically restricted to a maximum length of 1,200 feet before a change in direction, the current code allows streets that include an internal roundabout to extend up to 600 feet longer. Roundabouts can count as a "change in direction" so a 1,200 foot street can be followed by another 1,200 foot street if they are separated by a roundabout and not in a direct line. For developers that prefer these longer street typologies, then, roundabout installation may be an approach.

PROS

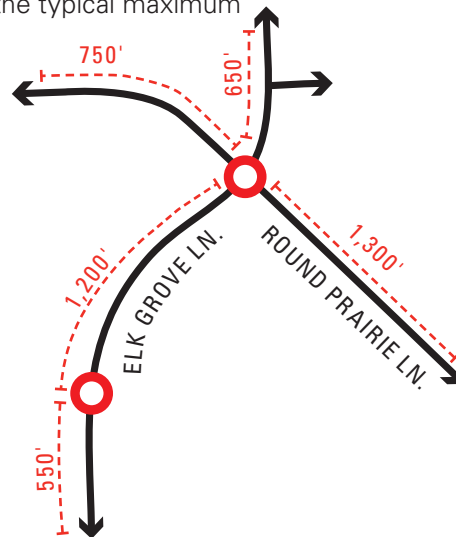
- Helps prevent long, uninterrupted residential streetscapes and promotes desirable block lengths
- Provides traffic calming

CONS

- Relies on developer preference for longer street length to promote roundabout installation

Case Study: Prairie View Development (Planned), Frisco, Texas

The installation of (currently unconstructed) roundabouts along the roads' interiors allow both Elk Grove Lane and Round Prairie Lane to exceed the typical maximum road length for Frisco's residential streets.



SPEED LIMIT:

10-30 MPH

ROUNDAABOUT RADIUS:

55 FEET



Installing roundabouts like this one at Red Rock Canyon Road and Crater Lake Road in Frisco enable developers to achieve longer street lengths.

ROUNABOUTS

STRATEGY 1

Locate roundabouts at the termination of residential entry streets

In addition to their demonstrated mobility benefits, roundabouts can also contribute to a community's placemaking strategy. Residential entry streets, in particular entry boulevards, that terminate at large, adorned roundabouts communicate an arrival experience to neighborhood residents and visitors, while also improving safety and congestion.

PROS

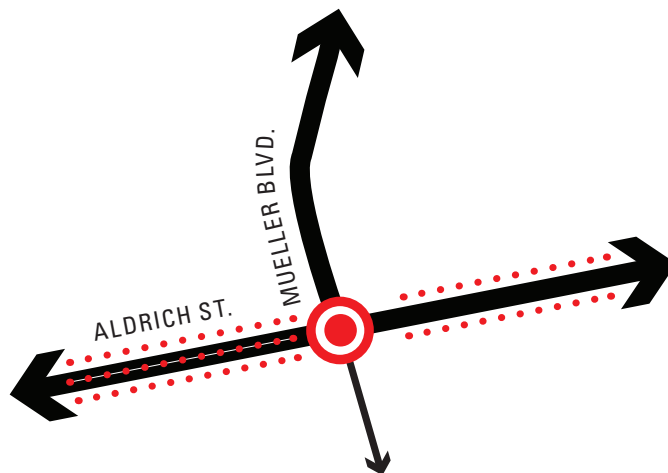
- Creates a sense of place while also providing benefits of a typical roundabout
- Complements other NDSAG issues, such as Boulevard Entry Streets and Entry Street Termination

CONS

- Larger roundabouts may be out of scale of the neighborhood
- Larger roundabouts do not calm traffic as well

Case Study: Mueller, Austin, Texas

The 6,000 square foot roundabout punctuates Aldrich Street's boulevard experience of robust street tree and median plantings, and directs multi-modal traffic within the development.



SPEED LIMIT:

30 MPH

ROUNABOUT RADIUS:

85 FEET



The boulevard-style entry street on Aldrich Street terminates at a large, well-planted traffic circle that welcomes Mueller residents and visitors.

STRATEGY 2

Locate roundabouts at the intersection of two residential collector streets

While roundabouts in residential areas typically occur on low-traffic neighborhood roads, the City of Frisco may consider implementing appropriately scaled roundabouts on the collector streets that transition vehicles from neighborhood roads to arterial roads.

PROS

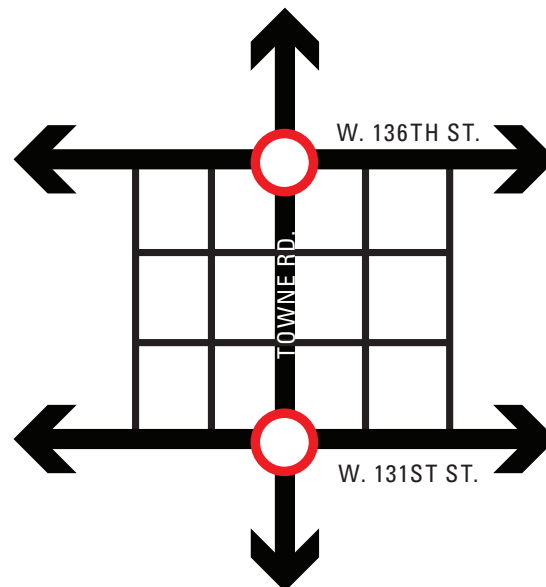
- Promotes safe travel on faster, larger capacity roads
- Slows vehicular speeds before they enter residential areas

CONS

- May require a larger share of the right-of-way than a standard roundabout
- Developer may not include a collector in their proposed layout

Case Study: Village of West Clay, Carmel, Indiana

Incorporating roundabouts into residential collector intersections can help drivers slow down more rapidly. In the Village of West Clay, this facilitates cleaner transition between faster mobility-oriented collector streets and interior residential streets.



SPEED LIMIT:

45 MPH (15 MPH IN ROUNDABOUT)

ROUNDABOUT RADIUS:

75 FEET



Though neighborhood roads in the Village of West Clay do not typically feature roundabouts, residential collector streets like Towne Road and W. 136th St. do converge at roundabouts that are sized to accommodate the road traffic.

ACCESS BETWEEN NEIGHBORHOODS AND RETAIL



A walkable retail destination

ISSUE

The NDSAG desired to encourage more pedestrian connections to commercial from residential neighborhoods. The current codes requires this. However, there are developments within the City of Frisco where residential neighborhoods do not provide adequate connections to commercial areas. Many of the neighborhoods that do not have adequate connections were developed prior to the city requirement. The City has approved many neighborhood connections to retail but they do not get built until the abutting property develops. Examples where such connections exist today includes Kyser Way and Pecan Hollow Lane.

The City of Frisco has adequate standards to require residential subdivisions to connect to retail centers. The NDSAG is looking for additional ways to encourage connections to commercial development from residential neighborhoods.

PROS OF ACCESS BETWEEN NEIGHBORHOOD AND RETAIL

- Creates mixed-use districts where residents don't have to rely on their car for daily needs
- Reduces busing needs within Frisco Independent School District
- Relates directly to 2015 Comprehensive Plan issues as discussed above

CONS OF ACCESS BETWEEN NEIGHBORHOOD AND RETAIL

- Sometimes perceived as an additional cost
- Perception of cut through traffic in the neighborhood and to insure safe connections not made into the retail's service area
- Challenging to match housing developer and retail developer needs

REFERENCE TO CURRENT ORDINANCE

- Subdivision Regulations
 - Subdivision Standards Section 8.04 (a) (4) New Internal Streets
- Engineering Regulations
 - Engineering Standards Section 2.06 (B) (15) Sidewalks between Residential Lots

STREET TREES



Street trees in the City of Frisco

ISSUE

The NDSAG wondered about the impact of street trees on sidewalks and utilities. The 2015 Comprehensive Plan details the City's desire to provide aesthetics with pedestrian-oriented elements, incorporate green engineering where possible and creating neighborhoods that reflect the local community character. Street trees help accomplish all of those goals. The NDSAG wonders if street trees can have adverse impacts on sidewalks and utilities. Providing street trees while respecting the needs of all elements including the tree, utilities, and sidewalks is the best solution for long-term cost effectiveness. Currently, street trees are placed approximately six feet from back of curb.

A review of literature concludes that street trees play a minor role in sidewalk service life and utility problems.^{1, 2} Emphasis should be placed on providing enough clear space to ensure as few conflicts as possible. Planning, Engineering and Public Works worked together to develop the design criteria to allow street trees that would thrive in that environment. Furthermore, the City of Frisco specifies the tree species to be used as street trees that are suitable for that environment.

PROS OF STREET TREES

- Reduce heat island effect, reduce tailpipe emissions, and lower atmospheric ozone
- Provide protection for pedestrians from rain, sun, and heat
- Reduce traffic speeds
- Add value to adjacent homes, businesses, and ultimately, the city tax base

CONS OF STREET TREES

- Removing a tree that has buckled a sidewalk can cost thousands of dollars, wasting the cost of the original tree and sidewalk

REFERENCE TO CURRENT ORDINANCE

- Zoning Regulations
 - Zoning Ordinance 4.02.10.1 Residential Street, Front Entry; 4.02.10.2 Residential Street, Rear Entry
- Engineering Regulations
 - Engineering Standards Section 2.02. A. Thoroughfare Definitions

1. Sydnor, Gamstetter, Nichols, Bishop, Favorite, Blazer, Turpin. 2000. Trees are not the root of sidewalk problems.

2. Dettenmaier and Kuhns. 2016. Tree/Sidewalk Conflicts: One Way to Save Trees. Utah Forest Facts.

3. Janssen. 2016. Tree Root Damage Can Be Serious. <http://www.leainc.com/insight/2013/12/13/street-trees-sidewalks-and-underground-utilities/>

CUL-DE-SACS



The NDSAG wants smaller radius cul-de-sacs

ISSUE

The City of Frisco's Comprehensive Plan 2015 Update emphasizes the importance of an interconnected street system because it improves pedestrian safety, local circulation, shorter walking distances and a logical structure to the physical development of a community.

The NDSAG wants smaller radius cul-de-sacs and to encourage more of them. The current 50 foot radius requirement is based on Fire Department and trash truck operations (see Reference to Current Ordinance). The City of Frisco Fire Department discussed this matter at the August 24th meeting.

PROS OF SMALLER CUL-DE-SACS

- Smaller cul-de-sacs take up less land overall and reserve more land for homes throughout the development
- Reduces impermeable surface in neighborhoods
- Reduces pavement costs
- Curvilinear works better with the land's topography thereby reducing excavation costs of the site

CONS OF SMALLER CUL-DE-SACS

- Fire/emergency vehicles have difficulty maneuvering and operating in smaller radii cul-de-sacs
- Smaller cul-de-sacs would likely impact trash truck operations on front entry homes
- Cul-de-sacs can be counter productive to walkability in a neighborhood
- More cul-de-sacs results in less connectivity and more traffic on fewer streets

REFERENCE TO CURRENT ORDINANCE

- Subdivision Regulations
 - Subdivision Standards Section 8.04 (b) (9) Street Requirements
 - Subdivision Standards Section 8.03 Drainage and Environmental Standards (e) Major Creeks
- Engineering Regulations
 - Engineering Standards Section 2.06 (B) (15) Sidewalks between Residential Lots
 - Engineering Standards Section 2.02 B. 7 - Dead-End Streets/Cul-de-Sacs/Stub Streets
- Fire Code



NEWMAN VILLAGE | FRISCO, TX

CURVILINEAR NEIGHBORHOOD LAYOUT



Curvilinear streets in Lowry, Denver, Colorado

ISSUE

A curvilinear street pattern, where roads curve instead of remain straight has the potential to create variety in block sizes, visual interest, and align with the natural topography of hills and valleys. The NDSAG would like to encourage curvilinear streets and reduce the number of turns needed to reach a home.

Many researchers conclude that long straight streets encourage speeding¹. To reduce speeding and cut through traffic, the City of Frisco restricts the length of residential streets with homes facing on them by requiring that they end or change direction at 1,200 feet.

These streets can be extended to 1,800 feet if a traffic calming measure is added to the street design. The existing street length standard can lead to more right angle turns in a development, particularly if the developer desires to maximize the number of lots in a neighborhood.

The Frisco Comprehensive Plan 2015 Update emphasizes the importance of an interconnected street system because it improves pedestrian safety, local circulation, walking distances and creates a logical structure to the physical development of a community. The potential strategies must balance connectivity with visual interest, traffic calming and the constraints of local terrain.

PROS OF A CURVILINEAR STREET PATTERN

- Can reduce traffic speeds if designed well
- Provides visual interest by constantly changing views
- Allows the roadway and development to adapt to natural topography

CONS OF A CURVILINEAR STREET PATTERN

- More difficult to design
- Varying block sizes in front entry will result in key lots

REFERENCE TO CURRENT ORDINANCE

Engineering Regulations

- Engineering Standards Section 2.02. I. Street Length
- Engineering Standards Section 2.02. J. Block Requirements

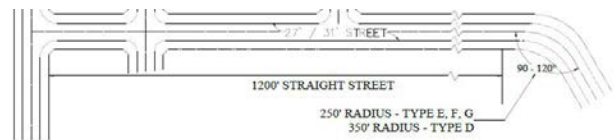


FIGURE 2.8: Change in Street Direction: Curve

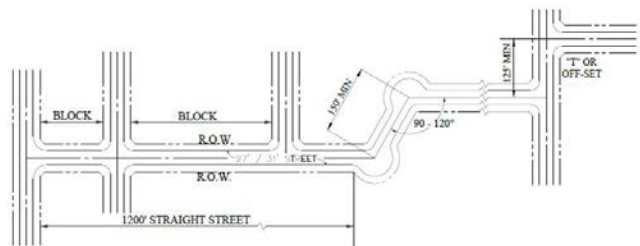


FIGURE 2.9: Change in Street Direction: Offset

¹Szplett and Butzier. 1999. Designing speed-controlled subdivisions without road humps.

POTENTIAL STRATEGIES

The following strategies could be considered to reduce the number of turns and maintain connectivity with curvilinear streets in residential subdivisions.

STRATEGY 1

Require a larger radius on corner turns

Frisco currently allows 90° corner turns that do not intersect with any other streets. If these turns were widened to a larger turning radius, it would reduce the overall number of turns without impacting intersection density and connectivity. The following diagram demonstrates the issue in the Preston Highlands Neighborhood.



