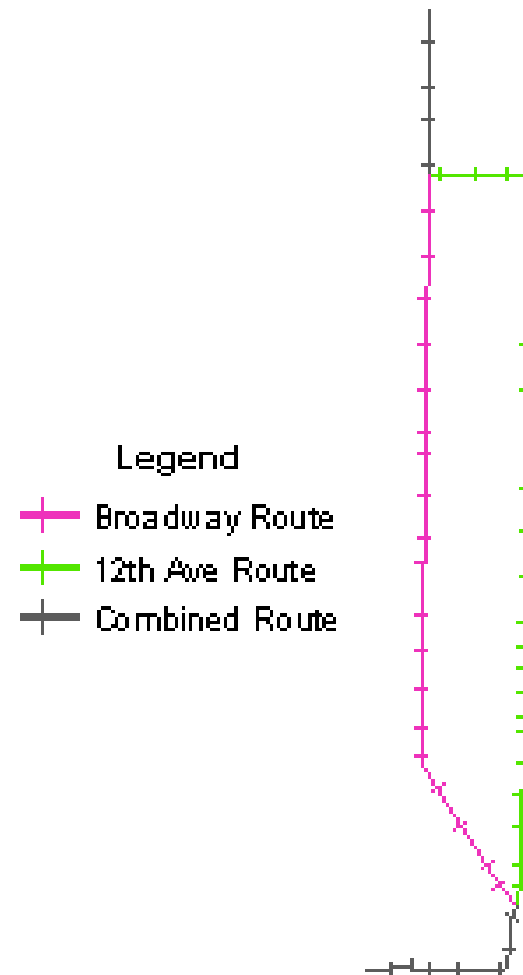


Example Application 1: Hot Spot Analysis

Spatial Justice Resources
8/6/09

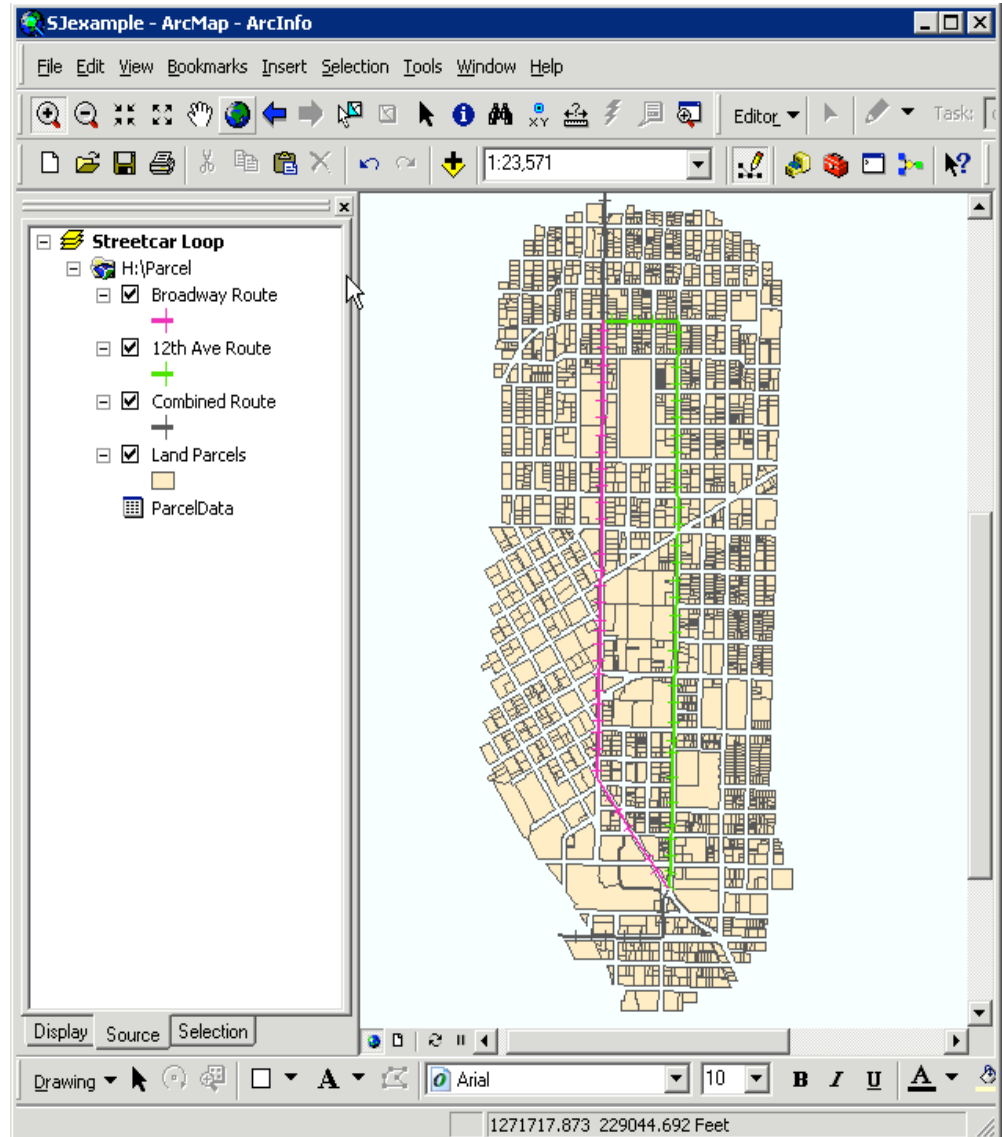
Scenario

- A proposed transit service has two potential routings. A local non-profit is advocating for the “12th Ave Route” as a way to promote more equitable economic development.
- The non profit argues that the 12th Ave Route would serve an area with lower current levels of economic development and could help address spatial inequality.
