# Determining Suitability of Developable Land: Irving, Texas

Pre Analysis: Irving: Total Developable Land

Undeveloped Land

Public Transit
- Park and Ride
- TRE Rail Station
- Transit Center
- Trinity Railway Express
- Roads

Regional Highways
- Major Arterial
- Primary Highway
- Runway
- Airport
- water
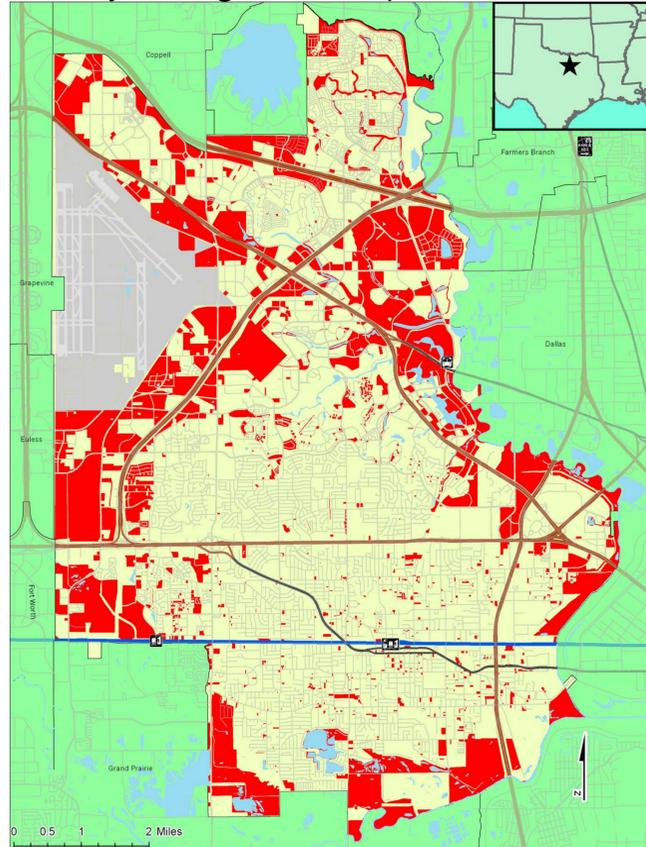
Constraints
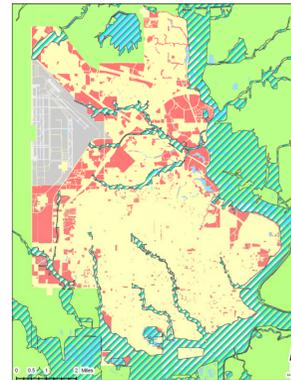
100 Year Floodplain
Areas within the floodplain have are around bodies of water and have a 1-in-100 chance of flooding during heavy precipitation.

- 100 Year Floodplain
- Undeveloped Land with Floodplain buffer erased
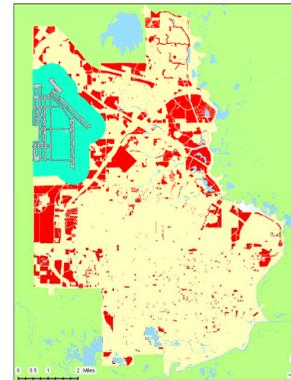
Airport Runways
At the very least, a 500 foot buffer between runways should be maintained for noise and safety reasons.

- Runway buffer
- Undeveloped Land with Floodplain & Runway buffers erased
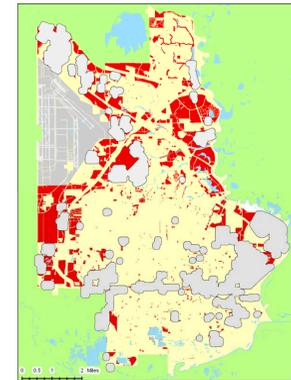
Industrial Areas
A 500 foot buffer is used to separate residential and industrial land uses.

- Industrial buffer
- Undeveloped Land with Floodplain, Runway & Industrial buffers erased

Streams
A 100 foot buffer is created around streams outside the floodplain for extra protection from flooding.

- Stream buffer
- Undeveloped Land with Floodplain, Runway, Industrial & Stream buffers erased

Theme:
Suitability = Walkability

Steps:
Erase Constraints
Combine Preferences

Preferences
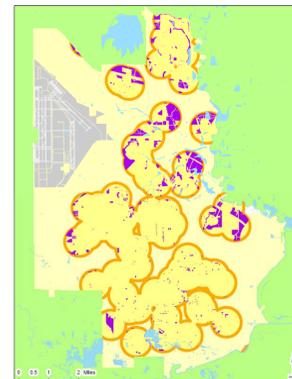
Schools & Libraries
To encourage physical activity and to discourage childhood obesity, schools, libraries and community centers should be within a walkable distance.

- Education buffer
- Undeveloped Land w/o constraints 1/2 mile from Education
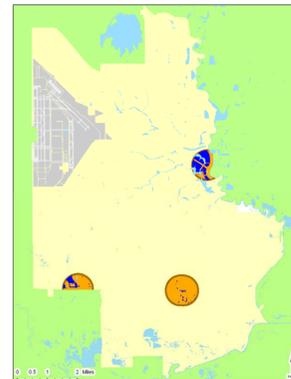
Transit Stations
To encourage the use of public transportation and walking, residential development should be encouraged

- Transit buffer
- Undeveloped Land w/o constraints 1/2 mile from Transit Stations
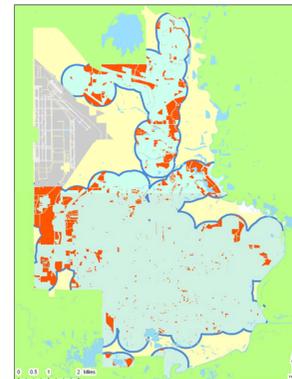
Retail
It is hoped that if shopping is within a walkable distance to retail, there will be less of a need for consumers to drive and subsequently less need for retailers to dedicate land to parking.