PROS

- Reduces the number of turns
- Creates an opportunity for dispersed open space due to irregular lot formations
- Increases variety in lot sizes

CONS

- Private side reluctance to implement because of the perceived reduction in number of lots
- Grading challenges to make sure that the site drains properly
- Decreases affordability of the homes and potentially discourages development in Frisco
- Eliminating 90° turns removes one traffic calming tool from the City's toolbox

Case Study: Lowry, Denver, Colorado

Trenton Street, a residential collector in Lowry curves at a large angle when it turns the corner and switches direction. This creates an opportunity for a park and a unique lot for development.



CURVILINEAR NEIGHBORHOOD LAYOUT

STRATEGY 2

Do not allow more than four turns from a type A or B thoroughfare to any residential lot in the subdivision

There are many different ways to reduce the number of turns in a subdivision from curved streets to unique lot configurations. Instead of dictating how to do this, another strategy is to limit the amount of turns allowed and let the applicant determine how to meet this standard.

PROS

- Reduces the number of turns
- Requires the applicant to provide a creative solution

CONS

- Increased traffic speeds due to less turning movements
- May encourage longer streets which have been found to increase higher traffic speeds leading to resident complaints

Case Study: Verrado, Buckeye, Arizona

In Verrado, it takes an average of three turns to reach a house from a type B thoroughfare



STRATEGY 3

Allow a type E, F, or G residential street to exceed the street length standards if the street curves around natural features or existing topography

A residential street could exceed the street length standards in order to preserve the existing topography, frame views of buildings or landscape features, or create room for public spaces within a neighborhood. In instances where the street curves around open space, homes would be required to front onto open space.

PROS

- Encourages the preservation of natural features and topography

CONS

- Longer streets may lead to increased speeds and cut through traffic
- -Longer streets discourage walkability
- -Longer streets generally increase traffic speed

Case Study: Stapleton, Denver, Colorado

Stapleton includes many residential streets that curve along open space. In the example below, East 24th Avenue is 2,400 feet long and 30 feet wide. The street follows the curve of the open space and creates a parkway with houses fronting.



ZIPPER STREETS



A zipper street in the Grayhawk neighborhood in the City of Frisco, Texas

ISSUE

The City of Frisco allows an on-street parking arrangement called a “Zipper Street” as a traffic calming alternative. Members of the NDSAG wondered if zipper streets truly calm traffic and how their safety compares to other on-street parking methods.

Numerous studies have analyzed street design and their impacts on safety. A few conclusions are:

- Shrubs and trees can beautify the streetscape, but when planted in inappropriate locations, they contribute to safety problems²

- Street width may have some effect on vehicle speed, but average speeds may be more influenced by traffic function (longer distance, through travel versus the shorter distance, initial/termination stages of a trip) than by width.”² Long straight streets encourage speeding^{2,3}
- Significant reduction in “effective” street width are required to dramatically reduce speeds^{1,2}

PROS OF ZIPPER STREETS

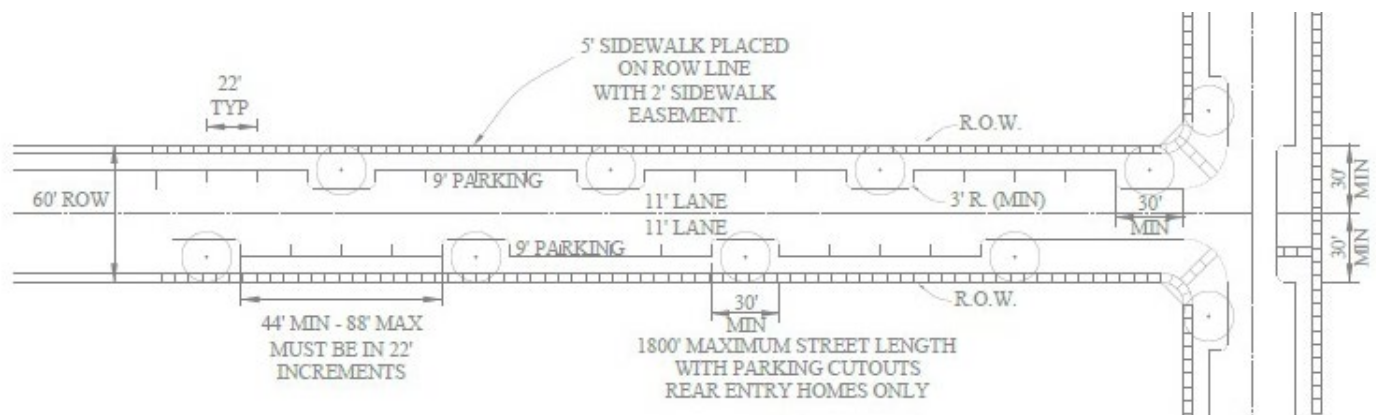
- Increasing pedestrian safety by reducing the crossing distance at ends of block as a result of the bulb-out
- May reduce traffic speed if drive lane is narrow and appropriately matches traffic volumes
- Acts as a traffic calming function due to frequent narrowing of the roadway

CONS OF ZIPPER STREETS

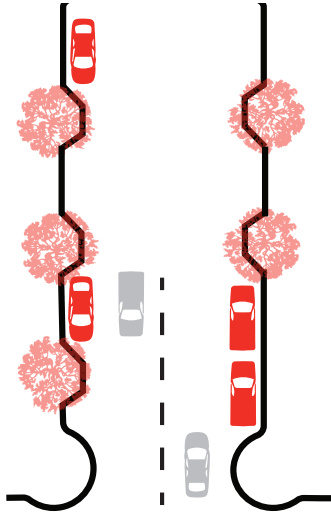
- Zipper street is not a common street type and is not found in any case study communities. This is likely due to the following:
 - Increase of cost for roadway design and construction
 - Can only be used in front of alley served homes

REFERENCE TO CURRENT ORDINANCE

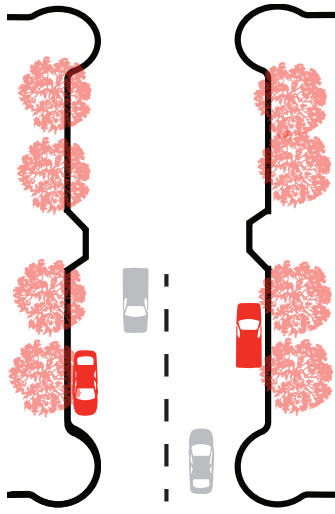
- Engineering Regulations
 - Engineering Standards Section 2.02. I. Street Length (4) (a)



POTENTIAL STRATEGIES



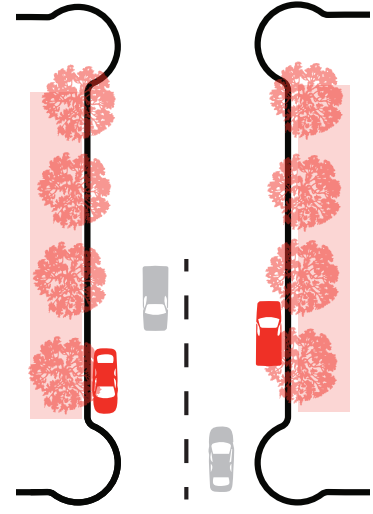
BASELINE STRATEGY
Existing Zipper Street standards



STRATEGY 2
Bulb-outs at intersections and mid-block crossings/chokers

PROS

- Shorter pedestrian crossing distance is maintained
- Maintains traffic calming feature of occasional roadway chokers
- Safe sight line distance from street trees to driving lane



STRATEGY 3
Bulb-outs at intersections only

PROS

- Shorter pedestrian crossing distance is maintained at intersections
- Can be used on streets with front entry homes
- Easier to construct street

1. Daisa and Peers 1997. Narrow Residential Streets: Do they really slow down speeds?

2. Gattis 2000. Urban Street Cross Section and Speed Issues. TRB Circular E-C019: Urban Street Symposium.

3. Szplett and Butzier. 1999. Designing speed-controlled subdivisions without road humps.

RESIDENTIAL COLLECTOR



Google Earth

A wide collector road in the City of Frisco

ISSUE

The NDSAG requested the evaluation of collector street widths where no lots are fronting. These streets carry residential traffic from the arterial roads into the community and must balance traffic calming with parking needs. To help calm traffic, City standards allow collectors to be as narrow as a residential street unless it must provide parking for a park or school, in which case it remains 36 foot wide. As an example, the City of Frisco receives complaints on the 36 foot wide Trails Parkway about speeding; studies show vehicles often travel at 40 MPH on a posted speed limit of 30 MPH. Designs should discourage speeding but not compromise emergency response times and provide safe multi-modal transportation choices for pedestrians, bicyclists and

drivers. Studies show that block length, sight distances, street alignment and street width all work in tandem to produce safe streets which slow traffic.

PROS OF 36-FOOT WIDE RESIDENTIAL COLLECTORS

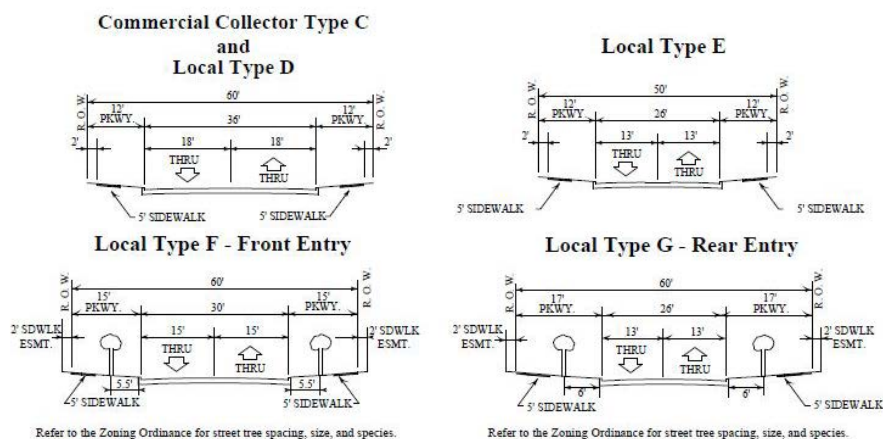
- Larger roadway makes it easier for multiple emergency vehicles to access residences
- Cars have more room to pass and maneuver around a car waiting to turn left
- Room for potential bike lanes
- Room for parking next to parks and schools

CONS OF 36-FOOT WIDE RESIDENTIAL COLLECTORS

- Wider streets lead to increased speeding
- Higher speeds lead to higher likelihood of fatal accidents
- Higher speeds are disliked by residents whose homes side to the collector
- Higher pavement costs for the developer
- Extra pavement adds to stormwater runoff and urban heat island

REFERENCE TO CURRENT ORDINANCE

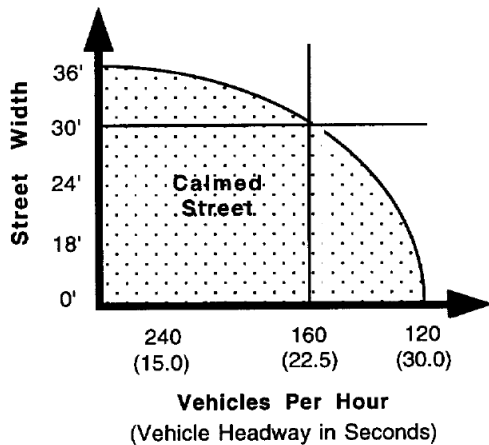
- Engineering Regulations
 - Engineering Standards Section 2.02. A. Thoroughfare Definitions (Residential Collector uses the cross-section of Type D, F or G)



POTENTIAL STRATEGIES

BASELINE STRATEGY

Allow residential collectors to be less than 36 feet wide where they do not serve schools or parks



The relationship between street width, traffic volumes, and calmed streets is illustrated at left (adapted from Daisa and Peers 1997).

"The calmed street area is roughly bounded by width less than 36 feet wide and headways less than 30 seconds in the peak hour (equivalent to about 1,500 to 1,600 vehicles per day). As width and headways increase drivers not inhibited by width and speeds, therefore, become independent of width."

PROS

- Slower traffic
- Slower speeds result in fewer complaints from adjacent residents
- Less pavement leads to less stormwater runoff and a reduced urban heat island
- Slower speeds reduce likelihood of fatal accidents
- Less pavement costs for the developer

CONS

- Potential delay when cars can not pass a car waiting to turn left

STRATEGY 2

Require 36 foot wide collectors with bike lanes that connect to the proposed system of bike lanes and hike and bike trails

The staff is currently reviewing a project where this strategy is being considered.

PROS

- Striped bike lanes would restrict the travel way and reduce potential speeding

CONS

- Higher pavement costs for the developer
- Currently underdeveloped bicycle infrastructure in Frisco makes neighborhood connections to the bike lane network difficult

ENTRY TERMINATION



A pavilion and park terminate entry views in the City of Frisco Stonebriar subdivision

ISSUE

A residential entry street is a visitor's first impression of a community in the City of Frisco. The NDSAG requested the NDS for the entry street to terminate at something visually interesting other than a house. It is important that future communities in the City of Frisco reflect and celebrate the local community character of North Texas. Designing with the environment and incorporating features add to sustaining property values and separate City of Frisco from neighborhoods in adjacent communities.

PROS OF VISUALLY INTERESTING ENTRY TERMINATION

- Creates a more interesting, "up-scale" experience and neighborhood appearance
- Provides opportunities to leverage local culture and art
- May calm traffic
- Provides more interesting entry views
- Adds value to the development

CONS OF VISUALLY INTERESTING ENTRY TERMINATION

- May increase cost by adding additional entry features
- May reduce the number of lots by providing park space or other features

REFERENCE TO CURRENT ORDINANCE

- Subdivision Ordinance
 - Front Entry Standards
- Frisco Parks and Recreation Open Space Master Plan
 - Section 5-9, Adjacency and Interaction

POTENTIAL STRATEGIES

The following strategies could be considered for entry streets to terminate at something visually interesting other than a house.