- A Hot Spot Analysis can help establish where there are significant clusters of properties with relatively high or low levels of development



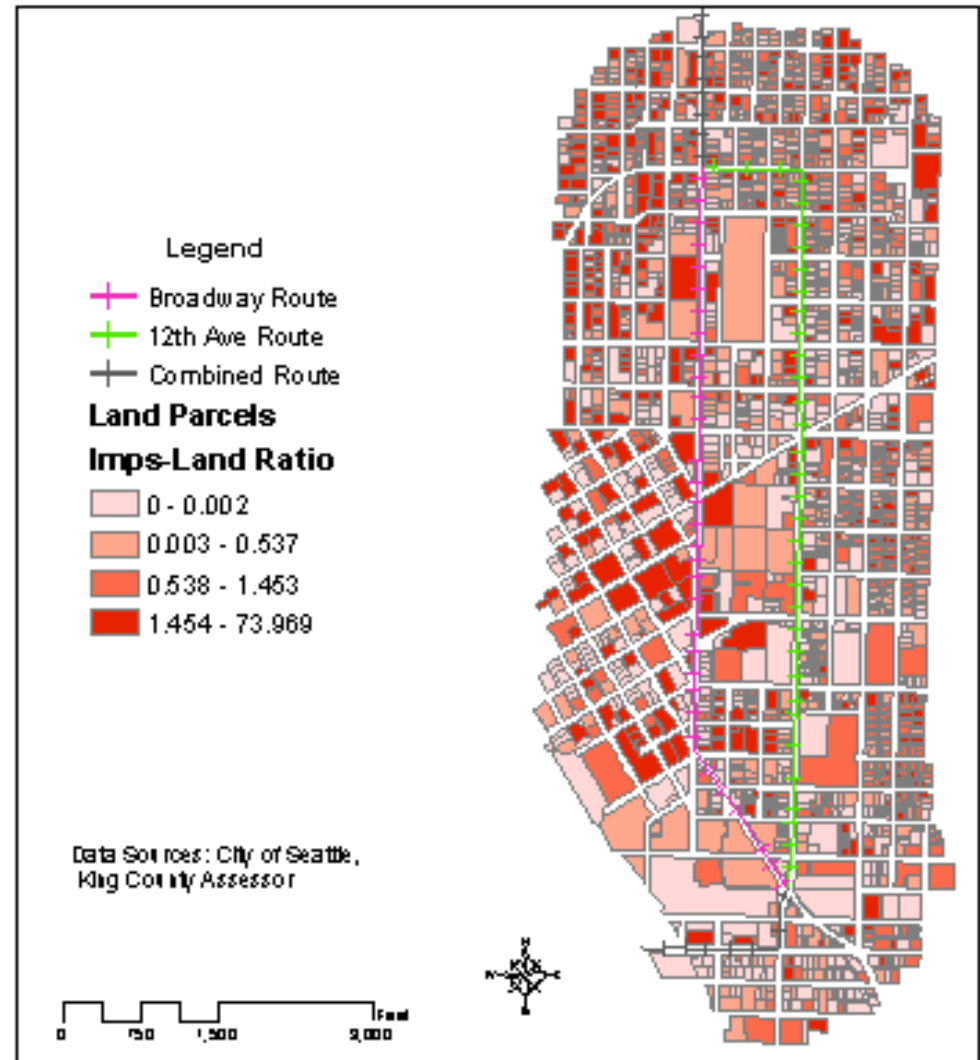
Initial Map Setup

- The base map includes the data needed to map economic development hotspots around the proposed streetcar routes
- ArcMap is used to map the base layers and data:
 - Proposed streetcar routes (for reference)
 - Neighboring land parcels (source: City of Seattle GIS)
 - Tax assessment data (source: King Co. Assessor)