- Retail buffer
- Undeveloped Land w/o constraints 1/2 mile from Retail
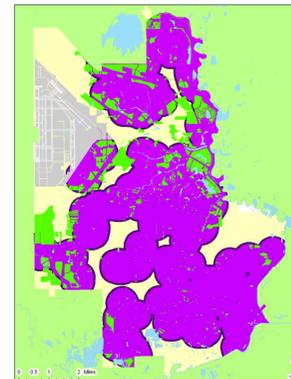
Parks
Access to open space is vital to creating a sense of community and encouraging outdoor activity.

- Parks buffer
- Undeveloped Land w/o constraints 1/2 mile to parks

Post Analysis: Irving: Most Ideal Developable Land
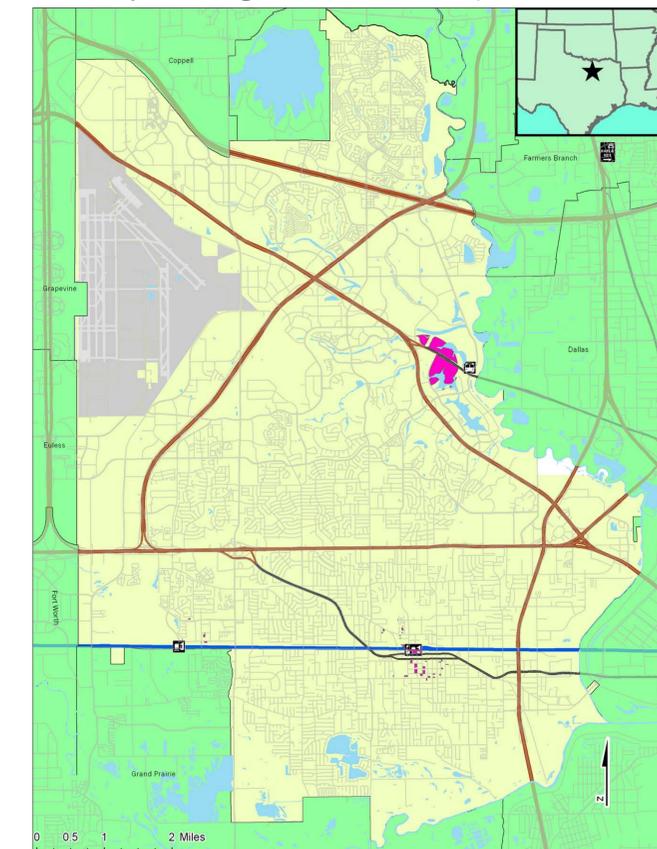
Undeveloped Land w/o constraints + all preferences

Public Transit
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Regional Highways
- Major Arterial
- Primary Highway
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The goal of this project is to determine the most suitable areas in the City of Irving, Texas for creating new residential development. Irving is located between Dallas and Fort Worth and is a partial home for Dallas-Fort Worth International Airport. It is an area experiencing rapid development. My definition of "the most suitable area" is one where it is easy to walk and access public transportation. My intention is to highlight areas where it is possible to plan development without massive concessions to car use.

Irving was a difficult choice for a study city. There are no zoning or parcel data available. The best data layer available shows land use in areas roughly conforming to the shape of Census tracts. This layer shows undeveloped land as being mostly vacant or dedicated to parking.

The criteria I developed to determine suitability were split into two sections: constraints against development (top) and preferences for development (bottom).

Land area containing constraints were erased from the developable land areas. Then, buffer zones were created around facilities that are preferable to live by. The buffer zone is 0.5 miles, an average distance needed to take a 10 minute walk, considered as the longest ideal walk. All remaining land use areas within or intersecting with these buffers were selected.

The end result is meant to show areas in which cars are not necessary under current land use patterns. This is important as metropolitan areas in the American South are expanding rapidly and continue to be planned around car usage. This will have disastrous consequences on the environment and our health.

In the end, there is not much land to be utilized that fits the simple requirements listed here. The best areas are around the two Trinity Railway Express (TRE) stations and one major bus station in Irving. It is hoped that future extensions of TRE and the Dallas Area Rapid Transit (DART) light rail system through Irving will create more opportunities for walkable residential areas.

The criteria were synthesized from several methodologies through the developable lands analyses of: Barbara Parmenter, Fregonese Associates and MassGIS.

Results: Best Areas for Residential Development
Site 1: North Irving Transit Center Vicinity
(North Irving Transit Center denoted with Bus symbol) (Site is colored magenta)
This is an area north of a water body called Lake Carolyn. It appears to be man-made and does not appear within the floodplain or streams layer. The site is currently served by a major bus terminal. In the future, there are major residential and commercial developments planned for this area which are meant to coincide with the expansion of the Dallas Area Rapid Transit (DART) light rail system which will be following the route of the highway (in red) toward the airport.

Site 2 & 3: West & South Irving Stations
(West Irving Station is on the left; South Irving Station is on the right) (Sites are colored magenta)
These are stations that serve Trinity Railway Express which operates between Dallas (to the east) and Fort Worth (to the west). These stations are in in areas that have already been developed to a significant degree. The average size of available land use areas is 0.7 acres. The combined acreage of ideal residential development area is approximately 24.25 acres.

Tufts