STRATEGY 1

Encourage entry streets terminate on a significant open space feature and sculptural element

Case Study: Stapleton, Denver, Colorado

Xenia Street

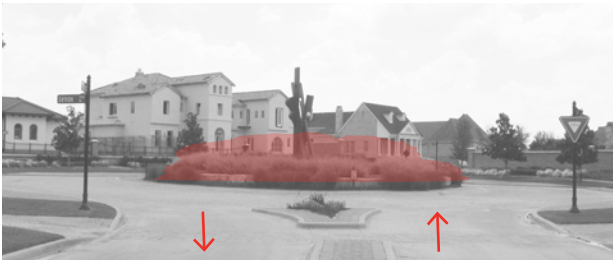


STRATEGY 2

Encourage entry streets to terminate at a roundabout

Local Example: Newman Village, Frisco, Texas

Lenox Lane



STRATEGY 3

Encourage tree-lined entry streets that curve

Case Study: Verrado, Buckeye, Arizona

West Creek Drive



SIDEWALK WIDTH



A typical 5' sidewalk

ISSUE

Residential sidewalks improve walkability and connectivity while providing recreational opportunities for residents within a neighborhood. The size of a sidewalk should be scaled appropriately to the amount of foot traffic. A wider sidewalk should have more users in order to justify the additional costs. Sidewalk width has impacts to right-of-way easements, residential front yards and maintenance costs.

PROS OF WIDER SIDEWALKS ON RESIDENTIAL STREETS

- Wider sidewalks allow multiple strollers and/or pedestrians to pass each other more easily
- May allow pedestrians to be farther from traffic
- Street furniture such as benches or trash cans can be placed within the sidewalk without disrupting pedestrian flow

CONS OF WIDER SIDEWALKS ON RESIDENTIAL STREETS

- More costly to construct
- More costly to maintain
- Unlikely to add much benefit in the City of Frisco's low-density communities with limited existing pedestrian connectivity

REFERENCE TO CURRENT ORDINANCE

- Engineering Regulations
 - Engineering Standards Section 2.06. Sidewalk Location and Design (5)

POTENTIAL STRATEGY

BASELINE STRATEGY

Maintain five foot sidewalk width on residential streets

Smaller sidewalk width and larger planting areas create an appropriately scaled residential experience. Benchmarks show comparatively little variation in residential sidewalk area width.

PROS

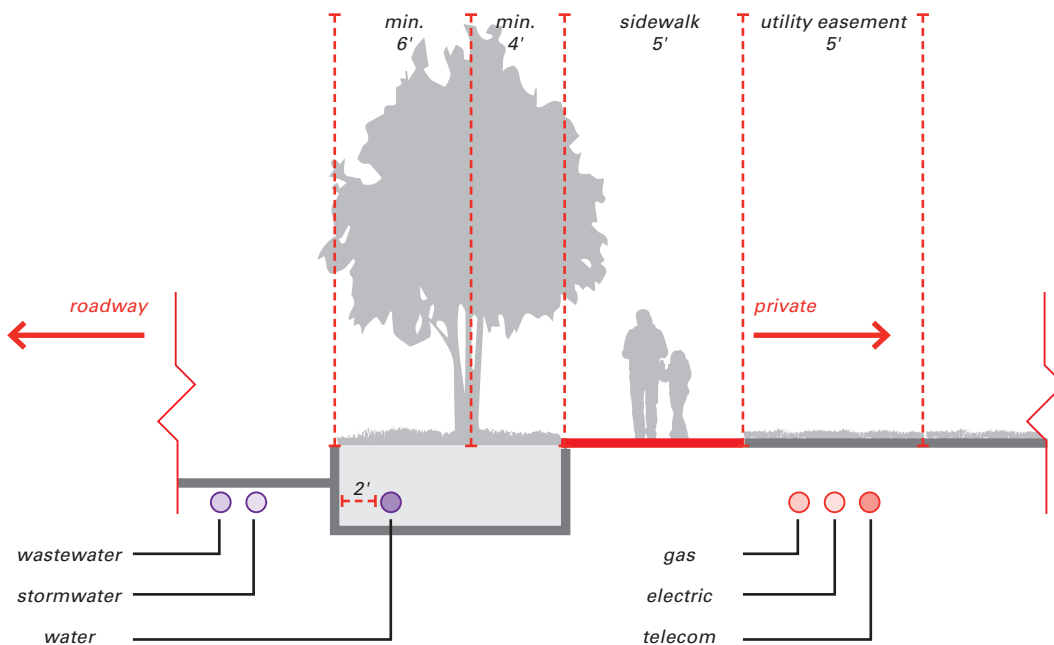
- Economically meets the community's current needs for pedestrian amenities
- Balances the need for pedestrian accessibility with the desire to reduce impervious surface

CONS

- Does not anticipate potential future growth in community pedestrian needs

Case Study: Lone Star Ranch, Frisco, Texas

Though the trails and sidewalks that follow higher volume roads are wide enough to accommodate increased pedestrian usage, the sidewalks on residential streets are five feet wide, with the bulk of the utilities located either in the roadway, or in utility easements along the sidewalk.



BOULEVARD ENTRY



A well designed boulevard in Frisco, Texas

ISSUE

A residential entry street is a visitor's first impression of a neighborhood in Frisco. The NDSAG requested the review of strategies for boulevard entry design. It is important that future communities in Frisco reflect and celebrate the local community character and beauty of North Texas. A divided boulevard entry is a potential strategy to incorporate aesthetic features, add to sustaining property values, and separate Frisco from neighborhoods in adjacent communities. Today in Frisco, standards exist for boulevard entries, but they are not required. A good boulevard is open space where people should feel comfortable.

PROS OF BOULEVARD ENTRY STREETS

- Reduces impermeable surface of large entry roads
- Creates safer entries by separating traffic directions
- If pedestrian areas are designed, can assist pedestrians to more safely cross the street
- Can be used for entry signs, lighting, and other architectural features

CONS OF BOULEVARD ENTRY STREETS

- Increased costs to maintain vegetated medians
- May limit driver sight lines if vegetation is too high
- Increased construction costs

REFERENCE TO CURRENT ORDINANCE

- Engineering Regulations
 - Engineering Standards Section 2.03. B. 7. Medians on Public Street Entrances to Developments



Newman Village in Frisco serves as a local case study of strong entry boulevard principles, including street tree planting and pavement variety.

POTENTIAL STRATEGIES

These approaches to boulevard entry design can provide livability and aesthetic improvements to the neighborhood entry experience.

STRATEGY 1

Encourage a large median to accommodate visual and experiential programming on boulevards

Large boulevard medians provide an arena for a range of community amenities, such as lush plantings, public art, or even trails and recreation.

PROS

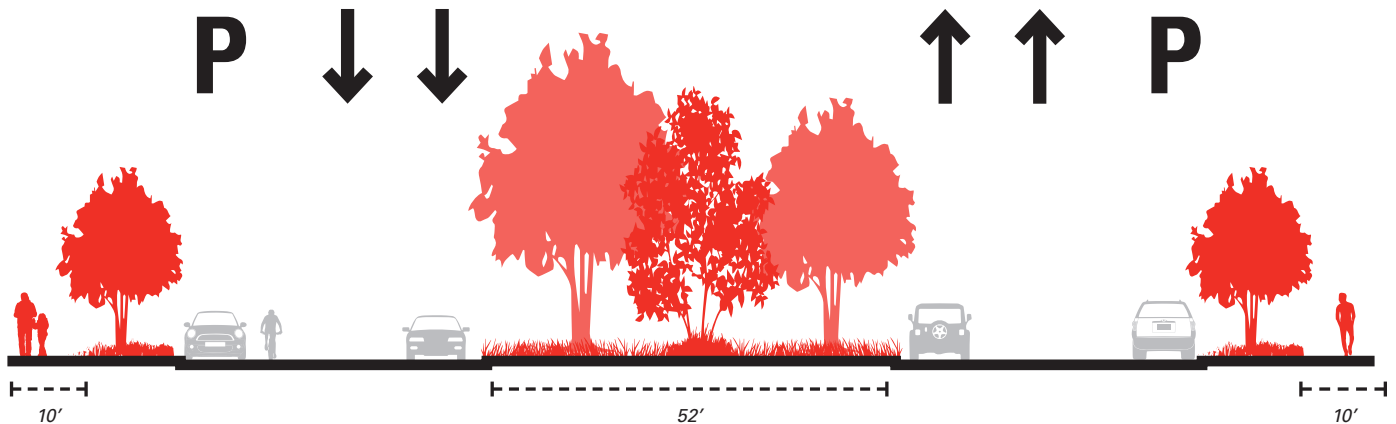
- Activates the suburban public realm
- Complements other associated NDSAG issues, including Open Space Visibility and Walking Distance to Open Space

CONS

- Requires a significant amount of right-of-way that could otherwise be developed
- Increased construction costs

Case Study: Stapleton, Denver, Colorado

Stapleton reflects its boulevard street tree planting strategy within its large median. The larger planting area afforded by the large median allows for planting designs that beautify the neighborhood.



Stapleton's Central Park Boulevard is significantly wider than those found in other case studies, affording a range of neighborhood and boulevard improvement opportunities.

BOULEVARD ENTRY

STRATEGY 2

Provide facilities for multi-modal travel

Locating bicycle, pedestrian and transit facilities on boulevards increases neighborhood accessibility, and helps increase the number of destinations available to users of alternative transportation.

PROS

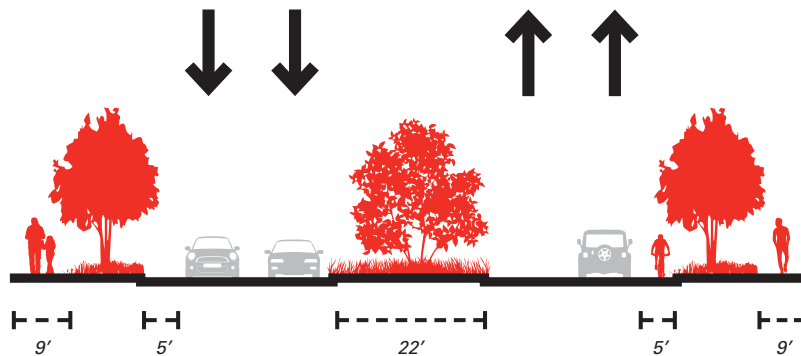
- Promotes alternative modes of transportation, including active transportation, which have environmental and human health benefits

CONS

- Currently underdeveloped bicycle and transit infrastructure in Frisco make neighborhood connections to these networks difficult

Case Study: Lowry, Denver, Colorado

In addition to stops that service multiple local and regional bus lines, Yosemite Street in Lowry features a dedicated bicycle lane throughout the entire neighborhood. Significantly, this route links to other established bicycle routes nearby, facilitating accessibility from throughout the Denver area.



Yosemite Street in the Lowry neighborhood provides a 5' bike lane in each direction, promoting access to the development from alternative modes of transportation.

STRATEGY 3

Embrace asymmetry in streetscape design when conditions differ on either side of the entry boulevard

While symmetrical boulevards can create a stately and impressive neighborhood entry experience, so too can entry boulevards that are bordered by differing conditions.

PROS

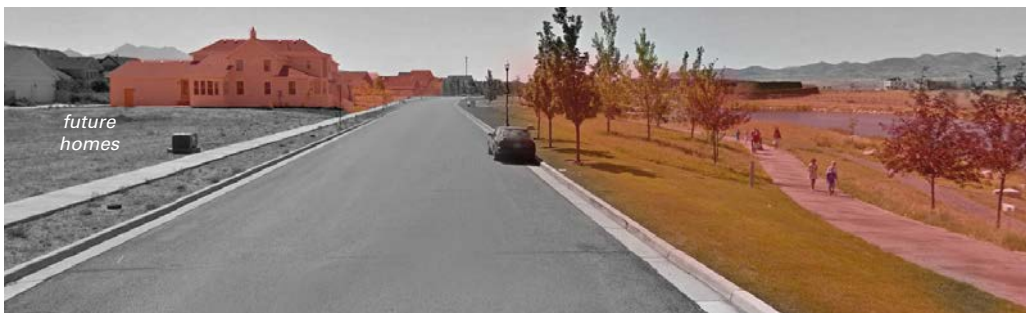
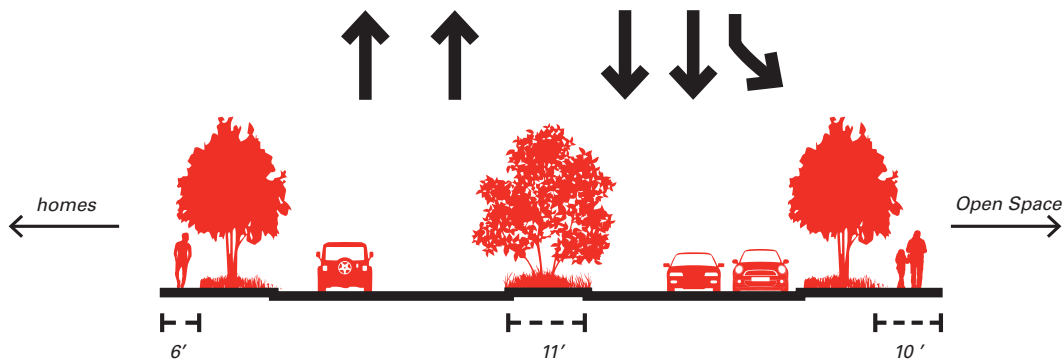
- Promotes variety in neighborhood streetscape and urban form
- Road layout exposes motorists and other road users to open space and natural features

CONS

- Potentially more complicated to design and construct than a typical symmetrical boulevard

Case Study: Daybreak, South Jordan, Utah

One of Daybreak's major boulevards borders the eastern edge of Oquirrh Lake, the neighborhood's central environmental feature and home to much of its dedicated parks space. The eastern edge of Oquirrh Lake Boulevard responds to this condition with planting areas that shrink and grow and a larger sidewalk to accommodate trail uses, while the western residential edge of the street features a more typical streetscape design.



The back-of-curb conditions on either side of Oquirrh Lake Rd. reflect the varying neighborhood uses through which the road travels.

GIFTS TO THE STREET



Porches and plantings create beautiful front-loaded homes in Daybreak, South Jordan, Utah.

ISSUE

The front area of a house can provide additional amenities along the street that increase curb appeal, create unique neighborhoods and provide aesthetic or pedestrian-oriented elements. The NDS looked for a variety of ways that the frontage of a house could contribute to the life on the street. The NDSAG wanted the NDS to address front porches, fostering social interaction, and ways to “dress up” neighborhood public and private realms.