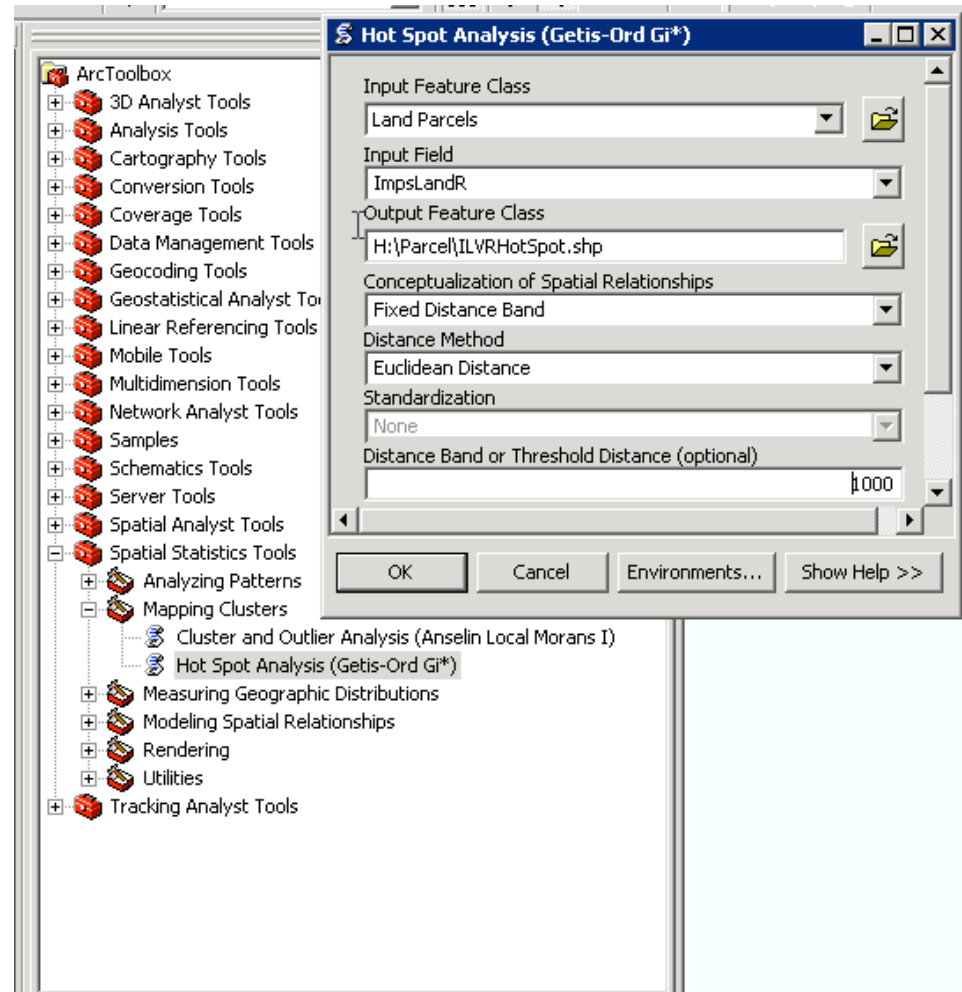
Map the Development Level of Parcels

- Level of development is measured here by the Improvements-Land Value Ratio (ILVR), indicating how valuable buildings are relative to land
- ILVR is created as follows :
 - Join the assessment data table to the parcels layer
 - Calculate an ILVR field based on Improvements and Land Value
 - Display ILVR quartiles
- The development of individual parcels is displayed although any overall pattern is not yet apparent



Running the Hot Spot Tool

- The Hot Spot Analysis maps significant clusters of properties with high or low ILVR (level of development).
- ArcToolbox includes a Hot Spot Analysis tool that inputs and outputs ArcMap data layers.
- The tool calculates the G_i^* statistic at each data point based on the distance relationships the uses specifies
- The distance relationship here considers clustering within 1000ft of each parcel



Hot Spot Results

- The Hot Spot layer displays Z scores of the G_i^* statistic, which correspond to the sign and significance level of a cluster around each parcel.
- Positive clustering (high levels of development) can be seen near the Broadway Route and negative clustering near the 12th Ave route.
- The Hot Spot Analysis therefore depicts significant spatial inequality across the study area.
- The placement of hot and cold spots makes it clear that the 12th Ave route will better serve less developed areas.