PROS OF GIFTS TO THE STREET

- Front porches present a more “people-centric” façade compared to garages or turf grass lawns
- Fosters social interaction
- Enhances aesthetic and architectural character of neighborhoods
- Compliments public realm
- Leads to higher property values
- Reduces traffic speeds

CONS OF GIFTS TO THE STREET

- May create a more expensive housing product

REFERENCE TO CURRENT ORDINANCE

- Zoning Regulations
 - Zoning Standards - 4.07.16 Front Porch Standards

POTENTIAL STRATEGIES

Strategies that increase curb appeal can also connect residents with their neighborhood's public realm.

STRATEGY 1

Require that parking space in front of garage be pushed back 20 feet from front of house, unless porch is provided.

PROS

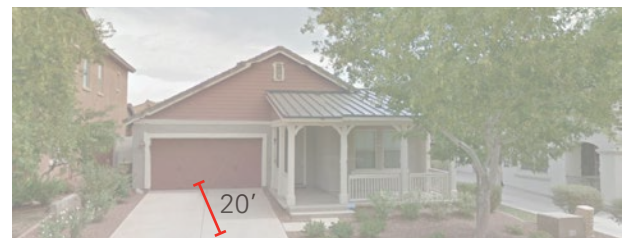
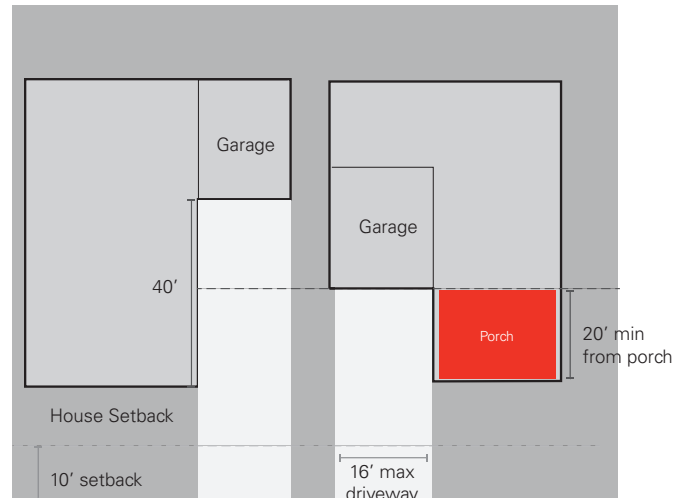
- Presents porch as the main focal point of homes
- Allows standard driveway dimensions without over-emphasizing the garage

CONS

- May be difficult to implement well if front setback and lot coverage standards are not also adjusted

Case Study: Verrado, Buckeye, Arizona

Many of the houses in Verrado have driveways and porches on the front entry.



STRATEGY 2

Reduce setbacks allowed from sidewalk to front of house

PROS

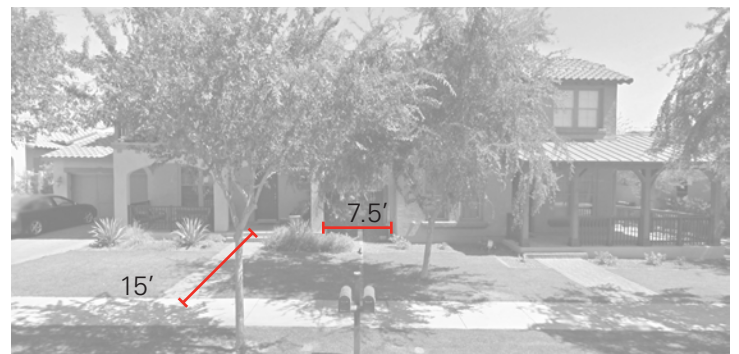
- Presents human-oriented streetscape and sense of closure
- Prioritizes architecture and porches over turf
- Provides larger private backyards

CONS

- If architecture is not done well, may not improve aesthetics or curb appeal

Case Study: Verrado, Buckeye, Arizona

Smaller front and side setbacks coupled with active front yards promote neighborly interaction.

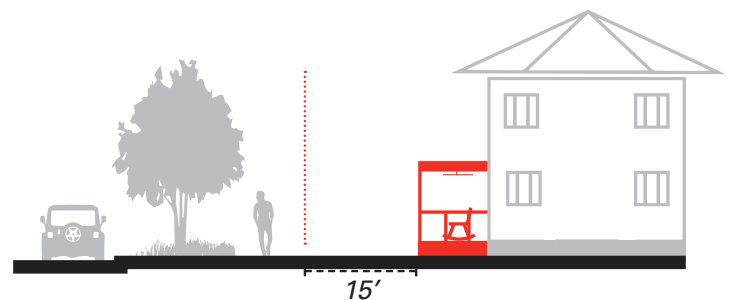


TYPICAL FRONT SETBACK:

15 FEET

TYPICAL SIDE SETBACK:

7.5 FEET



GIFTS TO THE STREET

STRATEGY 3

Create more stringent landscape/vegetation standards for private residential lots

Landscape standards are utilized often to dictate the types and quality of plants in subdivisions and entire cities.

PROS

- Flexible way for residents to pick/choose high-quality vegetation for their front yards
- Easily implemented into plan review procedures
- Requires native plants to be selected which have ecological benefits

CONS

- May receive pushback from residents and developers which view this as too strict
- Implementation could be a challenge

Case Study: Mueller, Austin, Texas

At least 80% of plant materials proposed for use in Mueller must be selected from the list of "Approved Plant Materials." This list emphasizes non-invasive, drought-tolerant and native species.

No more than forty percent of a single tree species will be used.



Pecan (*Carya illinoensis*)



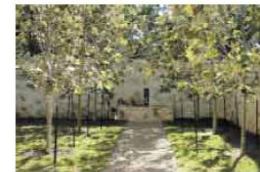
Chingquapin Oak (*Quercus muhlenbergii*)



Bur Oak (*Quercus macrocarpa*)



Texas Red Oak (*Quercus texana*)



Mexican Sycamore (*Platanus texana*)



Texas Redbud (*Cercis canadensis* var. *texensis*)

Botanical Name	Common Name	Ht. x Spd.	Min. Size	Drought Tolerant	Native	Comments
Deciduous Trees						
<i>Acacia farnesiana</i>	Huisache	20' x 20'	8' ht.	yes	yes	
<i>Acer grandidentatum</i> *	Bigtooth Maple	30' x 20'	2" cal.	yes	yes	
<i>Acer palmatum</i>	Japanese Maple	15' x 10'	6' ht.	no	no	Specimen or container use only
<i>Aesculus pavia</i> *	Red Buckeye	10' x 20'	8' ht.	yes	yes	
<i>Bauhinia congesta</i> *	Anacacho Orchid Tree	6' x 12'	8' ht.	yes	no	
<i>Carya illinoensis</i> *	Pecan	50' x 50'	2" cal.	yes	yes	
<i>Cercis canadensis</i> var. <i>mexicana</i> *	Mexican Redbud	20' x 15'	8' ht.	yes	yes	
<i>Cercis canadensis</i> var. <i>texensis</i> *	Texas Redbud	20' x 15'	8' ht.	yes	yes	
<i>Chilopsis linearis</i> *	Desert Willow	20' x 15'	8' ht.	yes	yes	
<i>Cornus drummondii</i> *	Roughleaf Dogwood	20' x 15'	8' ht.	yes	yes	
<i>Cotinus obovatus</i> *	Smoke Tree	12' x 8'	8' ht.	yes	yes	
<i>Diospyros texana</i> *	Texas Persimmon	15' x 10'	8' ht.	yes	yes	
<i>Fraxinus cuspidata</i>	Fragrant Ash	10' x 15'	8' ht.	yes	yes	
<i>Fraxinus texensis</i> *	Texas Ash	50' x 40'	2" cal.	yes	yes	
<i>Ilex decidua</i> *	Possumhaw Holly	20' x 12'	8' ht.	yes	yes	



UTILIZATION OF TOPOGRAPHY



Added amenities can be provided by respecting topography.

ISSUE

The NDSAG expressed a desire to preserve existing topography in new residential communities. Members would like to avoid completely flattening out neighborhoods, and preserve the City of Frisco's natural small hills and valleys. Current standards do not require neighborhoods to be flattened out, but also do not require topography to be maintained. Neighborhood grading can be dictated by streets that will be built. Street grades are limited due to traffic safety reasons and to allow fire apparatus to drive streets without being hung up in a valley or on a crest. These slopes can be integrated into the design of the neighborhood to add variety, create unique views, and preserve natural features such as drainage ways. Street grade waivers have been granted due to topography on a case by case basis.

PROS OF UTILIZING TOPOGRAPHY

- Developers can take advantage of natural features and use them as amenities such as open space or parks, views or artful stormwater collection areas.
- Reduces site grading and earthwork costs.
- Respects natural features and existing landscape
- Allows creative and innovative site planning techniques and encourages curvilinear street design.

CONS OF UTILIZING TOPOGRAPHY

- May reduce the number of buildable lots.
- In some cases, may restrict fire access if road grades are too steep.
- May increase open space and reduce allowable lot densities.

REFERENCE TO CURRENT ORDINANCE

- Engineering Regulations
 - Engineering Standards Section 2.02 B. 2 – Grades

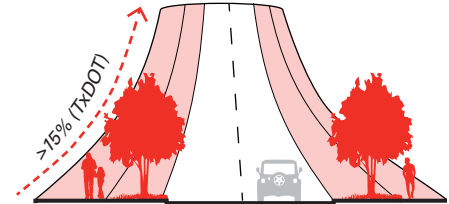
POTENTIAL STRATEGIES

By either embracing a larger share of grades as safe for vehicular travel, or carefully locating roadways, the City of Frisco can better nestle new neighborhood development into existing topography.

STRATEGY 1

Reconsider the existing engineering standards to accommodate larger slopes in roadway design

The current maximum allowable vertical grade in Frisco is 6%, significantly lower than the 15% standard in the Texas Department of Transportation's (TxDOT) Roadway Design Manual. City staff is empowered to grant street grade waivers on a case-by-case basis, and may consider doing so more frequently on requests for grades below 6% and 15%. The City of Frisco did not agree with considering updating to TxDOT standards.



PROS

- Necessitates substantially less excavation to make new neighborhood roadways permissible than current standards do
- Could preserve more existing topography

CONS

- New roadway layouts may initially seem unfamiliar to residents accustomed to the community's current slope profile
- ADA accessibility on roadways steeper than 5% will be challenging.
- The 15% TxDOT grade requires a smooth vertical curve to be built between changes in grade, which could be challenging with the proximity of several cross streets in a residential neighborhood
- The Fire Department aerial apparatus is not designed for slopes greater than 10% for firefighting use



STRATEGY 2

Align roadway layout with citywide environmental planning efforts

Development applications should be compared against the environmental mapping contained in existing planning documents, in particular the 2015 Comprehensive Plan, to ensure that roadways are located in ways that advance the community's stated goals for Ecology and Natural Resources.

PROS

- Relies on existing and ongoing planning work
- Serves additional ecological conservation goals

CONS

- Requires frequent updates to environmental planning data

Case Study: The Woodlands, Texas

The Woodlands is famous for layering a range of ecological data, including topography, vegetation, hydrology and animal habitat, into comprehensive suitability analyses that drove neighborhood design.



Incorporating environmental planning into neighborhood design helped harmonize infrastructure and ecology in The Woodlands.



PARKS AND OPEN SPACE

According to an Urban Land Institute case study, in a sample of 25 subdivisions where parks and open space are near residential development, property values were higher in 20 of 25 cases as a result of green space accessibility. Providing green space and recreational amenities is something residents are looking for (and in many cases expecting) in a neighborhood.

CASE STUDIES	DAYBREAK, SOUTH JORDAN, UTAH	LONE STAR RANCH, FRISCO, TEXAS	LOWRY, DENVER, COLORADO	MUELLER, AUSTIN, TEXAS	RIVERSIDE, ILLINOIS	STAPLETON, DENVER, COLORADO	VERRADO, ARIZONA	THE VILLAGE OF WEST CLAY, INDIANA	THE WOODLANDS, TEXAS
Lots adjacent to parks and open space	●					●			
Lots adjacent to major creeks						●			●
Parks and open space safety and visibility				●		●			
Walking distance to parks and open space		●	●						
Trail system adjacent to lots	●	●							
Interspersed parks and open space	●						●		
Design of parks and open space	●		●	●					

● = featured as case study

■ = community addresses this issue

LOTS ADJACENT TO PARKS AND OPEN SPACE



Homes adjacent to open space in Daybreak, South Jordan, Utah

ISSUE

Lots that face away from parks and open space amenities pose two significant issues for neighborhood design. First, by preventing community connection, this layout discourages a sense of local stewardship. Second, lots that face away from adjacent parks and open space tend to feel unsafe and unwelcoming.

The current Parks and Open Space Master Plan recommends 80 percent of parks and open space boundaries be single-loaded streets with no houses backing the open space or park. Addressing this issue will enable the City of Frisco to create neighborhoods that reflect local community character, and feel comfortable and safe to residents.

PROS OF LOTS FRONTING PARKS AND OPEN SPACE

- Homes fronting parks and open space increase property values
- Homes fronting open space increases park user visibility and safety
- Home property values near Dallas' Katy Trail in the Uptown neighborhood have increased nearly 80 percent¹
- Allow the increase of units by allowing narrow rear entry lots with front porches to front the open space, thereby improving CPTED and maximizing land volume and celebrating a gem in the neighborhood

CONS OF LOTS FRONTING PARKS AND OPEN SPACE

- Single-loaded streets may reduce the number of lots in a development
- Some residents may prefer to back to parks and open space rather than front

REFERENCE TO CURRENT ORDINANCE

- Parks and Recreation Open Space Master Plan
 - Section 5.3 - Neighborhood Parks
- Subdivision Regulations
 - Subdivision Standards Section 8.09 (g)(3) and (h) - Lots Facing Other Lots

1. Urban Land Institute (2016). On the Trail to Higher Values. May/June 2016.

POTENTIAL STRATEGY

By promoting visibility and park transparency, these case studies offer safe, inviting public spaces.

BASELINE STRATEGY

At least 80 percent of parks and open space boundaries bordered by single-loaded roads or creeks

This strategy contributes to safety, economic value and aesthetic beauty of open spaces.

PROS

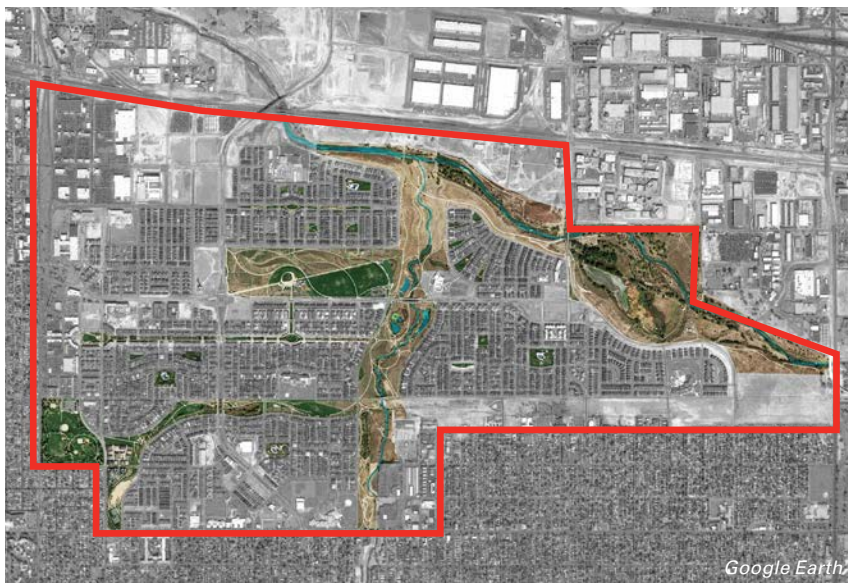
- Safety is increased by controlling the boundary conditions
- Property values are positively affected when homes front parks and open space¹
- Parks and open spaces are perceived as more public

CONS

- Difficulty of design to front on all sides of parks and open space

Case Study: Stapleton, Denver, Colorado

Stapleton features a mix of small and large centrally-located parks and open spaces. More than 1/3 of the site is preserved for open space and parks. Trails connect housing to each other and to retail and civic destinations. Stapleton homes exclusively front onto parks and open space and the majority of this space is bordered by roads.



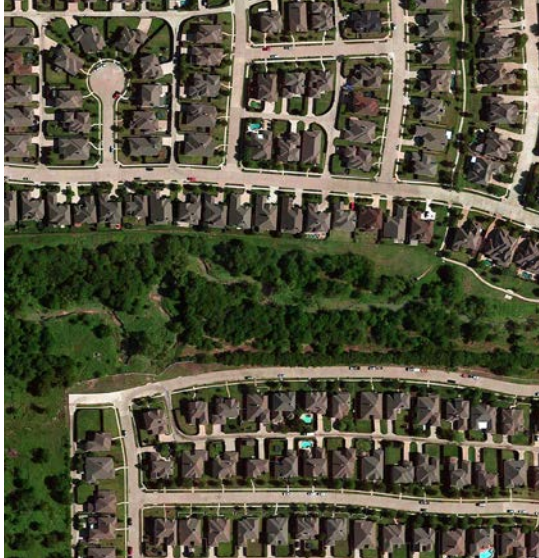
**90% OF PARKS
AND OPEN SPACE
BORDERED BY
ROADS**

**100% OF HOMES
FRONT ONTO OPEN
SPACE**



Houses exclusively front onto open space creating large front yards for the community.

LOTS ADJACENT TO MAJOR CREEKS



ISSUE

In addition to the issues of stewardship and perceived safety addressed in the previous section, the relationship between lots and neighborhood hydrological resources has additional environmental dimensions. Development that encroaches on sensitive slopes or damages pristine wildlife habitat can cause erosion, water quality issues and threaten the stability of riparian ecosystems. Similar to topography, these areas a natural asset to the City of Frisco and its residents and visitors and should be protected. Trails will stay out of the floodplain for environmental, maintenance, and safety reasons.

Lots adjacent to a creek in the City of Frisco

Though the current ordinance has helped balance the need for developers to

maximize yield with these environmental issues, enhanced designs strategies which respect natural resources and phenomena can provide aesthetics with pedestrian-oriented elements and ensure the long-term sustainability of neighborhood amenities.

PROS OF LOTS ADJACENT TO MAJOR CREEKS

- Creek corridors in neighborhoods are a natural amenity easily accessible to residents
- Creek corridors provide ecological and environmental benefits including wildlife habitat, stormwater management, reduced impervious surface, and protection of erosion and soil

CONS OF LOTS ADJACENT TO MAJOR CREEKS

- Difficult to access for fire/medical personnel if someone is injured or there is a medical emergency
- Trails through creek corridors offer many challenges including police/fire access and patrol
- It is challenging for City of Frisco Public Works crews to access these areas for cleanup, maintenance and construction
- Creeks are ever changing their flow
- Increase water flow during storm events as the watershed develops leads to erosion
- Pinching down the floodplain may result in replacing vegetation with concrete

REFERENCE TO CURRENT ORDINANCE

- Parks and Recreation Open Space Master Plan
 - Section 5.2 - Greenbelt Benefits
- Subdivision Regulations
 - Subdivision Standards Section 8.02 Major Creek Ordinance
 - Subdivision Standards Section 8.03 Drainage and Environmental Standards 8.03(e)
 - Subdivision Standards Section 8.12 Parks and Open Space

POTENTIAL STRATEGIES

Infrastructure and amenity layout should respond to natural features.

STRATEGY 1

Create a “backyard” greenway for residents and visitors to travel through

This strategy allows for greater diversity in trails and greenbelt networks design. This strategy should only apply to 40 percent (or less) of the lots in a subdivision to align with the current ordinance.

PROS

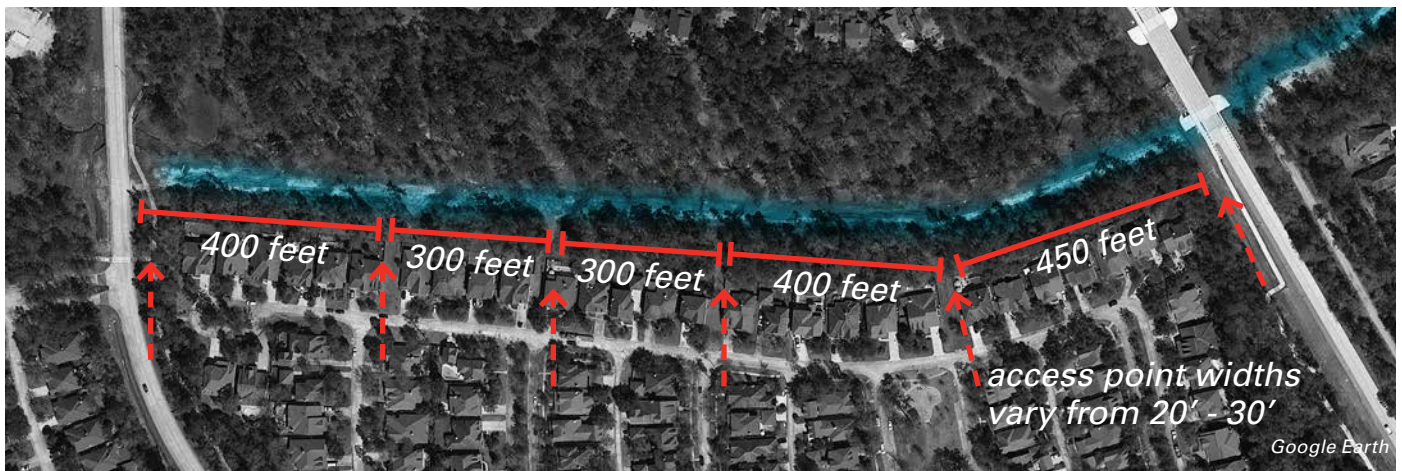
- Proximity to homes creates a localized sense of stewardship
- Can promote alternative transportation options and connectivity
- Natural corridor will provide less fragmented habitat for urban wildlife

CONS

- Hidden and not as accessible to public, may be privatized by adjacent homes
- Corridor may be more difficult for emergency services to access
- Less options for diverse program options

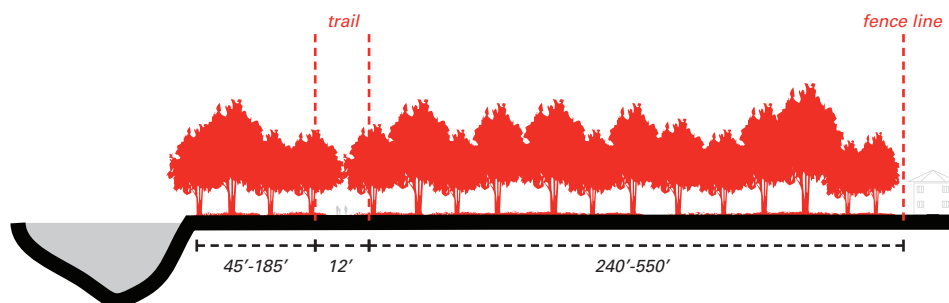
Case Study: The Woodlands, Houston, Texas

Because the trail network was designed to respond to changes in the landscape’s hydrological and topographical profile, the size of the buffers (between the creek and the trail, and between the trail and the lots) shows a large variety.



AVERAGE BUFFER - CREEK TO TRAIL: 115 FEET

AVERAGE BUFFER - TRAIL TO FENCE LINE: 410 FEET



LOTS ADJACENT TO MAJOR CREEKS

STRATEGY 2

Create a “frontyard” greenway for residents and visitors to collect and interact within

This strategy promotes an enlivened street frontage. The Smart Growth America Sustainable Design & Development Guidelines state that orienting buildings with front facades and entrances facing public spaces and not a parking area, will lead to safer and more active streetscapes. These principles also stress the importance of direct access to parks and recreational areas for optimal design.¹

PROS

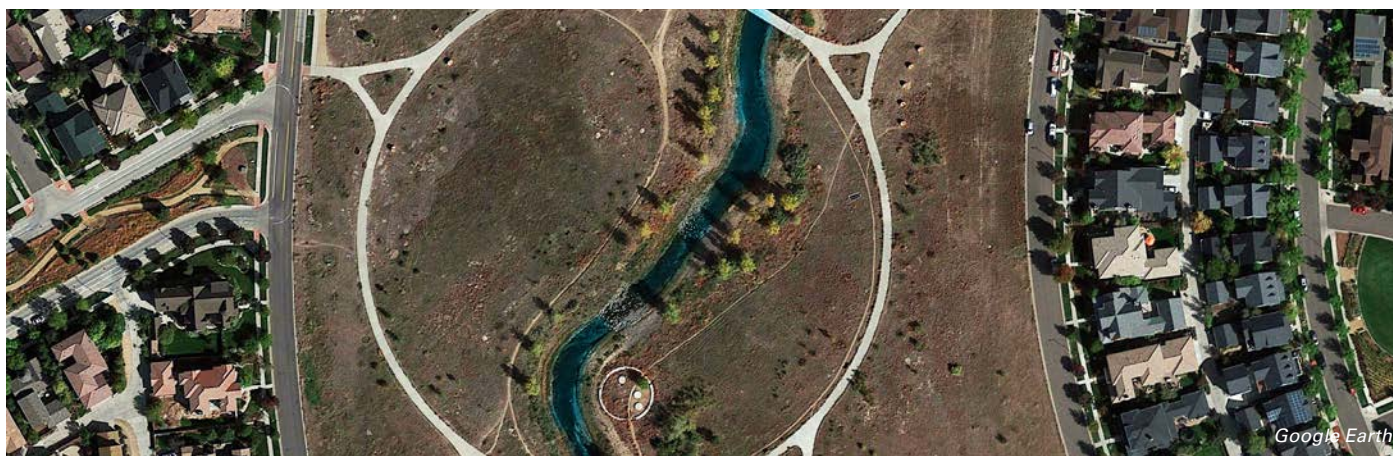
- Provides a community space where residents and visitors can interact
- Larger width allows for greater program flexibility, active and passive, permanent and temporary
- Homes are located farther from creek which limits floodplain dangers
- Buildings fronting onto the park or open space will likely increase neighbor interaction and provide a safer environment with more eyes on the space
- Easy to reach individuals for emergency purposes
- Lots fronting have historically seen higher home values than lots backing to green space

CONS

- Developers perception that fronting green space limits their profit margin
- Developer concern with decrease in lot yield with a single loaded street

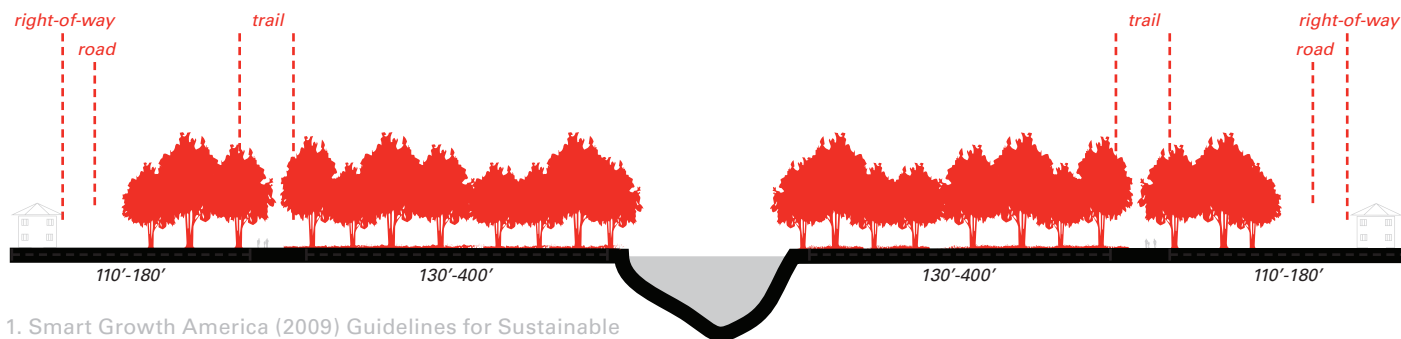
Case Study: Stapleton, Denver, Colorado

In addition to managing much of the development’s on-site stormwater, Stapleton’s primary creek is situated in a long linear park that is bounded by roads and faced by homes on each side.



AVERAGE BUFFER; CREEK TO TRAIL: 260 FEET

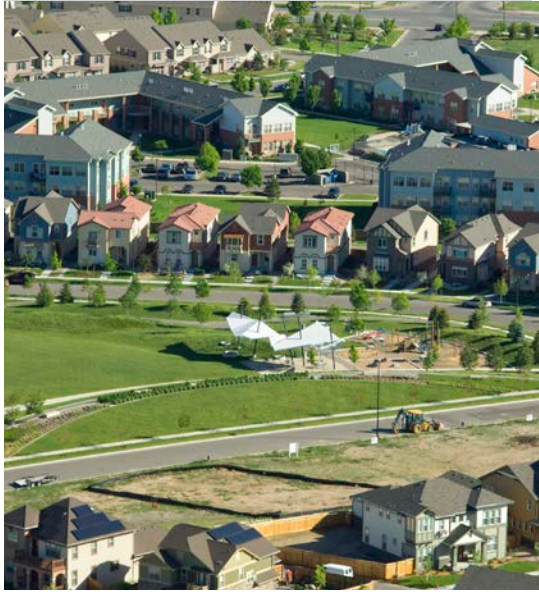
AVERAGE BUFFER; TRAIL TO FENCE LINE: 150 FEET





NEIGHBORHOOD TRAILS | Frisco, Texas

PARKS AND OPEN SPACE SAFETY AND VISIBILITY



A park fronted on all sides by homes in Lowry, Denver, Colorado

ISSUE

Parks and open space with high visibility to homeowners feel safe and patrolled. Additionally, they provide a sense of community within the development, inviting residents out of their private outdoor areas and into the communal public spaces that they share with their neighbors. Additionally, traffic around parks with homes front will increase its visibility. It's well-known homes adjacent to parks have higher property values, thus increasing the tax base for the city.

Crime Prevention Through Environmental Design (CPTED) is an often-cited and well-known set of strategies to increase safety in public. It includes recommendations for, amongst other things: lighting, seating, vegetation height and sightlines.

PROS OF PARKS AND OPEN SPACE SAFETY AND VISIBILITY

- Creates a safer, more welcoming open space and parks and may increase social aspects of the neighborhood
- Homes adjacent to parks and open space have higher property values

CONS OF PARKS AND OPEN SPACE SAFETY AND VISIBILITY

REFERENCE TO CURRENT ORDINANCE

- Comprehensive Plan
 - Comprehensive Plan 2015 – Placemaking Examples
- Frisco Parks and Recreation Open Space Master Plan – Executive Summary
- Zoning Ordinance
 - Zoning Ordinance Sub Section 4.11 (pg. 202)

POTENTIAL STRATEGIES

By promoting visibility and transparency, these case studies offer safe, inviting parks and open spaces.

STRATEGY 1

Create a series of smaller or “pocket” open spaces that are dispersed throughout neighborhoods

This strategy highlights the importance and application of some of CPTED’s primary tenets. Beyond simple design elements such as natural access control and lighting, a network of small neighborhood open spaces helps to create a “sphere of influence,” key for the development of a sense of ownership.

PROS

- Creates a localized sense of ownership and stewardship
- Proximal home owners have a greater familiarity with the landscape and help police the area
- Small open spaces throughout a neighborhood provide options and diversity for residents

CONS

- Small open spaces may seem less public
- Programming options are more limited because of spatial limitations

Case Study: Stapleton, Denver, Colorado

Vegetation height is kept low on the periphery of parks and street tree canopies are high off the ground, visually integrating open space into the public realm. Simultaneously, pocket parks and open spaces are tucked away which provides safe play atmospheres for local children and buffers from street traffic. The siting of small parks and open spaces off the street and in close proximity to homes allows for a sense of ownership by residents. This arrangement increases stewardship and allows for better self-policing by those who dwell in this area of Stapleton.



**POCKET OPEN
SPACE SIZE:
0.01 ACRE**

PARKS AND OPEN SPACE SAFETY AND VISIBILITY

STRATEGY 2

Focus on providing larger open space areas that will allow for recreation areas for more people

“See and be seen” is a primary CPTED goal. By providing larger gathering spaces, natural surveillance is inevitably increased and according to CPTED, a person is less likely to commit a crime if they think someone will see them. In addition, when public areas are clearly distinguished from private ones, trespassers are generally able to perceive this control and are thus discouraged. Maintenance is also critical. It is proven that neglected or poorly maintained properties will attract more criminal activity. Well taken care of public spaces will help preserve property values.

PROS

- Provides flexible space and opportunities for community gathering
- More options for program type as a result of park and open space area
- Allows for active and passive programming
- Larger park and open space areas can have greater ecological impacts and allow for environmental education

CONS

- Potentially lack the intimacy that smaller pocket open spaces can provide
- Generally located in one area of the development and potentially less accessible to all homes

Case Study: Mueller, Austin, Texas

This neighborhood boasts approximately 140 acres total of parks, trails and open space. Lake Park is the crown jewel of the Mueller Greenway. This central park provides endless opportunities for both passive and active recreation. Some of the primary features include a 6.5 acre lake, open air amphitheater and stage, interactive playscape, picnic areas, loop trail and jogger stretching area. The park also connects to other smaller green spaces within the neighborhood.



LAKE PARK SIZE:
30 ACRES



MUELLER PARKS AND OPEN SPACE | Austin, Texas

WALKING DISTANCE TO PARKS AND OPEN SPACE



Residents with strollers and dogs walked to this park in Lowry, Denver, Colorado

ISSUE

Residents are more likely to visit parks and open space when they are easily accessible by foot. While distance is one component of accessibility, additional considerations include the quantity and quality of pedestrian routes from residential and commercial areas to parks and open space. Additionally, it's well-known homes near to parks have higher property values, thus increasing the tax base for the city.

PROS OF HOMES WITHIN WALKING DISTANCE TO PARKS AND OPEN SPACE

- Creates a safer, more welcoming open space and parks and may increase social aspects of the neighborhood
- Homes near parks and open space have higher property values

CONS OF HOMES WITHIN WALKING DISTANCE TO PARKS AND OPEN SPACE

- Requires more design time

REFERENCE TO CURRENT ORDINANCE

- Frisco Parks and Recreation Open Space Master Plan

1. Smart Growth America (2009) Guidelines for Sustainable Design & Development.
2. Center for Active Design(2010) Urban Design Checklist

POTENTIAL STRATEGIES

STRATEGY 1

Require all homes to be within a 1/4 mile walk of parks and open space on a designated pedestrian pathway

The 1/4 mile or five-minute walk concept is largely accepted as the average distance a pedestrian is willing to walk before opting to drive. The Smart Growth Guidelines for Sustainable Design & Development reiterate this by suggesting that design support community health by encouraging walking and biking and reducing driving. This is expanded upon in their guidelines by suggesting that community-oriented services be located within 15 minutes walking distance of development. These services include public open space and recreational facilities.¹

PROS

- Promotes more frequent active recreation
- Provides a continuous network and safe access to green space

CONS

- Requires a larger area of land
- Open space requires more maintenance from the HOA

Case Study: Lowry, Denver, Colorado

Through a diverse open space portfolio that includes pocket parks, long, linear greenways, and a signature central park, Lowry is able to situate the bulk of the residential units within a short distance of at least one of its diversity of green spaces.

LONGEST DISTANCE TO OPEN SPACE: 1/4 MILE



STRATEGY 2

Require all homes to be within a 1/2 mile of a multi-use trail

The Center for Active Design's Urban Design Checklist encourage the design of interconnected bikeways that will establish a backbone network of unbroken routes. The importance of alternative transit routes can be emphasized through the use of signage that illuminates directions, distances, times and destinations. Links between bicycle routes and transit are critical, just as connections to regional networks. The Center also suggests shared-use paths be concentrated in areas with viewing attractions and that special attention be paid to intersections in order to minimize conflict between cars, pedestrians and cyclists.²

PROS

- Promotes the use of alternative transportation
- Provides a continuous network with safe access to open space and commuting routes

CONS

- Multi-use pathways require a greater width than standard pedestrian walkways

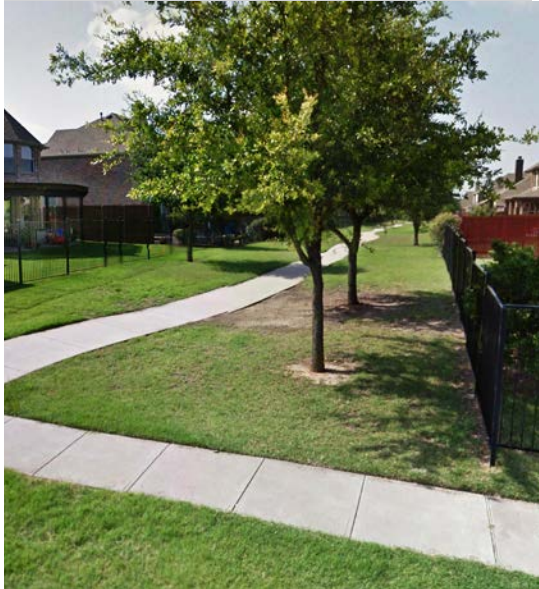
Case Study: Lone Star Ranch, Frisco, Texas

Every home in this Frisco development is located within a 1/2 mile of the centralized multi-use trail that runs along the primary green space from north to south. This 90 foot greenway trail is both scenic and functional. It connects to the surrounding streets and neighborhoods in order to offer a great recreation as well as alternative commuting amenity.

LONGEST DISTANCE TO MULTI-USE TRAIL: 1/2 MILE



TRAILS SYSTEM ADJACENT TO LOTS



Narrow trail system in the City of Frisco

ISSUE

Trail amenities that are readily visible and accessible increase usability and safety. The City of Frisco currently has limited regulations that govern the character and design of trails that are adjacent to residential lots. Given the local desire for trails as part of residential developments, it is critical to establish guidelines which yield safe, usable trail systems. This includes descriptions and recommendations based on all the different types of open space and how the City of Frisco views each type and its associated recreation opportunities.

PROS / CONS

PROS OF TRAIL SYSTEM ADJACENT TO LOTS

- Increase usability and safety of recreation opportunities
- Closer proximity to recreation opportunities for residents

CONS OF TRAIL SYSTEM ADJACENT TO LOTS

- Reduced safety if the trails are narrow and feel enclosed
- Trails behind homes offer many challenges including police/safety patrol
- Difficult to access for fire/medical personnel if someone is injured or having a medical emergency
- It can be challenging for City of Frisco Public Works crews to access these areas for cleanup, maintenance and construction

REFERENCE TO CURRENT ORDINANCE

- Subdivision Regulations
 - Subdivision Standards Section 8.03 Drainage and Environmental Standards 8.03(e)
- Frisco Parks and Recreation Open Space Master Plan – Chapter 5

POTENTIAL STRATEGIES

Trail networks can either be concentrated away from residential areas, or designed to mitigate their perceived negative impacts on privacy.

STRATEGY 1

Provide a wide greenway buffer between the back of homes

The Center for Active Design's Urban Design Checklist suggests that when planning open spaces and recreational facilities it is best to aggregate open space in one large area rather than dispersing it into smaller pieces. This supports this strategy where a wide, continuous greenbelt provides residents with direct access to green space. Access is suggested to be available to all people within a ten-minute walk. In addition, trail systems running behind homes reinforces the pedestrian pathway design guideline that relates to creating buffers to separate pedestrians from moving vehicles.¹

PROS

- Creates a shared backyard amenity for all residents to utilize
- Provides a continuous network, safe access to green space and continuous urban habitat

CONS

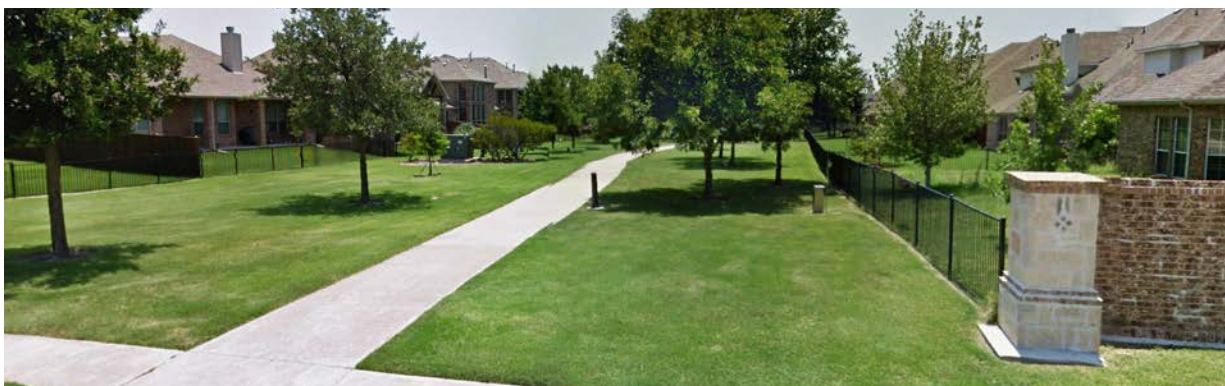
- Does not allow for much privacy for residences
- Can be perceived as less safe because of limited sight lines from the street

Case Study: Lone Star Ranch, Frisco, Texas

Though the trail network runs behind homes, it is both well-lit, and substantially buffered from the back of residential lots.



METRIC:
90 FEET



TRAILS SYSTEM ADJACENT TO LOTS

STRATEGY 2

Provide a greenway buffer between the fronts of homes

The Center for Active Design's Urban Design Checklist suggests that when planning open spaces and recreational facilities it is best to aggregate open space in one large area rather than dispersing it into smaller pieces. By incorporating trails into development design, pedestrians are buffered from street traffic.¹

PROS

- Promotes more frequent active recreation
- Provides a continuous network and safe access to green space for residents and wildlife
- Home values increase or remain stable as a result of trail adjacency
- Easier to access for maintenance and safety/patrol

CONS

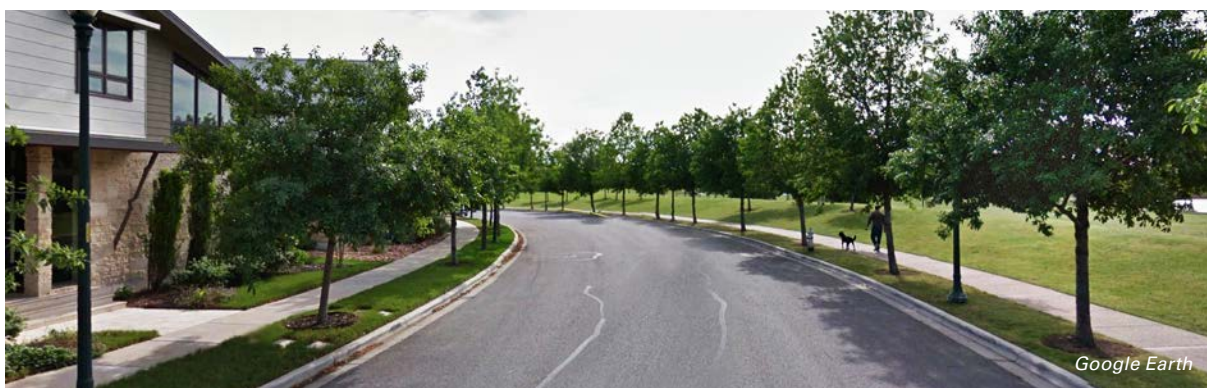
- Development reluctance to adopt standards perceived as reducing their profit margin by setting land aside for open space

Case Study: Daybreak, South Jordan, Utah

In Daybreak, the trail network runs in front of the houses. The public street adjacent to the trail corridor adds visibility and visually widens the space.



METRIC:
70 FEET



1. Center for Active Design(2010) Urban Design Checklist



DAYBREAK Open space | South Jordan, Utah

INTERSPERSED PARKS AND OPEN SPACE



A small pocket park in Lowry, Denver, Colorado

ISSUE

Parks and open spaces can be both designed and allocated to promote convenient neighborhood access. By offering a diverse portfolio of open spaces with a range of sizes and types, including pocket parks that are integrated into neighborhood fabric, new development can promote a sense of stewardship and community ownership over their open spaces.

PROS OF INTERSPERSED PARKS AND OPEN SPACE

- Visibility
- Safety
- Accessibility
- Walkability

CONS OF INTERSPERSED PARKS AND OPEN SPACE

- Requires more design time
- Higher maintenance costs

REFERENCE TO CURRENT ORDINANCE

- Frisco Parks and Recreation Open Space Master Plan – Chapters 5.3, 5.6, 5.7

POTENTIAL STRATEGIES

Through both linearity and a variety of park and open space sizes, these case studies intersperse parks and open space with other neighborhood uses.

STRATEGY 1

Provide a “hub and spoke” or radial layout for the open space system

This strategy addresses connectivity both within the site as well as links to surrounding systems, key for creating useful alternative transportation networks that are regionally significant.

PROS

- Allows for optimal connectivity
- Provides a continuous network and safe access to green space
- Caters more to individual and small group use as well as through travel

CONS

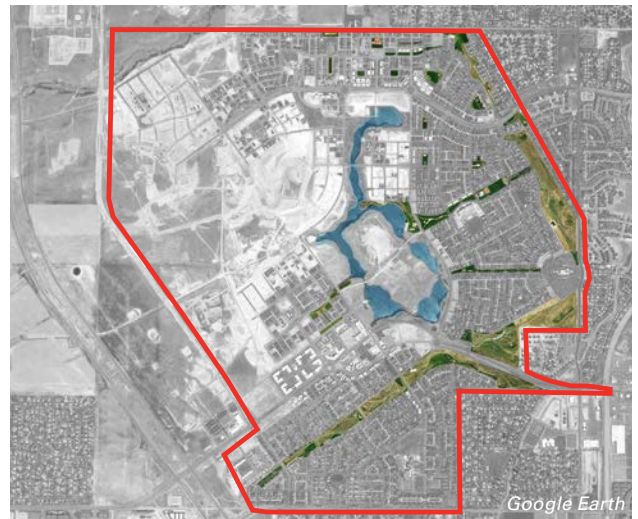
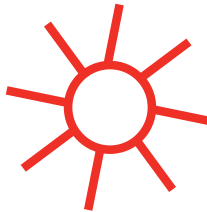
- Does not necessarily allow for a community gathering space

Case Study: Daybreak, South Jordan, Utah

Daybreak’s long greenways tend to emanate from its radial lake feature, creating a hub-and-spoke of open space.

LAYOUT:

**HUB-
AND-
SPOKE**



STRATEGY 2

Provide a decentralized layout for the open space system.

This strategy will provide the most diversity physically and aesthetically for development residents.

PROS

- Allows for more ownership, familiarity and personalization of open spaces
- Provides diversity in aesthetics and programming

CONS

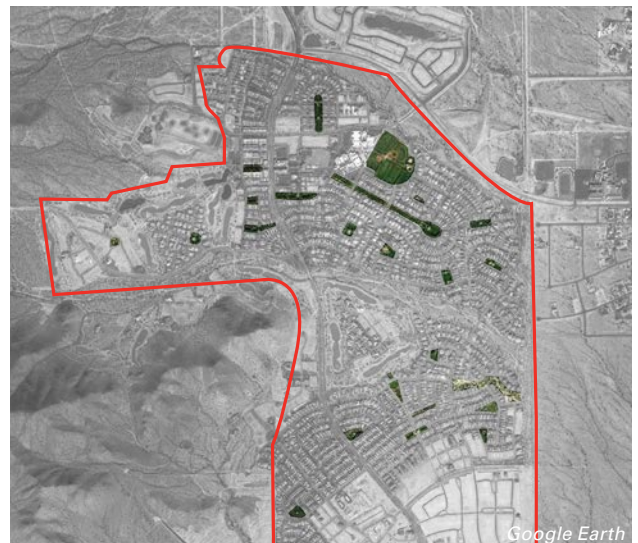
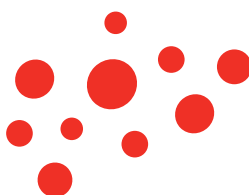
- Requires more design time to design each space

Case Study: Verrado, Buckeye, Arizona

With 72 uniquely designed neighborhood parks distributed throughout Verrado, you could visit a different park every week and not see them all. Each open space has individual character and each home is less than two blocks from its nearest local park.

LAYOUT:

DISTRIBUTED



DESIGN OF PARKS AND OPEN SPACE



An active-use playground in Lowry, Denver, Colorado

ISSUE

In addition to the range of community and lifestyle benefits that parks and open space offer residents, they also help raise and sustain the value of neighboring properties. By providing a variety of experiences to their target user groups, well-designed parks infuse neighborhoods with vibrancy and activity with direct economic benefits to homeowners. A variety of experiences includes both active and passive activities. Activities such as basketball, football, soccer, jungle gyms, etc. would be considered active. Passive activities include walking, hiking, birdwatching, etc. in less-programmed spaces. Finally, open space design should follow the Parks and Recreation Open Space Master Plan.

PROS

- Provide vibrancy and high-activity areas for residents to meet and socialize
- Provide well-designed neighborhood amenities which allow residents walk or bike for recreation
- Proven to increase property values and tax base by including high-end, well-designed open space products

CONS

- Requires more design time

REFERENCE TO CURRENT ORDINANCE

- Parks and Recreation Open Space Master Plan – Executive Summary, and Chapter 5.4

POTENTIAL STRATEGIES

Depending on their scale and amenities offered, exceptionally designed open spaces can range in price.

STRATEGY 1

Design open spaces so they include paths, running tracks, playgrounds, sports courts and drinking fountains

In accordance with the Center for Active Design Urban Design Checklist, open spaces should be designed in order to include diverse program options that will allow for active and passive use and encourage repeat visits.¹

PROS

- Diverse programming encourages use over time
- Variety will allow for multi-generational participation and could assist in filling voids that exist in local programming
- Open space amenities will increase and/or maintain home property values

CONS

- Having a lot of activities requires larger parks and open space which is likely to increase distance between homes and open spaces

Case Study: Daybreak, South Jordan, Utah

While Daybreak does have several programmed park areas, the bulk of its open space profile is comprised of less costly passive recreation and preserved natural areas.



**14% ACTIVE
PROGRAMMING**



DESIGN OF PARKS AND OPEN SPACE

STRATEGY 2

Design open spaces and recreational facilities to support cultural preferences of the local demographic and to provide a multi-generational experience

Open space design should carefully consider who the local residents are, what the target demographic is and provide enough diversity that the green space will be able to accommodate the population, should it change, over time.

PROS

- By providing amenities for a range of users, nearby properties will be more desirable when on the market for resale
- Time spent will be increased and the open space will be a destination
- Opportunities for exciting design will arise as a result of programming

CONS

- Open spaces may become overly active and maintenance could suffer

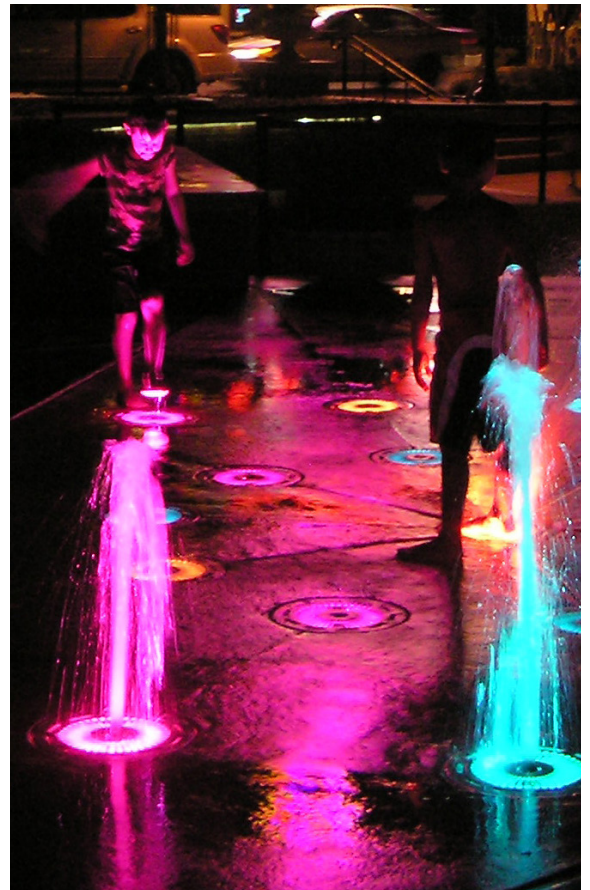
Case Study: Mueller, Austin, Texas

Mueller's parks, trails and open space weave through the community, establishing a native, local ecosystem and bringing outdoor recreation and education options to Mueller residents, employees and neighbors. With 20 percent of the neighborhood dedicated to parkland, their are plentiful opportunities for all residents and visitors to recreate.



Case Study: The Woodlands, Houston, Texas

The Woodland's open spaces take on different visual character throughout the development. Responding to the surrounding land use and demographics, the programming varies from place to place. This allows for ideal place-making and more ownership from local residents, activated during the day and even at night. The Woodlands is a great example of how a development can create green spaces that cater to a community of all ages, ethnicity and sociocultural backgrounds.





DESIGN

In addition to neighborhood layout, the design of lots themselves create neighborhood character, curb appeal, and can lead to higher resale and home values. The City of Frisco can enhance their subdivision ordinances and design standards to control the look, size, and feel of individual lots within a neighborhood. Case studies inform how other communities have successfully addressed the issues facing the City of Frisco.

	BENCHMARKS								
	DAYBREAK, SOUTH JORDAN, UTAH	LOWRY, DENVER, COLORADO	LONE STAR RANCH, FRISCO, TEXAS	MUELLER, AUSTIN, TEXAS	RIVERSIDE, ILLINOIS	STAPLETON, DENVER, COLORADO	THE VILLAGE OF WEST CLAY, INDIANA	THE WOODLANDS, TEXAS	VERRADO, BUCKEYE, ARIZONA
Front Entry					●		●		
Rear entry				●			●		●
Lot Size Diversity		●			●		●		●
Fences on Corner Lots							●		
Utilities on Front Entry		●							

● = featured as case study

■ = community addresses this issue

FRONT ENTRY



A front entry home with the garage dominating the façade

ISSUE

The design, aesthetics, and functionality of front entry garages have an effect on walkability, street trees, mail delivery, utility location and curb appeal among other neighborhood design factors. Front entry driveways limit the ability to plant street trees, landscape amenities and utilities. The NDSAG requested that the NDS consider alternative strategies for front entry design.

Reconsidering the design of the front entry garage can promote more walkable and attractive streets consistent with the principles of the 2015 Comprehensive Plan. In the “Placemaking” chapter of the 2015 Comprehensive Plan, garage doors facing the street are not considered preferable to buildings with trees and numerous windows along the front of the house.

PROS OF FRONT ENTRY

- Traditional front entry homes are what many home buyers still want and expect
- Allows for larger, more private backyards

CONS OF FRONT ENTRY

- Prioritizes vehicle storage over social spaces like front porches, usable front yards, and pedestrian amenities
- Creates homogenous neighborhood character
- Presents non-aesthetically pleasing aspects of a home (the garage) towards the street

REFERENCE TO CURRENT ORDINANCE

Entry standards are regulated within the Zoning Ordinance and guided by the Comprehensive Plan.

- Comprehensive Plan
 - Placemaking & Resiliency notes that townhomes which are dominated by garage doors is not a preferred design method.
- Zoning Regulations
 - 4.02.10 (D) Landscaping Requirements for Single-Family, Two-Family, and Townhome Lots regulates ROW, pavement, tree spacing, and sidewalk easements for front and rear entry homes.
 - 4.07.18 Residential Front Entry Garage Standard
- Engineering Regulations
 - 2.05 Driveway Design C.12.3(D)
 - 2.04 Alley Design regulates alley dimensions and right of way.

POTENTIAL STRATEGIES

STRATEGY 1:

Reduce size of driveway and consider pairing

Reduce size of driveway and consider aligning lots so that the driveways are paired together. A small planted area or low fence can provide separation between lots.

PROS

- Reduce amount of paving
- Increases and creates more flexible on-street parking lanes
- Consolidates mailboxes and trash utilities

CONS

- Not commonly used in case studies
- May seem too limited in today's market

Case Study: Riverside, Illinois

Riverside features narrow driveways fronting the street. Two-car garages utilize a tapered driveway which remains narrow at the street, but widens nearer the home. Shared driveways are used to reduce total pavement area. Side garages towards the rear of the home are most common.

STRATEGY 2:

Establish side-entry driveways and require higher standards for front lawn vegetation

PROS

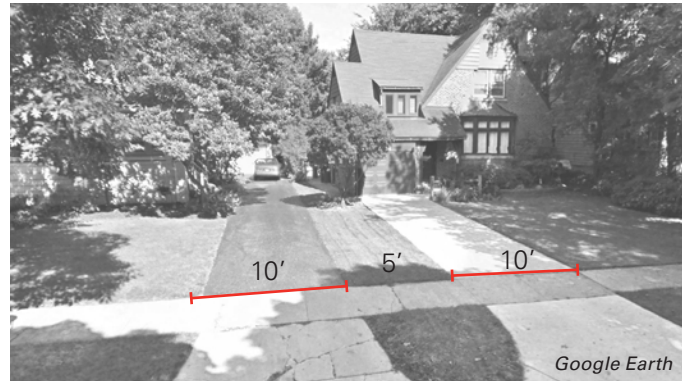
- Larger front lawn areas can allow well-manicured landscaping
- Cleaner house façade at front of homes
- Narrower driveway widths reduce impervious surface

CONS

- Not commonly found in case studies
- Increases driveway square footage

Case Study: The Village of West Clay, Indiana

Side-garages provide larger front landscaped areas and a “cleaner” house facade. Driveway widths are typically narrower on the street and are wider near the garage. Side-garages allow front-yards and street-facing landscaped areas for increased “curb appeal.”



DRIVEWAY WIDTH:

10 TO 24 FEET

PAIRED DRIVEWAY WIDTH:

20 TO 40 FEET



MINIMUM VEGETATED AREA:

50%

REAR ENTRY



Typical alleyway with high fences and long driveways

ISSUE

Locating garages behind the home is an alternative approach to front entry that can result in a more appealing façade facing the street.

Varying lot types with rear entry and front entry arrangements permit smaller lots to coexist with wider lots while not reducing the perceived value as seen from the public way.

PROS OF REAR ENTRY

- Increased size of amenity zone and pedestrian infrastructure in front of the home
- Presents a more “sociable” streetscape which prioritizes public space over private space
- Utilities, trash, and recycling can be placed in the rear of home, reducing visual clutter
- Increased residential density in most cases increased developers’ return on investment
- Easier on-street parking and inclusion of street trees and amenity zones in front of homes

CONS OF REAR ENTRY

- Can be perceived as less safe because of fences and also because rear entry areas typically lack public lighting
- Smaller backyard private spaces
- Residents sometimes park vehicles on the street due to space restrictions and inconvenience of rear entry and front entry, which negates several benefits

REFERENCE TO CURRENT ORDINANCE

Entry standards are regulated within the Zoning Ordinance and guided by the Comprehensive Plan.

- Comprehensive Plan
 - Placemaking & Resiliency notes that townhomes which are dominated by garage doors is not a preferred design method.
- Zoning Regulations
 - 4.02.10 (D) Landscaping Requirements for Single-Family, Two-Family, and Townhome Lots regulates ROW, pavement, tree spacing, and sidewalk easements for front and rear entry homes.
 - 4.07.18 Residential Front Entry Garage Standard
- Subdivision Regulations
 - 2.05 Driveway Design C.12.3
 - 2.04 Alley Design regulates alley dimensions and Right of Way.

POTENTIAL STRATEGIES

STRATEGY 1:

Reduce length allowed for rear entry driveways

PROS

- Reduces fencing
- Reduces safety concerns of hidden corners caused by fencing and vehicles parked on driveways

CONS

- May be viewed as too restrictive for parking
- No backyard for some rear entry products
- Cars must park in garage

Case Study: Mueller, Austin, Texas

Narrow garage face setbacks allow full use of the lot depth. Fences are not used in the alleyways. This increases safety and reduces visual clutter.

STRATEGY 2:

Limit fence standards on rear-lots

PROS

- Reduces fencing but still allows private space to be demarcated
- Reduces safety concerns of hidden corners caused by fencing and vehicles parked on driveways

CONS

- May be viewed as too restrictive
- No backyard for some rear entry products
- May decrease privacy

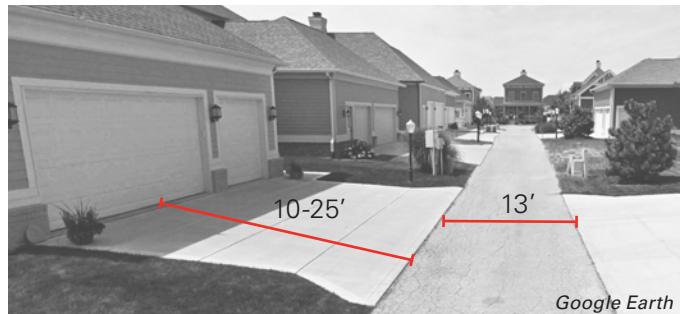
Case Study: The Village of West Clay, Indiana

Fencing is allowed, but goes no farther than the house envelope. This prevents “walls” being created. Garage faces are typically 10 - 25 feet from alley rights-of-way.

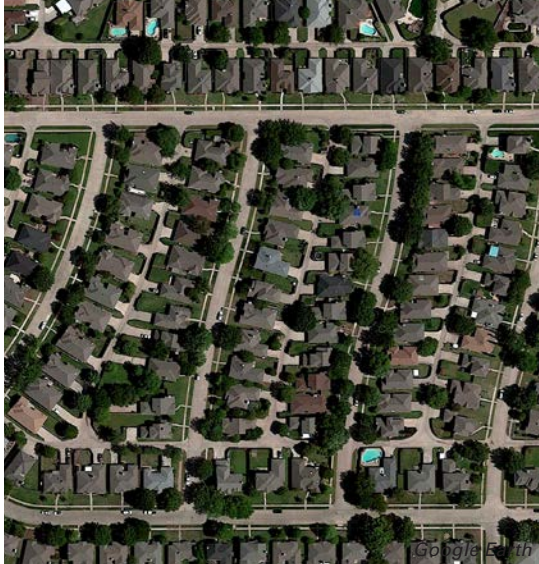


MAXIMUM REAR ENTRY DRIVEWAY LENGTH:

25 FEET



LOT SIZE DIVERSITY



Limited lot size diversity in City of Frisco neighborhood

ISSUE

Many City of Frisco subdivisions contain just a few lot sizes and contain only residential uses. This creates homogeneous developments where each subdivision caters to only one type of family and demographic.

The 2015 Comprehensive Plan details the City's desire to create more mixed-use developments. A mixture of land uses and creating more heterogeneous, mixed developments provide people with places to live, work and play in a smaller radius to their home. This also provides economic, social, and physical resiliency for the community.

PROS OF LOT SIZE DIVERSITY

- Allows for multiple incomes in the same neighborhood
- Encourages diversity in housing types, which helps to attract multiple types of buyers
- Encourages neighborhoods where people can live, work, and play by providing more variety of land-uses
- The diversity of lots have proven popular in the North Central Texas market

CONS OF LOT SIZE DIVERSITY

- Some home buyers prefer more homogeneous neighborhoods
- May reduce overall return on investment for developers if a smaller lot home price is lower than if every lot was the same size

REFERENCE TO CURRENT ORDINANCE

The Frisco Zoning Ordinances relate to this issue and provide one type of development intended to mix land-use and housing lot sizes.

- Zoning Regulations Subsection 4.10
 - Subsection 4.10 defines the Residential Cluster Development Option.
- Comprehensive Plan
 - *Placemaking and Resiliency* (Chapter 3) Principle 4 advocates for a mixture of land uses in more pedestrian-friendly environments with sidewalks and trails which link people to their destinations.
 - "Guiding Principles" Principle 11 discusses walkable, mixed-use places where destinations are accessible by other modes of travel other than the car.
 - The future land-use plan also plans several mixed-use districts.

POTENTIAL STRATEGIES

STRATEGY 1:

Require developers to use a range of floor plans and/or implement a required square footage range

PROS

- Flexible way for developers to implement lot size diversity

CONS

- Developers may prefer to simplify product offerings

Case Study: Riverside, Illinois

A variety of lot sizes exist in the development and vary not only location within the neighborhood but vary within the same block. Each home architectural style is different. Single-family and attached units are mixed together.



**SINGLE-FAMILY
LOT WIDTH:
50 FEET**

STRATEGY 2:

Require developers to use a range of lot widths; for example, a subdivision must contain three products with lot widths between 50-80 feet

PROS

- Allows developer to choose the extent of where and how much diversity is included

CONS

- May not be restrictive enough to allow for true diversity in lot size and product offerings

Case Study: The Village of West Clay, Indiana

Lot sizes vary across the development. Lots are denser near the town center and these are typically multi-family offerings. Lots at the periphery of the development are larger and typically single-family.



**SINGLE-FAMILY
LOT WIDTH:
40-60 FEET**

STRATEGY 3:

Integrate mixed-lot sizes on the same block

PROS

- Creates a diverse neighborhood
- Mixes floor plans in a smaller area

CONS

- More restrictive strategy
- Some home buyers may prefer more homogeneity on a single street

Case Study: Lowry, Denver, Colorado

Blocks have as many as four lot sizes on the same block. Land-use patterns support a mixed-use, lifestyle-oriented town center. Homes in Lowry range from single-family and duplex to live-work units and townhomes.



STRATEGY 4:

Require a certain number of lot sizes within a defined radius

PROS

- Creates a diverse neighborhood
- Maintains some flexibility
- Mixes floor plans in a smaller area

CONS

- Somewhat restrictive strategy

Case Study: Verrado, Buckeye, Arizona

Verrado housing types mixed into each district. Lot sizes are varied and include front- and rear entry products.



FENCES ON CORNER LOTS



A corner lot in the Frisco's Newman Village

ISSUE

Fences on corner lots represent an aesthetic and safety issue for Frisco. Solid fences create blank walls at corner lots which creates a monotonous and unwelcoming experience for pedestrians. Fences which lack transparency are also a safety hazard. Pedestrians are not able to safely see around corners on sidewalks. In other instances, drivers may not be able to see around corners to see oncoming traffic, bicyclists, or pedestrians. The NDSAG requested the NDS consider alternative strategies for fencing on corner lots.

PROS OF FENCES ON CORNER LOTS

- Fences on corner lots provide residents with more private space

CONS OF FENCES ON CORNER LOTS

- Traffic is often faster on roads where corner lots meet the street
- Lowers aesthetic quality of the street
- Wood fences are generally not maintained well and long-term aesthetic quality and property values suffer

REFERENCE TO CURRENT ORDINANCE

Fence standards are regulated within Article IX of Chapter 18 (Building and Building Regulations). This was approved on August 6, 2016.

- Ordinance Amending Chapter 18, Article IX - Fence Regulations
 - Section 18-482 defines fence standards for corner lots
 - Section 18-491 defines wooden fence standards
 - Section 18-484-1 defines height limitations on side yards

POTENTIAL STRATEGIES

STRATEGY 1:

Require vegetation to be used in front of corner fences (greater than 25% of fence area) or in lieu of corner fences

PROS

- Allows flexibility in how residents respond to new standards
- Maintains demarcation of private and public space
- Retains flexibility in fence style

CONS

- Maintains fences on corner lots

STRATEGY 2:

Limit fence opacity on corner lots; no fences fronting public streets shall be greater than 50% opacity

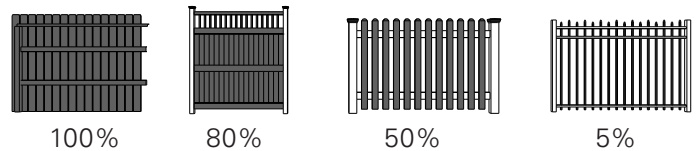
A fence which is transparent helps to reduce the wall-like effect of tall fences.

PROS

- Maintains demarcation of private and public space
- Allows flexibility in fence style

CONS

- Maintains fences on corner lots



Case Study: The Village of West Clay, Indiana

- Low picket fences are most prevalent, demarcating private and public space yet allowing for aesthetics and safety. Fences with high opacity are also used.



STRATEGY 3:

Increase setback distance from corner of house

Increase the distance from the face of house to the start of the fence. This will provide more front yard to open to the corner rather than fence.

PROS

- Maintains demarcation of private and public space
- Allows flexibility in fence style

CONS

- Maintains fences on corner lots
- Can create awkward backyard shapes



UTILITIES ON FRONT ENTRY LOTS



ISSUE

Utilities on front entry lots are a unsightly and reduce curb appeal. Electric and cable utilities, trash cans, transformers and mailboxes should be located in a way that do not reduce neighborhood aesthetics. The 2015 Frisco Comprehensive Plan discusses maintaining property values and curb appeal in neighborhoods and this is an aspect of those desires.

Utility boxes on a front entry lot in the City of Frisco

PROS OF UTILITIES IN FRONT OF FRONT ENTRY PRODUCTS

- Utilities closer to streets are easier to maintain for utility companies
- Reduces need for utility workers to access areas close to private home

CONS OF UTILITIES IN FRONT OF FRONT ENTRY PRODUCTS

- Create “eyesores” within the neighborhood and reduces curb appeal
- Encourages residents to try and cover or hide boxes but that often creates awkward landscaping

REFERENCE TO CURRENT ORDINANCE

Entry standards are regulated within the Zoning Ordinances and Fire Standards

- Zoning Regulations
 - 4.03.07 - Screening for Refuse (Trash) and Recycling Storage Container Screening
 - 4.03.08 - Screening for Utilities, Mechanical, and Service Facilities

STRATEGY 1:

Locate mailboxes in combined, locked mail facilities on each street

Many new communities now place mailboxes in a central location for all residents within a reasonable walking area.

PROS

- Easier for mail carriers to have one central location to serve
- Reduces opportunity for vandalism
- De clutters front entry homes

CONS

- May be costly to implement in existing neighborhoods
- Lacks convenience for those who are used to having mail on their home or at the end of the driveway

Case Study: Lowry, Denver, Colorado

Mailboxes are located at the end of the street in a central location.



Mailboxes combined in a central location in a neighborhood park.

STRATEGY 2:

Conceal utilities in front entry with planting, masonry or topography.

PROS

- Increases curb appeal
- De clutters front entry homes

CONS

- Potentially more costly for builders
- Requires additional maintenance



Planting around utilities